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BEFORE THE

CALIFORNIA ENERGY COMMISSION

In the Matter of:)	
)	Docket No. 17-ALT-01
2018-2019 Investment Plan)	
Update)	
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ADVISORY COMMITTEE MEETING

AND PUBLIC WORKSHOP

ALTERNATIVE AND RENEWABLE FUEL

AND VEHICLE TECHNOLOGY PROGRAM

CALIFORNIA ENERGY COMMISSION

ART ROSENFELD HEARING ROOM – FIRST FLOOR

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

TUESDAY, NOVEMBER 7, 2017

10:00 A.M.

Reported by:
Gigi Lastra

APPEARANCES

COMMISSIONER

Janea Scott, Commissioner

ENERGY COMMISSION STAFF

Jacob Orenberg, Project Manager

Patrick Brecht, Assistant Project Manager

John Y. Kato, Deputy Director, Fuels and Transportation Division

Bill Kinney, Biofuels Unit, Fuels and Transportation Division

Brian Fauble, Electric Vehicles Unit, Fuels and Transportation Division

Tami Haas, Specialist, Fuels and Transportation Division

Jane Berner, Hydrogen Unit, Fuels and Transportation Division

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Joy Alafia, Western Propane Gas Association

Shannon Baker-Branstetter, Consumers Union (WebEx)

Steve Cliff, California Air Resources Board

Peter Cooper, California Employment Training Panel

Tyson Eckerle, California Governor’s Office of Business and Economic Development

Joel Espino, Greenlining Institute

Casey Gallagher, Development Project Coordinator, California Labor Federation

Joe Gershen, California Biodiesel Alliance

Brian Goldstein, Energy Independence Now

Ellen Greenberg, Deputy Director, Sustainability, Caltrans

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Bonnie Holmes-Gen, American Lung Association

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Thomas Lawson, California Natural Gas Vehicle Coalition

Jananne Sharpless, Member at Large

John Shears, Center for Energy Efficiency and Renewable Technologies

Eileen Tutt, California Electric Transportation Coalition

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PUBLIC MEMBERS

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Ryan Schuchard, CALSTART

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Ed Pike, Energy Solutions (WebEx)

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Urvi Nagrani, Motiv Power Systems (WebEx)

Jordan Miller, Center for Transportation and the Environment (WebEx)

AGENDA

P R O C E E D I N G S

10:00 A.M.

SACRAMENTO, CALIFORNIA, TUESDAY, NOVEMBER 7, 2017

COMMISSIONER SCOTT: Good morning, everyone. This is Commissioner Janea Scott. Folks are just gathering around the table so we're going to give them another minute or so and then we will get going on our Advisory Committee meeting. So, just about one more minute and then we'll get going.

(Pause)

COMMISSIONER SCOTT: Okay, good morning everyone. We're going to go ahead and get going. Let me make sure that we are on the record. Good. Okay, excellent.

So, good morning everyone and welcome. This is Commissioner Janea Scott. And we are right now having our first Advisory Committee meeting for the Alternative and Renewable Fuel and Vehicle Technology Program.

We're joined here in the room by our members of the Advisory Committee. Thank you very much for taking the time to give us your best advice today. And I know we have some on

WebEx, as well. And also, members of the public. So, welcome, glad to see everyone.

I want to go around the table here and do introductions of our Advisory Committee members. When we're done with that I will say a special welcome to some new Advisory Committee members that we have. And then, we'll turn it over to Jacob Orenberg to kick us off.

So, as I mentioned I'm Janea Scott. I'm the Lead Commissioner on Transportation here at the Energy Commission.

And let's go this way.

MR. KATO: I'm John Kato, the Deputy Director overseeing the Fuels and Transportation Division.

MS. GREENBERG: Ellen Greenberg, Deputy Director for Sustainability at Caltrans.

MS. GUTIERREZ: Irene Gutierrez with the Natural Resources Defense Council and I'm a new member of the Advisory Committee.

MS. TUTT: Eileen Tutt with the California Electric Transportation Coalition. I'm not a new member.

