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ADVISORY COMMITTEE MEETING AND PUBLIC WORKSHOP
BEFORE THE CALIFORNIA ENERGY COMMISSION

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

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

THURSDAY, JANUARY 21, 2016
9:30 P.M.

Reported by:
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Peter Christensen, California Air Resources Board, on behalf of Deputy Executive Officer Alberto Ayala
Justin Ward, California Fuel Cell Partnership
Brian Goldstein, Energy Independence Now
Tyson Eckerle, Governor’s Office of Business and Economic Development (via WebEx)
Tim Carmichael, California Natural Gas Vehicle Coalition (via WebEx)
Joy Alafia, Western Propane Gas Association (Via WebEx)
John Shears, Center for Energy Efficiency Renewable Technologies (via WebEx)
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John Kato, Fuels and Transportation Division, CEC
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PUBLIC ADVISER
Alana Mathews
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Mike Lewis, Pearson Fuels

Bob Therkelsen, ACE Cogeneration Company (via WebEx)

Bill Leighty (via WebEx)

Mike Levin, Fuel Cell Energy

Andy Bartosh, ABB (via WebEx)

James Halloran, Caterpillar, Inc.

James Holtz, BYD

Dedrick Roper, ChargePoint, Inc.

Mike Harrigan, Prospect Silicon Valley

Nina Babiarz, Southern California Regional Transit Training Consortium

Naveen Berry, South Coast Air Quality Management District

Michael Ippoliti, CALSTART
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P R O C E E D I N G S

9:00 A.M.

LONG BEACH, CALIFORNIA, THURSDAY, JANUARY 21, 2016

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

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

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

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

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

COMMITTEE MEMBER CHRISTENSEN: Good morning. Peter Christensen with the Air Resources Board. I’m here on behalf of Deputy Executive Officer Alberto Ayala.

COMMITTEE MEMBER WARD: Hello. My name is Justin Ward. I’m the Chair of the California Fuel Cell
Partnership, and General Manager within Toyota’s Advanced Powertrain.

COMMITTEE MEMBER GOLDSTEIN: Good morning. This is Brian Goldstein. I’m Executive Director of Energy Independence Now.

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

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

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

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

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

MR. ESTRADA: I’m Al Estrada. I’m the Supervisor of the Program Implementation Unit at Transportation Division.

COMMITTEE MEMBER SCOTT: We’ve got a lot of noise coming through from the background. So I’d just like to remind folks if you can, please mute your phones. And we’ll also mute folks from this end, as well.
But let’s -- we’re going to -- right after I say that, we’re going to open it up so we can hear from the Committee Members who are on the phone. So Advisory Committee Members who are participating by phone, would you please introduce yourselves? Oh, Al has asked if you would please put your hand up on the WebEx. Okay.

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

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

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

Good morning. My name is Alana Matthews. I’m the Public Adviser for the California Energy Commission. And one of my many responsibilities, obviously, is to increase the participation of the public, but it is also to lead up the Diversity Initiative that we have recently started at the Energy Commission, which includes the implementation of a recent bill, Assembly Bill 865 that was passed into law. And that bill requires the Energy Commission to establish an outreach plan to increase the number of diverse business enterprises, which includes disabled veteran, women-owned, minority-owned businesses, LGBT-owned businesses in our funding opportunities, as well as to maximize the benefits of our programs in disadvantaged communities.
So moving forward I wanted to take this opportunity to check in and share this information so that the Advisory Committee Members, and then members of the public who are here who are interested in participating, to let me know. We want to see who we can call on as we move forward with workshops. And the bill also authorizes us to establish a task force to make recommendations in the energy industry, which obviously includes fuels and transportation areas.

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

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

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

I will also, since our Public Adviser has just spoken, remind you that we have the blue cards. I’m sorry for the folks, if you came all the way down the stairs and
forgot to get one, they’re up at the -- at the top of the 
room. But if you’d like to speak or to make a comment, 
please make sure that you pick up a blue card. Alana might 
be going to get them for you. And make sure that she gets 
it, and that’s how we’ll know that you would like to make 
public comment.

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

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

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

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

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

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

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

Let me turn now to our program status update. So just a sense of scale $100 million seems like a lot of money, and then you look at the scale of our state, our transportation system, the emissions and the fuel consumption and it turns out not to be that much money after all.
So a $2 trillion-economy, eighth largest in the world, severe air quality issues in the San Joaquin Air Basin and South Coast Air Basin, severe nonattainment for ozone, a vehicle fleet that includes over 28 million passenger vehicles and 1 million trucks, and we cycle 18 billion gallons of fuel annually.

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

So this -- these revenues come from a small surcharge on everybody’s vehicle registration fee. It’s $3.00 to $4.00 depending on the value of your vehicle. One hundred -- up to $100 million comes to us at the California Energy Commission. Another $30 million, sometimes $40 million goes to our colleagues at the Air Resources Board.

So Peter Christensen is here representing the Air Board. And that is used for AQIP, or the Air Quality Improvement Program suite of incentive programs that they manage.

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

So here are the key policies and regulations that guide our programs. So first and foremost, we are a carbon
reduction program, in contrast to the Air Board’s AQIP where they really have an air quality improvement focus.

AB 32 set the initial targets, so about 30 percent reduction by 2020, the 80 percent by 2050. And Governor Brown has introduced an interim goal of 40 percent by 2030.


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

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

So this slide shows how we implement the program. So again, we are now, as the Advisory Committee Investment Plan level, this is how we set the funding allocations. Those then go to the solicitation level where Commission Staff write the detailed solicitations or General Fund
You can see here the recent AB 8 criteria for benefit cost score for greenhouse gases. That is tied in at the solicitation level.

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

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

MR. MCKINNEY: Oh, thanks.

MR. BUTLER: They can’t hear you.

MR. MCKINNEY: Okay. Thank you, John.

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

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

Is that better, guys? Thank you.

So since our last meeting we continue to allocate money in the awards program. We are now past the $600
million for total investments over nearly 550 projects. And this year is a general categorization by fuel category. So biofuels is getting about a quarter of the funding. Electric drive is about one-third of our funding. Natural gas, 16 percent. Hydrogen, 19 percent. Workforce development at four percent. And then what we call market and program development or technology support activities at about two percent.

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

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

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

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

So are we getting an echo all through the system?
So again, manufacturing, that all tends to electric drive, and now vehicles and key components in the ZEV truck sector.

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

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

I want to turn now to kind of the program-specific sectors. I’m going to start with electric vehicle infrastructure support.
So we’ve crossed the $40 million threshold now in our charger funding. You can see here on the chart we started out with a focus on single-family residential dwellings. We’ve since discontinued that because we think the private market is picking that up. And many consumers are really using level-one chargers at home as they get started with their vehicles.

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

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

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

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

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

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

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

This map shows the current and planned fast charger arrays that we have in California. So obviously you start with clusters around the major urban areas, San Diego and Los Angeles, San Francisco, Bay Area, a little bit in Sacramento, and San Luis. Most recently we did the North-
South Fast Charger Corridors. So we want to complete the West Coast Electric Highway. And then we’ll be complementing that with an east-west corridor so we can enable people to up 50, 80 in Southern California, across the 10 and the 15 into Arizona.

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

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

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

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

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

Regional readiness and planning; so $1.2 million for seven awards, and then we’ve got about $2 million coming up.
Turning now to hydrogen, and I’m very pleased to have Justin Ward here from Toyota. He’s been spending a lot of time in Japan. So it’s good to have him here back on our Advisory Committee.

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

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

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

High Step is device developed -- it was jointly
funded with California and department -- U.S. Department of Energy. And this is going to confirm hydrogen station operations to meet the SAE standards that they have to comply with.