(Laughter)

MS. JAHNS: Claire Jahns, Assistant

Secretary for Climate Issues at the California Natural Resources Agency.

MR. KNIGHT: Ralph Knight, Consultant with School Bus Energy.

MR. ECKERLE: Tyson Eckerle, Deputy Director for Zero-emission Vehicle Infrastructure at the Governor's Office of Business and Economic Development.

MS. SHARPLESS: Jan Sharpless, former Air Board Chair and former Commissioner at the Energy Commission.

MR. KAFFKA: Steve Kaffka, UC Davis and California Biomass Collaborative.

MR. GERSHEN: Joe Gershen with Encore Biorenewables and the California Biodiesel Alliance.

MR. GALLAGHER: Casey Gallagher, workforce segment I'm the Development Department Project Coordinator for the California Labor Federation.

MR. GOLDSTEIN: Good morning. Brian Goldstein with Energy Independence Now.

MR. ESPINO: Good morning. Joel Espino, Greenlining Institute, new member to the Committee.

MS. ALAFIA: Joy Alafia, Western Propane Gas Association, President and CEO.

COMMISSIONER SCOTT: And do we have Advisory Committee Members on the WebEx? If so, please go ahead and introduce yourself.

MS. BAKER-BRANSTETTER: Hi, this is Shannon Baker-Branstetter with Consumers Union.

COMMISSIONER SCOTT: Good morning, Shannon.

I believe that's the only member that we thought would be on the WebEx.

Okay, good morning. I do want to just extend a special welcome to our new members. Some are here, some are not able to make it to the meeting this morning.

But we will be joined by Matthew Barth, from the University of California, Riverside.

Joel Espino, welcome, from the Greenlining Institute.

Ellen Greenberg, welcome, from California Department of Transportation.

Casey Gallagher, good morning and welcome, from the California Labor Federation.

Steve Cliff from the California Air Resources Board. Everything old is new again.

So, he used to be our Caltrans representative and now he'll be our Air Resources Board representative.

And also, Irene Gutierrez, good morning and welcome, from NRDC.

So, we're really delighted to have you all here. And with that I will turn the meeting over to Jacob Orenberg.

MR. ORENBERG: Thank you, Commissioner. And good morning, everyone. My name is Jacob Orenberg and I'm the Project Manager for the 2018-2019 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program.

The purpose of today's workshop is to discuss the recently released draft staff report of the Investment Plan Update.

Before I begin, I do need to make some general announcements, as follows: This workshop is being recorded and the transcript will be made available on the Energy Commission's website.

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

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

Finally, in the unlikely event of an emergency in which we need to evacuate the building, please calmly and quickly follow Energy Commission employees to the appropriate exits. We will reconvene at Roosevelt Park, located diagonally across the street from this building.

So, to start off, I'd also like to thank all of our ARFVTP Advisory Committee Members for their dedication in helping us to develop the Investment Plan and the program and for generously giving us their time and their expertise for another year.

I'd also like to introduce Patrick Brecht to everyone. He's sitting over here by the WebEx podium. Patrick will be serving as the Assistant Project Manager for the Investment Plan Update this year.

One moment. Okay.

Our meeting today will follow the agenda on this slide. Right now, we'll start the presentation that will provide an overview of the 2018-2019 Investment Plan Update.

At 10:45 a.m. we'll move on to the

Advisory Committee discussion on each allocation. And staff will be providing a brief overview of the specific fuel or technology type before we begin the discussion.

We'll also take public comment after the Advisory Committee discussion of each allocation.

Since we do have a lot to cover today and many interested stakeholders are present, we do request that public comments are kept to three minutes or less.

At noon we're planning to break for lunch and reconvene an hour later at 1:00, at which time we will continue the discussion.

Finally, we will have another period for public comments at the end of the workshop.

To provide some context for the ARFVTP, this slide shows some key statistics for the California transportation sector. Statewide we have over almost 29 million light-duty passenger cars and trucks on the road, as well as nearly 1 million medium and heavy-duty trucks.

In 2015, California generated about 440 million metric tons of carbon dioxide equivalent greenhouse gases and 39 percent of these emissions were from the transportation sector.

In addition, many regions in California struggle with poor air quality. Most notably with the San Joaquin Valley and South Coast Air Basins being the only two regions in the country that are in severe nonattainment for Federal Ozone Standards. And in 2016, the transportation sector consumed 13.9 billion gallons of gasoline and 3.3 billion gallons of diesel fuel.

Both the State of California and the Federal Government have set numerous policies and regulations to protect public health and wellbeing, and the environment. These include greenhouse gas emission reduction policies, air quality regulations, petroleum reduction and renewable fuel goals, and zero-emission vehicle regulations.

The policies and regulations outlined on this slide helped guide the development of the Investment Plan and the funding allocation. And in turn, the ARFVTP helps the State meet these goals.

The ARFVTP was set up to develop and deploy innovative technologies that transform California’s fuel and vehicle types to help attain the aforementioned climate change policies.

In addition, we have the complementary goals of improving air quality, increasing alternative fuel use, reducing petroleum dependence and promoting economic development.

The ARFVTP was established by California Assembly Bill 118 in the year 2007. The program is funded through a small surcharge in California vehicle registrations which gives us a budget of up to $100 million per year, depending on how much is collected from the surcharge.

Originally, the program was scheduled to end in 2016. However, California Assembly Bill 8 extended it through January 1st, 2024.

The Annual Investment Plan Update serves as the basis for all solicitations, agreements, and other funding opportunities for each fiscal year.

The document is vetted through a public review process that involves multiple iterations of the document and meetings with our Advisory Committee, one of which we’re holding today.

Similar to the previous years’ Investment Plan, we do not anticipate a full $100 million allocation for fiscal year 2018-2019. Rather, we expect to have a $95.2 million allocation for project funding.

The allocations described in the Investment Plan are for general project categories and provide an overview of the status of the fuel or technology and its potential over the coming fiscal year. The specific requirements of what we'll ultimately fund are determined by each funding solicitation and not by the Investment Plan.

To date, the Energy Commission has provided over $745 million in funding through the ARFVTP. About 25 percent of this has been invested in biofuel production and distribution projects. Another combined 36 percent has been provided for electric charging infrastructure, light-duty electric vehicle incentives, medium and heavy-duty electric vehicle demonstrations, and electric vehicle and component manufacturing.

Nineteen percent of the funding has gone to hydrogen refueling infrastructure and vehicle demonstration, 13 percent to natural gas fueling infrastructure and vehicles, 1 percent to propane vehicles, and the remaining 6 percent to projects that either incorporate multiple fuel types or do not address specific fuel types.

To demonstrate its commitment to diversity, the Energy Commission adopted a resolution during the April 2015 Business Meeting to firmly commit to increasing the following: The participation of women, minority, disabled veteran, and LGBT business enterprises in program funding opportunities, outreach to and participation by disadvantaged communities, diversity and participation at Energy Commission proceedings, and diversity in employment and promotional opportunities.

The Energy Commission is also committed to taking steps toward broadening the pool of applicants to our various programs, especially under-represented groups, disadvantaged communities, and small businesses.

Workshops such as these are part of a continuing effort to encourage diversity and participants for Energy Commission programs which will help to ensure equitable access to Energy Commission funding, creating jobs, and provide economic stimulus in under-represented and disadvantaged communities. Increase competition to ensure the best opportunities are identified and funded. And ensure that local needs are identified and addressed.

The schedule that we expect to follow for the 2018-2019 Investment Plan Update is outlined on this slide.

We released the Draft Staff Report on November 2nd and we're holding the first Advisory Committee meeting today.

We will release the Revised Staff Report by January 10th and hold a second Advisory Committee meeting in late January or early February.

After reviewing and incorporating comments from that workshop, we expect to release the Lead Commissioner Report in March and seek Business Meeting approval for the final document in April.