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

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

So this map here shows the funded stations in Northern California around the San Francisco Bay Area. The yellow dots denote stations that are in development phase. Green are the ones that are open. So we now have three in Northern California, South San Francisco, Emeryville, and then West Sacramento -- I’m sorry, and then San Jose just opened very recently. So a lot of focus in the Silicon Valley Area. We think that will be a very strong early
adopter market, as well as the East Bay, and then San Francisco Proper.

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

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

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

And people are working actively now. The Hyundai Tucson has been available in California for over a year.

The Murah (phonetic) was just released late November,
December. And so we are working to support that deployment though, again, getting the stations that are operational to the open-for-retail business status, and then fuel quality, making sure the credit card readers work and other minor things that turn out to be really, really important.

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

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

COMMITTEE MEMBER SCOTT: Sure. That would be terrific.

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

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

And Eileen Tutt?

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

MR. BUTLER: Thank you.

Tyson?

COMMITTEE MEMBER ECKERLE: Yeah. This is Tyson
Eckerle with the Governor’s Office of Business and Economic Development.

MR. BUTLER: Thank you, Tyson.

Now we’re going to go ahead and unmute the lines.

Go ahead and unmute all please.

(Loud WebEx background noise.)

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

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

(Loud WebEx background noise.)

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

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

Go ahead and unmute User 30. Okay.

Go ahead, Tim. We can hear you now.

COMMITTEE MEMBER CARMICHAEL: Thank you very much.

Tim Carmichael with the California Natural Gas Vehicle Coalition. Sorry I wasn’t able to be there in person today.
MR. BUTLER: No problem. Thank you, Tim.

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

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

(Loud WebEx background noise.)

COMMITTEE MEMBER ALAFIA: Good morning, everyone.

Joy Alafio with the Western Propane Gas Association. And I regret not being there (indiscernible).

Can you hear me okay?

MR. BUTLER: And then unmute Counsel, please.

Thank you, Joy. We now have you identified.

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

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

MR. BUTLER: Sure. We can hear you now, Joy.

Thank you. Did you want to go ahead and introduce yourself again, Joy?

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

MR. BUTLER: Yes, we can. Thank you.
COMMITTEE MEMBER ALAFIA: Okay. Third time is a charm. Joy Alafio with the Western Propane Gas Association. I regret not being able to be there in person but appreciate being able to participate through WebEx.

MR. BUTLER: Fantastic. Thank you.

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

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

And let’s see, let me turn it back over to Jim McKinney.

MR. MCKINNEY: Great. Thank you, Commissioner.

I want to turn now to ZEV and the near-ZEV trucks or zero-emission and near zero-emission trucks. So this is an increasingly important part of our funding program. And I talked about the Sustainable Freight Initiative earlier. So
a little over a third, about almost $250 million is going to this.

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

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

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

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

And as you can see, the bulk of our money, nearly
$150 million, is in technology development. And there is so much technology development work that has to be done in this space to continue to prove the technologies, get them field tested, get them into production, and then finally to push the costs the down so we can have the commercial fleets start to pick those trucks up.

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

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

TransPower is one of California’s leading technology developers for Class 8 electrification. And you can see here the South Coast catenary truck with the pantograph. This was kind of early in the demonstration phase. And this is another example of the very strong collaborative working relationship we have with the South
Coast Air Quality Management District.

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

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

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

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

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

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

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

Springboard Biodiesel in Chico, $750,000 grant,
350,000 in annual diesel gallon equivalents. One thing I learned about this company is that this technology has actually been introduced into Afghanistan to support the non-tactical part of the fleet for the U.S. and coalition forces there. So it’s really good to see how technology development in California can be disseminated through the military into other parts of the world.

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

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

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

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

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

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

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

Tim and others on our Staff are also leading the
Technology Merit Review. We’ve think of this as an AMR or Annual Merit Review as conducted by U.S. Department of Energy, AMR lite. So we’re doing a series of in-depth technology assessments and market assessments in collaboration with the University of California at Davis. So we’ve done them for biofuels and medium- and heavy-duty vehicles. And we have one more coming up on EV chargers.

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

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

So some of the key findings, we are anticipating that 50 stations will be open by the end of 2016 with enough fueling capacity for 10,000 fuel cell electric vehicles. In the 2021 -- yeah, 2020-2021 timeframe the ARB survey
indicates we could have up to 34,000 fuel cell vehicles in that time period. At the current rate at which we’re funding stations we would not keep up with that fuel demand, so ongoing -- demonstrating the critical need for ongoing state financial support.

NREL did a series of scenarios. So as expected, this tracks with what the Air Board did with their survey. Robust; we accelerated vehicle deployment by one year. And then delayed; this is kind of the worst case scenario, we retarded vehicle deployment by four years to see what would happen. For the expected we think it will take $160 million in total ARFVTP funding to hit the 100 station mark in 2020. That would be nearly a 20,000 kilogram capacity system. Market value of the hydrogen could range from $80 million to $400 million in the 2021-2025 timeframe.

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

The delayed scenario, we would hit 120 stations in
2024. It would take $170 million in ARFVTP funding. I think most significantly, this would be a much smaller system. And it’s questionable whether those station developers would ever recoup their initial investments.

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

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

Station development time, this is the good news part of the story, it has decreased radically from 2009, so
it was averaging nearly five years to develop a station then. And for the six stations that are operational the development time is 1.6 years. And First Element, again, has been the -- kind of the rabbit out of the gate, and they’ve even done it more quickly than that.

That concludes my presentation. I’m going to turn it over to my colleague Jacob Orenberg.

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

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

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

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

Before Jacob gets going I’ll just remind folks, if you’d like to make a public comment we’ve got the blue cards. I think the Adviser brought some down here with her,
but that’s the — that how you let us know that you’d like
to make a comment.

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

Go ahead, Jacob.

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

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

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

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

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

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

There are a few key considerations worth mentioning which are new for this Investment Plan Update which I will briefly summarize now.
The first is the upcoming California Sustainable Freight Action Plan which is a joint effort among several state agencies to improve the California freight system. We expect that this program will have a significant role in carrying out the action plan.

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

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

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

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

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

The first line for biomethane is straightforward
as it is entirely for fuel production infrastructure.

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

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

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

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

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

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

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

Another addition to the Revised Staff Report is a discussion in Chapter 2 about program metrics. This new section summarizes the direction given to the ARFVTP in statute and reiterates much of the discussion on program metrics from the 2014 Integrated Energy Policy Report. Notably, the metrics are applied during the solicitation process through weighted scoring factors, rather than while determining Investment Plan allocations. This is done because the ARFVTP has a directive to not adopt any one preferred fuel type or technology type. Applying cost metrics equally across all project types would lead to a
preference for near-term and commercialized projects while neglecting other project types that provide different yet very important benefits, such as long-term or market transformation benefits.

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

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

Now for the entire biofuel production and supply category, our program has provided about $135 million to 50 biofuel projects covering most biofuel types. The projects span various stages of technology development ranging from pilot scale production operations to full commercial-scale production facilities, with an increasing number of projects
To continue these investments we are proposing to maintain the biofuel production and supply allocation at $20 million for Fiscal Year 2016-2017. This year’s Investment Plan Update also continues to leave these funds open to multiple fuel types and development stages.

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

The analysis provides two scenarios, the first being a home-dominant scenario in which the majority of charging occurs in an owner’s residence, resulting in fewer required public chargers. The second being a high public access scenario which assumes the charging occurs away from home and requires more public chargers. These two scenarios can be thought of as a lower and upper bound of the number of additional public chargers required. The actual number will be determined by market forces and will most likely fall between these two estimates.
Even so, this analysis suggests tens of thousands of additional chargers are needed within the next two or so years. Since the market and business models for public chargers are not yet fully mature, we expect a significant number of these are going to require state funding.