These are a few key considerations which will have a notable impact on this Investment Plan Update. In late September the California Air Resources Board released their Draft Funding Plan for Clean Transportation Incentives, which includes funding from the Air Quality Improvement Program, the Low Carbon Transportation Investments, and other sources.

It proposes over $660 million in investments for alternative transportation projects, including $188 million for the Clean Truck and Bus Vouchers, and $190 million for advanced freight equipment demonstration and deployment projects.

In addition, the State is seeing a substantial increase in the amount of funding available for electric charging infrastructure, with funding from the Volkswagen settlement and the Investor-Owned Utilities now available. And I will discuss this in more detail later in the presentation.

Also noteworthy is the implementation of Senate Bill 1383, of 2016, which requires a 40 to 50 percent reduction in the emissions of short-lived climate pollutants by 2030.

We expect that the ARFVTP will be able to contribute to these goals with low carbon fuel production projects.

This slide shows the layout of the Investment Plan, which is divided into chapters based on the supply chain stage. 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 outline, as well.

The first category in the Investment Plan is Low Carbon Fuel Production and Supply, which is an evolution of the previous year's Biofuel Production and Supply Allocation.

We're proposing a $25 million allocation for fiscal year 2018-2019, which is about $5 million more than last year.

This category is expected to provide funding support for the production of nonpetroleum diesel and gasoline substitutes, such as biodiesel and ethanol, as well as for renewable natural gas and renewable hydrogen.

We have a continuing focus on waste-based feedstocks, such as woody biomass, wastewater, and municipal solid waste as these tend to have the lowest carbon intensity of any fuel.

As in previous years, the funds in this category are expected to be open to multiple fuel types in development stages, including pilot demonstration and commercial scale projects.

The category has two parallel goals. One of which is to continually drive improvements in the cost effectiveness of these projects. This will ultimately take the form of low cost, commercial scale biofuel facilities.

The second goal is to encourage the use of more advanced pathways and feedstocks for biofuel production.

Beginning with this Investment Plan update, we expect to include renewable hydrogen production as an eligible product type in this category. And this is the reason for the new category name because renewable hydrogen can be produced from both biomass and electrolysis, the latter of which is not a biofuel.

The increase in funding to this category compared to last year is, at least in part, to support this new project type.

We may also pursue a new concept for integrated renewable natural gas production and distribution facilities, which would encourage the use of renewable natural gas while overcoming barriers to distribution.

This concept may involve a single grant agreement that would provide funding for both renewable natural gas production and refueling infrastructure.

These agreements could also include funding for dedicated low-NOx natural gas vehicles that would use the fuel produced by these facilities.

Moving on to electric charging infrastructure. This graph illustrates the progress our State and our Nation have made with electric vehicle adoption.

The nationwide monthly sales of EVs are represented with the blue columns. And as you can see, the rate of sales continues to increase as time goes on and more electric vehicle makes and models are available.

Cumulative California sales, shown with the green line, are also steadily increasing and have surpassed 330,000 vehicles. For reference, at this time last year we were at less than 240,000 EVs in California, so we had a 35 percent year-over-year increase in the number of deployed EVs.

Given the increasing pace of electric vehicle sales, as well as the goals of the ZEV Action Plan, we expect that we will need to provide continued State investments for electric charging infrastructure.

As in previous years, we expect that this category will primarily fund infrastructure for light-duty vehicles, such as passenger cars and trucks, but may also fund infrastructure for medium and heavy-duty vehicles, if needed.

For this coming fiscal year, we are proposing a $20 million allocation for electric charging infrastructure, which is an increase of about $3 million compared to last year.

California has set a goal to have 1.5 million zero-emission vehicles on the roads by 2025 and the majority of these are expected to be electric vehicles.

To determine how many chargers will be required to support these vehicles, the Energy Commission, in cooperation with the National Renewable Energy Laboratory, developed the EVI-PRO model. From this model, we're estimating that the State will need 500,000 charge points by 2025 and this comes at an estimated cost of $2 billion.

In addition to the ARFVTP, several other organizations are now providing significant funding for light-duty electric vehicle charging infrastructure. However, these are limited to certain project types or service territories.