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

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

New to the Revised Staff Report is a discussion on freight and fleet chargers which have special requirements for infrastructure and capacity than the more common residential and commercial chargers, which have received the
bulk of the electric vehicle infrastructure funding in the past. For the coming fiscal year the Investment Plan proposes a $17 million allocation for electric charging infrastructure.

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

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

One of the major issues in this year’s ARB report is projected shortfalls in hydrogen fueling capacity. In this graph the middle purple bar represents the projected station capacity as of 2015, measured in the number of vehicles which can be supported. The dashed red line
represents the number of hydrogen fuel cell vehicles projected to be on the road. Now as you can see, the report is projecting statewide hydrogen refueling capacity shortfalls as soon as 2021. The report also projects localized capacity shortfalls limited to certain regions as soon as 2018, but this is not shown on the graph.

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

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

For natural gas fueling infrastructure the majority of private fleets are able to access capital to pay for their own station costs. Given this, the Investment
Plan will continue to prioritize natural gas fueling infrastructure funding to school districts and other municipal public fleets which have restricted access to capital. For the upcoming fiscal year, Staff is proposing a $2.5 million allocation for this category which we believe will be adequate to meet demand.

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

Another major issue effecting natural gas is the revised carbon intensity numbers from the re-adoption of the Low Carbon Fuel Standard and the switch in models to CA-GREET 2.0. The revised numbers calculated with this new model are higher than previously believed and now show a
reduced benefit compared to diesel.

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

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

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

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

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

The next category focuses on the demonstration and scale-up of advanced technology medium- and heavy-duty vehicles. As you can see from the statistics on the slide these vehicles account for a small number of the total
vehicles on the road but have a disproportionate impact on greenhouse gas emissions, making them a tremendous opportunity to help meet the state’s climate change goals. That said, we’re dealing with a broad range of vehicle weight classes and purposes, each with their own specific powertrain needs which require unique solutions.

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

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

This category is also facing some challenges. The most recently completed solicitation showed high differential costs per vehicle as a result of receiving applications for more capable vehicles and for vehicles with more advanced powertrains. While these more advanced and capable vehicles show advancements in the sector, they also
lead to greater demands for funding in this category. In fact, the previous solicitation was oversubscribed by 130 percent.

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

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

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

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

First is our emerging opportunities allocation which is set aside for project types which weren’t anticipated during the Investment Plan development process.
In the past this category has also targeted federal cost-sharing projects to bring federal grant money to California. With the Revised Staff Draft we’ve also included a discussion on renewable hydrogen production which is an emerging project type which will become more important as hydrogen fuel cell vehicles increase in numbers. For the coming fiscal year we are proposing an allocation of $3 million for this category based on historical demand for these funds and balancing the needs of other allocations.

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

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

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

For the coming fiscal year we’re proposing a $2.5 million allocation based on the anticipation need of these agreements.

Finally, we have a regional readiness category which helps local agencies prepare for and expedite the
deployment of alternative fuel vehicles. In our discussions
with local and regional governments, we are seeing a
continued need for planning and implementation support this
year. So for the coming fiscal year we are proposing a $2
million allocation for the regional readiness category.

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

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

The Energy Commission is committed to ensuring
that participation in its RD&D programs reflect the rich and
diverse characteristics of California and its people, and is
currently collecting voluntary information about the
attendance of this workshop. For this voluntary survey, we request participants send an email to the address on the screen with your name, your company, how you heard about this workshop, and whether your company is located in Northern, Central or Southern California. That email is tami.haas@energy.ca.gov. We also have a printed survey for everyone joining us in the room today.

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

This final slide summarizes all of the funding allocations we are proposing in the 2016-2017 Investment Plan Update. I will leave this slide up during the Advisory Committee discussion which will begin momentarily. I can answer any clarifying questions you may have about this presentation now. However, please hold off on any questions or comments about specific allocations until the discussion or the public comment period. Thank you.
Are there any questions from the room? Could you come down please? Yeah, unfortunately we don’t have a microphone to pass to you.

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

We do have a clarifying question from the phone.

MR. BUTLER: Go ahead, Eileen.

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

I mean, I guess what I’m wondering about is I think we’re probably going to need a lot more money for the transition to sustainable freight than we currently have.
And obviously there’s other sources of funding, but I believe Jacob mentioned that this — that the category, medium and heavy duty, was oversubscribed by over 100 percent. And I think that’s indicative of kind of what’s going to be needed.

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

MR. ORENBERG: Yes.

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

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

COMMITTEE MEMBER TUTT: Okay. Thank you. I was looking for that and I couldn’t find it, but I will -- I knew that was one of our comments that we sent in and I just was not able to tell if it had been incorporated or not.
But I’ll look more closely at the document. Thank you, Jacob. That’s my question.

MR. BUTLER: Okay. Tim Carmichael?

COMMITTEE MEMBER CARMICHAEL: Good morning again.

I thought Jacob did a good job characterizing changes with natural gas and carbon intensities. But I also think it’s worth noting that the LCFS data is showing that about half of natural gas use in transportation in California is renewable. And so the real-world carbon intensity of natural gas, you know, is much better than the fossil fuel-natural gas scenario that you outlined. And we expect that to continue as -- you know, and we’re obviously supporting efforts to increase the development of renewable natural gas and use of renewable natural gas.

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

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

I think that it’s for comments from the Advisory Committee.

We can now open for public comments.
COMMITTEE MEMBER SCOTT: So we just want clarifying questions, if there were any. Okay. So let’s -- oh, did you -- did you have a clarifying question for Jacob?

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

DR. CLARK: Yes. Thank you. And I know a number of you, both on the Commission and Advisory, so I’m glad to be here in Long Beach and hearing the presentations. I do have specific questions on other things. But my basic question was getting the information, the slides that you were just presenting, and that Jim had, as well, because some of that information, actually a lot of it is not in the report that I saw upstairs. And I think there are some definitions and things that you were going through that would be very interesting.

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

MR. ORENBERG: And just for everyone’s reference, we will make the presentations available on the Energy
Commission’s website, probably within a week of today.

COMMITTEE MEMBER SCOTT: Great. Go ahead, Brian.

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

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

MR. MCKINNEY: Yeah. I think that’s a very good question, Brian.

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

COMMITTEE MEMBER GOLDSTEIN: Great. Thanks a lot.

MR. ORENBERG: And further clarifying questions?
Okay.

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

MR. MCKINNEY: So again, this is Jim McKinney.

And the way that we run this part of the meeting is we’ll go line by line through the funding plan that is up on your screen. We start with discussion by Committee Members present. We then turn to Committee Members on the phone. We then turn to members of the public present. And lastly, to members of public on the phone.

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

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

COMMITTEE MEMBER SCOTT: For biofuels, we are going to be joined by one of our Committee Members, I believe, after lunch. Oh, she’s not going to be able to?

Sorry, I have old data, so go ahead, Jim.

MR. MCKINNEY: Committee Members present? So Peter Christensen, we’ll start with you, Air Resources Board.
COMMITTEE MEMBER CHRISTENSEN: Thanks, Jim.

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

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

MR. MCKINNEY: Thank you, Peter.

Any other Members present?

Al and John?

I’m sorry, Brian, go ahead. Brian Goldstein.
COMMITTEE MEMBER GOLDSTEIN: So the alternative fuel production category we haven’t talked about, including potentially some issues around hydrogen production, and specifically 100 percent renewable hydrogen production. And I’m certainly not suggesting that we cannibalize funding that’s going into other areas. But I’d like to make the recommendation that we at least take a look at allocating some of the additional hydrogen funding and to taking a look at not only what it would take to include 100 percent renewable hydrogen for hydrogen refueling stations, but also for the components of biofuels and the other liquid fuels that require a hydrogen component for the refining process.

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

COMMITTEE MEMBER GOLDSTEIN: Great. Thanks.

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

John Butler, do you want to --

MR. BUTLER: Yeah. Just a quick comment for the
Advisory Committee Members present. If you could speak closer into the microphone, WebEx is having a difficult time hearing you, so we’d appreciate it. And I don’t think we have any online commenters.

MR. MCKINNEY: Okay. So no --

MR. BUTLER: One moment. Tim Carmichael.

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

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

MR. MCKINNEY: Great. Thank you, Tim.

Any other Committee Members on the phone?

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

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

MR. LEWIS: I’m good. How are you?

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

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

MR. MCKINNEY: I’m sorry.

MR. LEWIS: If there was a Mike Pearson, it would
So just a couple comments. I’ll give you the very quick history. Pearson Fuels, we do E85 all over the state. We’ve built biodiesel terminals. I have electric chargers. I sell propane to the public. I’ve had a natural gas station before. And so we’ve been a recipient in the past which we very much appreciate.

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

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

So in Fresno, it was just about a year ago in Fresno, I stood up and I told you that E85 has great potential. I mean, the build out is due to giving all the funds or 90 percent of the funds to one company that just didn’t perform and hasn’t performed. But you did give me
some funds and I appreciate it, and I told you I was building them. And so it’s been under a year since February. And during that time I have opened 12 new E85 sites, and we have 4 under construction and 8 more under contract. So as far as a slow build out, don’t categorize the whole industry with a slow build out. You can categorize your grantee with a slow build out, the other grantee. So there’s that issue.

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

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

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

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

MR. MCKINNEY: Great. Thank you, Mike.

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

MR. MCKINNEY: You did great.

MR. LEWIS: I’m available for follow-up questions,
if you want to. Thanks.

COMMITTEE MEMBER SCOTT: Any other --

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

Do we have indication of public comments on the phone?

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

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

(Loud WebEx background noise.)

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

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

MR. THERKELSEN: Okay.

MR. BUTLER: Okay, Bob, go ahead. Okay, Bob, go
MR. THERKELSEN: Yes. This is Bob Therkelsen representing the ACE Cogeneration Company. We’re looking at developing a large renewable carbon-free hydrogen production facility. And I’d like to echo support for the gentleman that commented on including hydrogen production in you allocation there on alternative fuel production.

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

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

MR. BUTLER: Bill Leighty, please proceed.

MR. LEIGHTY: Bill Leighty in Alaska. Calling from Alaska. I wanted to recognize your
(inaudible).

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

MR. LEIGHTY: I’ve got the microphone maxed out, actually.

MR. BUTLER: That’s --

MR. LEIGHTY: I’ll try calling back later today.

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


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

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

MR. LEIGHTY: Okay. I’ll call back. I’ll call back later today, later today.

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

COMMITTEE MEMBER SCOTT: Also, if you --
MR. LEIGHTY: Yes. I gave you a letter.

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

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

MR. MCKINNEY: Thank you, Commissioner.

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

COMMITTEE MEMBER SCOTT: And additionally, as you all know, we can take written comments. And we read those very closely and pay -- pay good attention to them. So
there’s -- there’s always an option to send us written
comments. Or if you have comments that last longer than
three minutes, please -- please write that down and send it
to us, as well.

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

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

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

I’m going to turn now to electric charging
infrastructure. And I want to open it first to Committee
Members present. Okay.

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

Why don’t we take your comment, sir? Can you
identify yourself please?

MR. LEVIN: Sure. Sorry, Jim. I’m Mike Levin
with Fuel Cell Energy. And thank you for letting me go out
Fuel Cell Energy, we are the largest stationary fuel cell manufacturer in the world. But one of the unique things that we do with our fuel cells is also coproduce hydrogen. And as Commissioner Scott knows, we did the first system like this in the world in Orange County at the Orange County Sanitation District. We’re now engaged with a number of stakeholders. In fact, Chair Weisenmiller encouraged me to participate in this meeting today, encouraged us to provide comments and so forth and we will. We’re also working with the Governor’s Office and the ARB on this whole renewable hydrogen fuel cell idea.

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

My hope would be that to the extent there is an available allocation of funding for alternative fuel production, that that might be a potential avenue for this technology, as well as the emerging bucket for things like electrolysis which we, you know, clearly think are good -- good, as well. The -- the hope would be that we could
produce around 5,000 kilograms a day of renewable hydrogen from four of these facilities. Each would be located in centers of both population, as well as higher concentration of fuel cell electric vehicle charging station. We’ve been working also with our friend Tyson Eckerle who I think is on the phone, so hi Tyson.

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

So thank you. Sorry for going out of order.

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

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

MR. BUTLER: Eileen Tutt?

COMMITTEE MEMBER TUTT: Hi, Commissioner, Jacob and Jim, thank you. This is Eileen Tutt with the California Electric Transportation Coalition. And we did submit written comments. We really appreciate the funding remaining at $17 million, and particularly the recognition from the Staff that that’s probably, well, clearly the
absolute minimum needed. And we are going to have to find
more money in other places because it’s clear that the
utilities are not going to be allowed to invest as much as
we had certainly hoped. So the $17 million, we’re good with
that, understanding that there are just limited funds.

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

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

The other thing that I would like to encourage
the -- the CEC to work closely with Air Resources Board on
is these stations are not -- I mean, they’re -- we say they
need to be publicly accessible when they’re in a public
place, but in many cases, not all, but in many cases it’s --
it’s challenging to access them without some sort of RFID
card, and then you’re -- you have a number of different RFID
cards depending on, you know, what station happens to be
there which does -- it really is a big challenge. And we
need to get past this place where you have to be a member of
a particular organization or you have to, you know, either
purchase or sign up for an RFID card to make it convenient
to charge.

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

And then the only final comment I have here is for
the ARB and the Energy Commission together, and perhaps,
Tyson, it would be a good thing for the Governor’s Office,
is the way people are charged. So it -- you can -- within
one block of each other, one charging station can be
something like $3.00 an hour and another one can be free.
There doesn’t -- and they’re both perhaps funded -- in fact, they are funded by state government by this funding, by these dollars.

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

MR. MCKINNEY: Great. Thank you, Eileen.

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

Other Committee Members on the phone?

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

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

COMMITTEE MEMBER SHEARS: Yes. Good morning, everyone, and sorry. I have multiple meetings this morning, so I’m trying to manage where I am at important junctures.
My name is John Shears. I’m with the Center for Energy Efficiency and Renewable Technologies, one of the Advisory Committee Members.

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

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

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

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

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

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

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

COMMITTEE MEMBER GRANT: Hi.

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

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

COMMITTEE MEMBER SCOTT: Yes.

COMMITTEE MEMBER GRANT: Hello? Okay. That’s
good.

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

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

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

I’d like to echo Eileen’s comment about public
access. I think that’s a critical point, and looking forward to kind of seeing how Staff is thinking through ways to ensure that there’s kind of ease of use, which is really important throughout all demographics and areas, and in particular those communities that might not be as inclined to -- to switch over to electric vehicle due to cost and due to convenience. So I think that is an excellent point and wanted to echo that. (Inaudible) grant with the Greenlining Institute.

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

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

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

Other Committee Members on the phone?

MR. BUTLER: Yes. Tyson Eckerle.

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

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

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

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

MR. MCKINNEY: Great. Thank you, Tyson.

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

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

So let’s turn to public comments on the phone.

MR. BUTLER: Yes, we do. So we’ll start with Andy Bartosh.

MR. MCKINNEY: Mr. Bartosh, proceed.

MR. BARTOSH: Yes. Hello.

MR. MCKINNEY: You have three minutes.
Mr. Bartosh: Am I --

Mr. McKinney: Yeah. Just proceed.

Mr. Bartosh: Okay. Am I unmuted?

Mr. Butler: Yes, we can hear you.

Mr. Bartosh: Okay. Great. Thank you. All right. Excellent.

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

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

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

And then as far as fees framework, I think that from ABB’s perspective as a business model, being this young we want to enable as much as possible. But I can appreciate the interest in keeping, you know, comparable fair fees. However, I think we have to also appreciate that each
network operator has very different operating costs and business models of their own. And so I think at least certainly today, DC fast charging specifically is a convenience as much as it is just a pure energy play. I understand the implications of funded or not funded. But I think we should let those things play out for the sake of the operations and the users. So we’ve seen cases already where drivers will go to a more expensive site because of its convenience. And I think we need to allow that free market to happen.

So I’m happy to address any questions here or -- or after the fact.

MR. MCKINNEY: Great. Thank you, sir.

Any other public comments, John and Al?

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

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

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

I just wanted to ask a clarifying question.
Is this Sean Henshel (phonetic)?

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

MR. BUTLER: Okay. It doesn’t look like we have any public comments.

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

That concludes our discussion of electric charging infrastructure funding allocation.

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

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

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

I think as we move forward I want to just encourage us to continue to be flexible, because it seems that we’re learning almost on an hourly basis as these current stations are being deployed. And so as we look towards the future of funding opportunities within those hydrogen stations that we accommodate that learning as much
as is possible in a kind of a real-time basis.

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

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

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

Inside Toyota we have our Drive 2050 Vision right
now which includes a launch of a wide range of technology
including plug-ins, EVs, hybrids and fuel cells. We think
those are going to be the dominant player in 2050. And we
think that one of the ways we do that is that we make this
infrastructure available, whether it’s EV, as we talked in
the previous section, or hydrogen as we’re speaking now.
But we are -- when we speak specifically towards hydrogen we are very excited about the opportunities for hydrogen and how it could provide the customer what they expect from a vehicle as far as performance. And so much so that even from Toyota’s point of view we’re targeting on the order of 30,000 fuel cell vehicles annually in the 2020 timeframe, in that area, in that time area. We’re hoping to see that kind of vehicle numbers. And we suspect that the other automakers are going to be also very excited as we see more of these hydrogen stations available.

From a customer feedback point of view, what we are seeing so far, and as these current stations are being rolled out, customers are a lot more interested in redundancy, maybe, than we had originally expected. And so that may be something to think about as far as siting of stations go. Redundancy seems to be a bigger question that’s asked these days.

MR. MCKINNEY: Great. Thank you, Justin.
Any other Committee Members present?
Brian Goldstein?
COMMITTEE MEMBER GOLDSTEIN: Hi. This is Brian with EIN again. First of all, I’d like to again thank you guys for the opportunity to present here or to comment to here.
I’d like to echo, going back to the EV
infrastructure, some of the concerns that there were in the
O&M funding, which I think has brought up another need that
I’ve heard a lot around the hydrogen community, as well, and
I’m hearing in the EV community, which is beyond just the
operations and maintenance it seems that there’s a need or a
kind of real-time network oversight of the stations that --
that are being built. And again, I’m hearing this across EV
and hydrogen.

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

But I’m hearing a need within the industry for
some sort of almost day-to-day oversight of the operation of
the stations. And, you know, we’ve proposed solutions and
opened brainstorming of sort of, you know, a AAA, so to
speak, of -- or some type of agency that can oversee these
issues on a day-to-day basis, and again within the EV
community and the hydrogen community. And we’ve talked
about budgets and kind of brainstormed on what it would
cost. It seems to be a very, very minimal financial
commitment relative to what we’re putting into building the
stations.

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

And thanks for the opportunity there.

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

Peter, anything?

I’d like to turn to Committee Members on the
phone.

MR. BUTLER: Tyson Eckerle?

COMMITTEE MEMBER ECKERLE: Great. Yeah. So Tyson
Eckerle with GO-Biz. I want to offer strong support. I
think the hydrogen program, you know, is relatively high
profile with all the reporting and the -- the dedicated
allocation.
And I just want to offer some perspective from -- from my experience. And I’ve spent the last nearly two years working very closely with all the different station developers to get these stations open. And I know the stations have not opened as quickly as we would have liked to see happen. But I can assure everyone that the progress has been consistently forward. And we’ve learned a ton as a community going forward. So I think this is really -- really just hitting the starting line. I’m sure a lot more stations are going to come online, fully open to the public this quarter.

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

I just really wanted to communicate that the -- the progress has been steadily forward and we’re beginning to start to see excitement grow. I think what Brian and everybody talked about, reliability at these stations is going to -- is the key component. Redundancy, obviously, as more of these stations come online there will be more flexibility for the customer. So that’s the idea and that’s what I’ve spent my every waking hour trying to do. I worked with all the stakeholders.
The other piece that goes is how encouraging it is working with all the government and industry and nonprofit stakeholders and everybody pulling in the same direction. So I think, you know, I’m very encouraged and optimistic about the future and what this year is going to look like. I want to thank the Energy Commission for continuing your support of hydrogen.

MR. BUTLER: Okay. Thank you, Tyson.

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

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

We’ve seen tremendous progress in your chart of the overall build out times from year to year as far as the infrastructure grants, and I think that we can certainly...
improve upon that. Every bit of contact we can make within
the communities that are targets for the next rounds of
stations will certainly help ease the path to getting these
things up and running a lot faster, utilizing the funding
that’s allocated within the budget years instead of having
to push those over and, candidly, just to help make Tyson’s
job a lot easier.

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

MR. MCKINNEY: Great. Thank you, Brian.

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

I’d like to turn to public comments here in the
auditorium.

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

DR. CLARK: Yeah.

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

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

I’m actually here -- I’ve got a number of comments
to make and I’m going to try to go through them, but I
wanted to go through just a couple of major points in terms
I’ll call it critical comments that could be constructive.

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

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

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

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

So let me go to the solutions. One of the
solutions that somebody eluded to is the CPUC. We need to
see the state, and I know Governor Brown is pushing this, as
well, going from not just central power plants but onsite
distributed power. When you look at these refueling stations like hydrogen, these are the kinds of things that can be done not just today in one place or another, but all over the state in shopping malls, in government buildings, and frankly in condominium buildings or other places where people live and work.

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

Now I’m -- I can go through another list of things. But what I want to emphasize in particular is I do believe that the CPUC and other state organizations partnering with ARB, partnering with the CEC, and certainly with the Governor’s Office of Planning and Research can see those resources coming together. And my key point is integrate these systems, work together on it. When we do it
separately the only people that win is our friends on Wall
Street, our former friends, I should say. That was a joke.
I’m from Connecticut. I have a different kind of sense of
humor, okay?

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

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

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

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

MR. BUTLER: Yes. So we’ll start with Bob Therkelsen.

MR. MCKINNEY: Go ahead, Bob.

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

We don’t have any other hand-raisers on the WebEx. So again we’re going to unmute the phone lines. If you can -- oh, we do have one more. One moment, please. Go ahead, Bill Leighty. And I’m sorry if I keep mispronouncing your last name.

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

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

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


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

One, the total amount of hydrogen fuel, high purity required by year 2050 to beat California’s 80 by ‘50 and other obligations is likely to be about 8 million tons per year. And I wish you folks would collaborate with ITS
to -- to verify that number. If so, if it’s that big a number, that’s the full output of about 110 gigawatts of wind -- nameplate wind. It’s a huge amount of energy.

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

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

Thank you.

MR. MCKINNEY: Great. Thank you, Mr. Leighty. And I’m looking to John Butler. Do we have an anticipated date on our website for the emerging opportunities solicitation?

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

MR. MCKINNEY: Okay. Thank you, John. Are there any other public comments on hydrogen refueling infrastructure on the phone?

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

Are there any comments on hydrogen refueling infrastructure?
COMMITTEE MEMBER SHEARS: Hello. This is John Shears with the Advisory Committee. And I just also want to express my full support for the allocated -- recommended allocations.


MR. BUTLER: Great. Thank you, John.

Brian, one last word?

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

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

MR. MCKINNEY: Yeah. Thank you, Brian.

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

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

Are there any comments from Committee Members present?

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

MR. BUTLER: Yes, we do have one, Tim Carmichael. Go ahead, Tim. Hang on a moment, Tim. We’re going to have you start over. All right, we got you, Tim. Go right ahead please.

COMMITTEE MEMBER CARMICHAEL: Thank you, Jim and others. Tim Carmichael with the Natural Gas Vehicle Coalition. Just two comments.
One, as we’ve mentioned in the past through these Committee hearings, we continue to believe that we get the most bang for the buck with vehicle incentives. The report does a good job of referencing how there is still significant private financing available for most natural gas refueling infrastructure scenarios. That’s not an argument against the level of funding that you proposed, it’s just a reminder that the industry continues to believe that we get more value if we put the public funding into vehicle incentives.

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

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

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

MR. BUTLER: Yeah. And, you know, I’m sorry, my memory may be a little bit fuzzy here, Tim. This is John Butler. So this last solicitation, you’re right, there was $500,000 for school districts to do natural gas fueling infrastructure, and then $250,000 for local jurisdictions.
So that was -- that was a change from the previous solicitations. And again, that’s where my memory is a little fuzzy on exactly what those funding levels were. But certainly we could talk offline and I can get you that information.

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

COMMITTEE MEMBER SCOTT: Any other Committee Members?

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

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

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

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

So we have come to about noon. So we are planning to break for lunch for an hour. And we will start again at one o’clock, and we will pick up with the natural gas vehicle incentives at that time. See you all at one o’clock sharp.
(Off the record at 11:59 a.m.)

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

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

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

Go ahead, Jim.

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

MR. BUTLER: Yes, we do.

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

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

MR. BUTLER: All right. Tim, sorry.

Committee Member -- with the Natural Gas --

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

COMMITTEE MEMBER CARMICHAEL: Hi. It’s Tim
Carmichael with the California Natural Gas Vehicle Coalition. Just a couple of quick comments.

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

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

And I also want to mention that we are having an issue with the augmentation of the existing solicitation. I know there’s a lot of effort going into it, but there’s
nothing up on the NGVIP website yet. So I’m getting calls 
every week, people wondering what’s going on. 

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

And finally -- 

(Background WebEx noise.) 

COMMITTEE MEMBER CARMICHAEL: Go ahead. 

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

Sorry about that, Tim. Go ahead. 

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

COMMITTEE MEMBER SCOTT: Yes. 

COMMITTEE MEMBER CARMICHAEL: And then my last 
comment, Commissioner Scott and some of the Staff are 
already aware, this will actually be my last meeting 

representing the Natural Gas Vehicle Coalition on this 
Committee. I’ve really enjoyed it over the last several 
years, but I’ve actually accepted a position with Southern
California Gas Company and will be starting with them next week. I anticipate continuing to be very engaged, but won’t be with the Natural Gas Vehicle Coalition. And we’re hoping to have a new person in place sometime in February.

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

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

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

Peter, please.

COMMITTEE MEMBER CHRISTENSEN: Okay. Thank you. And thanks, Tim, for those comments. I just wanted to kind of complete the picture a little bit from the incentives that are available through the Air Resources Board. And it becomes a little bit, I guess, complicated because of the funding allocations
that -- that came to ARB.

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

We -- there’s -- the funding allocation that came to ARB is less than the $350 million in our plan, so that’s going to be a topic of discussion as we at the Air Resources Board go through our public process in developing our funding plan. But suffice it say, there is funding that’s going to be available. We have two different funding sources that make up that total of $7 million, part of which is from the Greenhouse Gas Reduction Fund, and another part of which is from our Air Quality Improvement Program, our companion the AB 118 Program. So funding will be available. And we’re doing our best to role that out along with the engines when they -- when they hit the marketplace this spring.

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

COMMITTEE MEMBER CHRISTENSEN: No. We’re still --
we’re still working on what that incentive is going to be.
I’ll just -- from our perspective, you know, whatever the
incremental cost might be, we don’t think it’s going to be a
huge incremental cost, it’s going to be a -- but
nevertheless, a cost that’s going to be important to the
end-user fleets. Our goal is to offset all of that
incremental cost so that the end-user fleet doesn’t have to
realize any kind of a purchase price penalty, and that’s --
that’s our plan moving forward.

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

MR. MCKINNEY: Great. Thank you, Peter.

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

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

So do we have any public comments on the phone?

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

Go ahead, Al.

If anybody has a comment, please speak up now.

MR. MCKINNEY: Okay. Thanks to the Committee for
the discussion on this.

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

Are there any Committee Members present who wish to speak to this?

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

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

MR. BUTLER: I’m sorry, Jim, we do have one, Eileen Tutt.

Go ahead, Eileen.

MR. MCKINNEY: Very good.

COMMITTEE MEMBER TUTT: Thank you. This is Eileen Tutt with the California Electric Transportation Coalition. And I just wanted to -- we actually submitted a written comment, so I’m just going to -- and it didn’t get accepted yet, but I’m sure it will be, and that is I do think that in this -- in this particular funding section we need to specify that the stations don’t need to be publicly accessible just because these are large -- by and large private fleets that would be funded.
I also want to point out that there are members of CalETC that have already experienced the implications. And I guess I’d love to hear from -- from Peter, as well, on this one, of the cost of infrastructure for these medium- and heavy-duty electric vehicle projects and that that’s a big barrier. And so I’m hoping that this money can be used to help overcome some of those barriers, and maybe in combination with the money that -- that Peter referenced from the climate change incentives programs -- or the GGRF, whatever you want to call them, the cap and trade funds, those need to be augmented to support the needed infrastructure for these vehicles. And it is -- it is a barrier. It’s something that requires funding.

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

And then I guess, finally, not that I ever, ever disagree with Mr. Carmichael because we’re pretty much lockstep most of the time, but I would disagree on this issue in that we really need -- $23 million is, as I think Jacob indicted, is -- is not nearly enough and was significantly, 100 percent, oversubscribed, plus, last year. And really this year, although there’s more funding, it’s only $3 million more, so it’s now still going to be
significantly underfunded, particularly as we move into investing in sustainable freight.

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

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

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

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

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

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

And I just -- I did want to just take a second to
note that we’re, you know, we’re right now in the process of
awarding the projects for -- for our drayage truck and
multi-source demonstration project.

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

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

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

And I you would just indulge me for another 15
seconds, I wanted to put in a shameless plug. For those of
you that don’t have it on your calendar yet, our public
workshop as we engage in developing our funding plan for
Fiscal Year ’16-17, mark your calendars, our next public
workshop is next week on Wednesday, January 27th, starting
at 9:30. We anticipate it will run from 9:30 to 1:00 at the
Cal/EPA building in Sacramento. And that will also be
webcast. The meeting notice is available on our ARB
website.

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

COMMITTEE MEMBER SCOTT: You’re more than welcome.
And I would like to echo about the good
partnership between the Air Resources Board and the Energy
Commission. We appreciate that very much, as well.

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

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

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

MR. MCKINNEY: Okay.

MR. BUTLER: I don’t want to give bad information
here. But certainly the solicitation is available online,
on our website, on our funding page. So --
MR. MCKINNEY: Okay. Great.

MR. BUTLER: -- sorry, Jim.

MR. MCKINNEY: Thanks. Okay.

MR. BUTLER: Sorry to let you down.

MR. MCKINNEY: No worries. No worries. No. So we’ll clarify that.

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

I think that concludes --

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

So, Tim, do you have a comment on this category?

Please go ahead.

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

MR. BUTLER: No problem.

COMMITTEE MEMBER CARMICHAEL: Thank you, though.

MR. BUTLER: We weren’t sure about that.

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

Just a minute, Eileen. Let’s get you unmuted.
And the floor is yours.

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

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

And then I just -- I want to just clarify that, sort of to Peter’s comment and to Jim’s follow-up, that we have a project already underway that one of our -- and it is -- it’s a goods movement, it’s medium -- heavy-duty application where the customer is actually hesitant now to buy the trucks because of the cost of infrastructure. So we know for a fact that without this funding, and that, you know, again, the $23 million is the minimum, without this and without the good work of both the Energy Commission and the Air Resources Board these projects won’t go forward. So it’s not -- there’s no -- there’s no question as to whether
or not this funding is absolutely essential and will really accelerate the market for medium- and heavy-duty zero-emission trucks.

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

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

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

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

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

I want to support a couple things. I want to
support this category, obviously. And I would support Eileen’s comments that we’d love to see more dollars, more resources given to it.

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

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

Lastly, as we talk about the non-road space, and this is where Jacob had talked about it a little bit earlier and this is something that we’d be happy to share, probably in a more confidential manner with Staff directly, would be in this whole idea about intelligent transportation system, and in our space, in the construction industry space we would call this connected worksite where your various
machines are actually communicating to each other, as well as to say an outside central command.

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

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

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

But seriously, we really do appreciate the Commission -- the Commission’s support in that. So thanks very much.

MR. MCKINNEY: Great. Thank you, Jim, and thanks for coming down to attend this workshop.
Next we have James Holtz with BYD.

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

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

MR. MCKINNEY: Great. Thank you, Mr. Holtz.

Thanks for attending our workshop.

Next, Dedrick Roper with ChargePoint.

MR. ROPER: Hi. Thank you for the opportunity to speak today. Dedrick Roper with ChargePoint. And I want -- will follow up with more detailed comments. But we really wanted to express the importance of maintaining some funding for manufacturing, primarily due to, you know, job creation being one of the foundation -- you know, being very
important to establishing an economic foundation in this
state, as well as maintaining manufacturing in California
will help expedite the deployment of these technologies in
California.

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

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

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

MR. MCKINNEY: Right. Okay.
MR. ROPER: Right.

MR. MCKINNEY: Thank you very much.

MR. ROPER: Thank you.

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

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

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

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

I’d like to open the line to you so you can verbally provide your comment. Please go ahead.

MR. HARRIGAN: Hi. It’s Mike Harrigan from Prospect Silicon Valley.

My main question was in this area is -- what’s -- is there any plan for funding for transit bus technology
development? This is an area that’s growing fairly rapidly
and can significantly reduce pollution, greenhouse gases.
And it wasn’t clear in the presentation today whether
transit buses are included in this -- in this area or not.
So just a clarification really. Thank you.

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

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

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

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

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

COMMITTEE MEMBER SCOTT: Maybe -- maybe a useful
thing would be keep an eye on our -- our listserv. And if you’re not signed up, please do, because what we often times as we’re designing solicitations is have pre-solicitation workshops where we look to see what are the most current issues, what are, you know, challenges that need to be solved or barriers that need to be overcome or places where -- overcome, or places where funding is really needed and what would -- what could happen if we put funding in that space?

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

MR. MCKINNEY: Thank you, Commissioner.

Do we have any other public comments on the phone?

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

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

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


Let’s turn now to Committee discussion on the emerging opportunities category. The Staff recommendation
is $3 million. We had a little bit of discussion on this earlier in terms of renewable hydrogen.

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

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

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

Do we have public comments on the phone?

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

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

One of the other things that we’ve run into in terms of looking at developing large renewable hydrogen projects is the lack of data in terms of what the hydrogen market is, either currently or projected in the future.

While the Energy Commission has some good information in terms of light-duty vehicles, you know, the whole picture of hydrogen supply and demand is kind of missing.

And I know the Energy Analysis Division at the Commission has a little bit of data and is starting to collect some. But it would be extremely helpful to look at the big picture. That comment was mentioned earlier, not
just for vehicles but for the entire supply and demand for all the different sectors, and to be able to make that available for in the market. It seems like emerging opportunities may be a category to do that work, especially in conjunction with the Energy Analysis Division. Thank you.

MR. MCKINNEY: Great. Thank you, Mr. Therkelsen.

Any other public comments on the phone?

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

MR. MCKINNEY: Okay.

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

And back to you, Jim.

MR. MCKINNEY: Great. Thank you, John.

Brian, I think you wanted to make a --

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

And I just wanted to make a brief comment that, you know, within the fuel cell electric vehicle community it’s a hot topic trying to figure out how to garner market support for building hydrogen stations after the Energy
Commission funding runs out for the first hundred stations.

So I realize we have several years until we get to that point, but I think that the industry as a whole is very interested in examining what type of financing mechanisms, what type of market dynamics we would necessarily need to see for private industry to take that over.

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

MR. MCKINNEY: Great. Thank you, Brian.

That concludes our Committee and public discussion on emerging opportunities.

I’m going to turn now to workforce training and development. And the Staff recommendation is $2.5 million.

And do we have any comments from Committee Members present?

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

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

MS. BABIARZ: Thank you very much. My name is Nina Babiarz. And so if somebody called me Nina, I know
they don’t know me.

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

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

And so our current Chair of the Board of Directors is Tommy Edwards from SunLine Transit, but we also have many other Board Members, Cal State University of Long Beach, Dr. Tom O’Brien, Peter Davis, I think you saw here earlier, that runs the Advanced Transportation Technology and Energy Center, among others. And I’m happy to be like the last presenter on workforce development because it really transcends everything that we’re talking about here today.

You know, we develop and deliver training specifically to the transit industry on every technology we’re discussing here today.
Currently -- and we deliver. Currently we have delivered over 65,000 hours of training to over 4,500 transit technicians. We’ve just run the National Transit Institute Achievement in Transit Training Model Program Award, and a month after that the California Transit Award for the 2015 Transit Innovation. And we’re very proud of that because, again, just a little history on the consortium, they came together as a grassroots effort.

And so with regard to the previous funding that we have received, our initial funding source was the federal transit administration with a four-year earmark from Senator Boxer’s -- with Senator Boxer’s assistance. We got a fifth year of that funding without asking direct from Ray LaHood as a result of the “value and the success of our program.” As a nonprofit we were eligible, applied for and received three years, $700,000 for the reformulated gasoline settlement grant. And we used that money specifically to develop and deliver all of the hybrid electric transit bus training. And as some of you recall we were -- we were able to do that and we had to do that because ISE Corporation had gone belly up. So our transits really didn’t have that vendor support that they needed once they took delivery on those hybrid buses. And it was the RFT Grant that gave us the ability to do that.

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

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

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

I guess one of the things I’m really trying to stress is that not only are we, you know, developing and
delivering, every course that we develop and deliver is with a transit and an academic partner. And so what we’re delivering is, number one, it’s not an easy task. The workforce itself is -- the composition really represents all those -- the vets, the women, you know, all of those that are in that -- that group that you’re trying to reach, as well.

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

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

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

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

And so the Consortium came together because they were the ones that were on the front lines of trying to solve this problem together. And it’s a very collaborative spirit, I might add. They were all dealing with the same problems and somebody said -- as a matter of fact, it was Jim Ditch at Long Beach Transit here 15 years ago that said to somebody else, “Well, you know what, I just had vendor
training at my place last week and we had, you know, two or
three seats. You could have sent some of your guys over.”
And that’s how the Consortium got -- originally got started.

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

MS. BABIARZ: I appreciate that, Jim.

MR. MCKINNEY: -- as you close.

MS. BABIARZ: Yes, I do.

MR. MCKINNEY: Okay.

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

And so I’d like you to consider some funding to
look at the transit-specific training that transcends the
entire industry, rather than just the specific training that’s need to deliver on a particular procurement. Because that it is what’s going to help your agency, as well as, you know, ARB, achieve the attainment goals that you’re ultimately wanting to achieve. And I appreciate your time today.

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

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

MR. MCKINNEY: Great.

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

COMMITTEE MEMBER TUTT: Thank you, Jacob [sic]. This is Eileen Tutt with the California Electric Transportation Coalition.

I just kind of want to, I hope, compliment what Nina just said and just say that I really appreciate the Energy Commission including this -- this funding because I think we do need to -- I think a lot of times the community colleges and the CSU system in California tends to be overlooked by the technical agencies. And a lot of the funding will go to the UCs but not so much the community colleges and CSU who have a tremendous amount to offer.
So I just -- I think this is extremely important, this $2.5 million. I think it’s very, very important that the state invest in the training at the community college level. So I just wanted to make sure that I supported that strongly and really feel like it’s important. And I think the CEC has recognized that throughout the years. And that’s -- you know, I hope that that will translate to other agencies, as well, because I do feel like sometimes the CSUs get -- get overlooked, as do the community colleagues, and this funding is important in that -- in that sense, as well as Nina said, you know, we need to train the workforce that’s going to support these technologies. And we have the expertise in our community colleges and in our CSU system.

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

Any more public comments on the phone?

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

MR. MCKINNEY: Great. Thank you, John.

Our final category before we go to general comment are the all fuel readiness or the Regional Readiness and Planning Grants. The Staff recommendation is $2 million.
Do we have any comments from Committee Members present?

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

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

And what I’d like to add to that is that as we see a flood of the new stations opening up over the next year or two, I think that present a great education and outreach opportunity to bring in community leaders as we open up the stations and really kind of show them what we’ve built and show them some success factors. I know in the hydrogen community we’ve been waiting a long time to see these
stations open up. We’re really going to see a flood of them coming up soon and I think it’s a great education and outreach opportunity to kind of fold into this community readiness and planning. Thank you very much.

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

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

MR. BUTLER: It doesn’t look like it.

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

Do we have public comments on the phone?

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

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

MR. BUTLER: So, Jim, I’m sorry, we have a late request from an Advisory Committee Member. So if we can get --
MR. BERRY: Okay.

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

MR. BERRY: Okay.

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

MR. BERRY: All right.

MR. MCKINNEY: Great.

MR. BUTLER: Appreciate it.

MR. MCKINNEY: Thanks, Naveen.

Go ahead, Eileen.

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

And so I think $2 million is probably the minimum needed. Really happy to see it, and also glad to see it expanding to both electric charging infrastructure, as well
as the hydrogen. And I think for those communities that have
taken advantage, and we’ve worked with some of them, this
money has been just invaluable.

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

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

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

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

COMMITTEE MEMBER TUTT: Thank you, Commissioner.

COMMITTEE MEMBER SCOTT: You’re welcome.

MR. MCKINNEY: I was teasing you, Eileen.

COMMITTEE MEMBER SCOTT: No, I know you were.

MR. MCKINNEY: Great. I’d like to recognize Mr.
Berry.

And I think, Naveen, this is your first
participation in one of our Advisory Committee meetings, so
welcome.
MR. BERRY: Yes, sir. Thank you, Jim, and good afternooo. Again, my name is Naveen Berry and I’m the Technology Demonstration Manager with the South Coast Air Quality Management District. I’d like to thank the Energy Commission for holding the workshop in the South Coast Air Basin and really giving us an opportunity to chime in.

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

I do have one specific comment, however. And since I was going to touch on all the categories I didn’t want to come up five or six times so I’m just saving it. It really has to do with the Natural Gas Engine Voucher
Program. And the South Coast AQMD staff believes that use of biogas combined with heavy-duty low-NOx engines is one of the more cost effective nearest-term strategies to reduce NOx in the basin in that use of renewable natural gas should be considered as part of the Natural Gas Truck Voucher Program to complement our collective goals in terms of greenhouse gas reductions and criteria pollutants.

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

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

With that I want to strongly support the proposed Investment Plan update and propose allocations. I think they’re right in line with what we’re thinking. And I look
forward to working together with Staff and the Commissioners
to meet mass goal of allocation for the South Coast AQMD in
terms of funding. And with that, thank you very much.

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

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

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

MR. IPPOLITI: Hello, and thank you. Thank you
for the time. I appreciate it, Mr. McKinney, Commissioner
Scott, for coming down to my home town of Long Beach. And
again I also want to thank you for the -- the hard work on
the ARFVTP. I mean, I think this program really has
impacted the industry. The Caterpillar Hydrogen Excavator
Project is one example. It was a big success, I think. It
pulled that product forward, got it out there in the market.
And I think the -- the person in charge of the program in
Peoria got promoted, so I think that’s a sure sign that it worked. So the Proterra Bus Project, I think, worked very well. That’s moved Proterra forward and accelerated that part of the industry, so it’s led to some great successes. And I know we’re administering some of the other programs that will be also very successful.

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

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

Also on infrastructure, on page 44 of the Investment Plan and in the presentations it was mentioned about the need to look at freight and fleet charging. And we think a critical element there is determining some kind of standard for medium- and heavy-duty charging interface.
Right now there isn’t one and it is hindering things getting unified. And this is a great example of an industry-wide issue that would be well served by a state-supported project.

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

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

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

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

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

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

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

COMMITTEE MEMBER SHEARS: Yes. Thanks. So just to wrap things up, I just want to express my appreciation to
Commissioner Scott and Staff for again doing another
great job on balancing all of the tensions and all of
the demands around designing and Investment Plan for this
program.

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

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

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

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

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

COMMITTEE MEMBER SCOTT: Okay.

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

COMMITTEE MEMBER SCOTT: All right. Well, that’s
a great segue for me to remind folks that we also take
written comments. The comments are due on February 1st; is
that correct, Jacob? So they’re due on February first. You
can find the link to the docket and the presentations which
will be up on our web page. And we hope that you will
provide us with detailed thoughtful written comments, and we
look forward to looking at those.

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

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

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

I want to echo the comments to Tim Carmichael
about how much we have valued his expertise, his thoughtful
comments, his insights, and his participation on the
Committee. And we hope that he will continue to provide us
with great information.

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

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

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

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

And with that we will be adjourned. Thanks
everyone for joining us.

(Whereupon the 2016-2017 Investment Plan Update Advisory Committee Meeting and Public Workshop adjourned at 2:18 p.m.)
CERTIFICATE OF REPORTER

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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

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

MARTHA L. NELSON
CERTIFICATE OF TRANSCRIBER

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were transcribed by me, a certified transcriber and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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

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

February 1, 2016

MARTHA L. NELSON, CERT**367