The Volkswagen group set up the company, Electrify America, to handle investments resulting from the Diesel Emission Settlement. And this will provide an average of $48 billion per year during the first 30-month investment cycle for electric charging infrastructure.

In addition, PG&E is expected to invest an average of $43 million per year, and San Diego Gas & Electric Company is expected to invest an average of $15 million per year in their respective pilot programs for utility-owned charging infrastructure.

Southern California Edison has already planned $22 million in investments and is seeking approval from the CPUC for an additional $8 million investment.

Despite the scale of these other programs, we still foresee a strong need for ARFVTP funding for charging infrastructure to invest in both geographic areas and sectors that aren't covered by other programs.

The slide, which was prepared by the California Air Resources Board for their annual Hydrogen Evaluation Report, provides context for

California's hydrogen refueling station deployment efforts.

In this graph, the green bar represents the fueling capacity of the stations funded to date, measured in the number of vehicles which can be supported. And the purple bar represents the station capacity from expected future investments.

The solid vertical bars represent estimates for the number of hydrogen vehicles expected to be on the road.

Similar to previous years, the Air Resources Board is projecting that the currently-funded infrastructure will be sufficient until the end of this decade. But even with predicted future infrastructure investments the State is still expected to experience shortfalls in hydrogen refueling capacity early in the next decade.

For fiscal year 2018-2019 we are proposing a $20 million allocation for hydrogen refueling infrastructure, which is the maximum allowable under Assembly Bill 8. Based on historical and expected station costs, we estimate this allocation should support the deployment of up to ten stations, plus operations and maintenance support.

We expect a continuing need for O&M funding in order to support the business case of station developers. And this is because the deployment of hydrogen vehicles is still in the early stages. We expect that the need for this support will dissipate as more hydrogen fuel cell vehicles are on the roads.

One of the major proposed changes to the 2018-2019 Investment Plan is that we're proposing to remove the dedicated funding for natural gas fueling infrastructure and vehicles and combine these project types into the Advanced Freight and Fleet Technologies category.

What we've found is that over the past couple years these funds have not been used by applicants to the degree expected.

The most recent funding solicitation for natural gas fueling infrastructure, which was GFO-16-602, only received one and a half million dollars in eligible applications, despite having three and a half million dollars available. Meaning that this solicitation was under-subscribed by almost 60 percent.

In addition, the Natural Gas Vehicle Incentive Project, unfortunately has only been able to provide about $5 million per year in incentives, which is half of the historical annual allocation for natural gas vehicles.

Although the Natural Gas Vehicle Incentive Project originally saw a strong demand for incentive reservations, many of these reservations did not ultimately lead to a vehicle purchase.

Also, both of these funding allocations have high levels of unencumbered funds, with $4,400,000 available for natural gas infrastructure projects and $19,700,000 available for natural gas vehicle incentives.

Finally, the Air Resources Board is planning to provide some incentives for natural gas vehicles through their Clean Truck and Bus Vouchers.

The Advanced Freight and Fleet Technologies category is also continuing to evolve. As in previous years, this category still focuses on the needs of medium and heavy-duty vehicles which are most commonly used for freight and in fleets.

We find these as Class 3 through 8 vehicles, with a gross vehicle weight of over 10,000 pounds. And we focus solely on the alternative fuel and zero-emissions power trains.

For this fiscal year, the Air Resources Board is planning a major expansion of vehicle support projects under their Clean Transportation Incentives. These include the Clean Truck and Bus Voucher incentives, which has a proposed budget of $188 million and is expected to offer vouchers that will cover up to the entire incremental cost of a zero-emission vehicle.

In addition, the Air Resources Board is also planning to provide $190 million in investments for the Advanced Freight Equipment Demonstration and Deployment Project.

Taking these other funding sources into account, we are proposing a 17 and a half million-dollar allocation for this category.

The ARFVTP has been the State’s main source of funding for alternative fuel infrastructure projects and we expect to continue in this lead role by taking into account the need to develop fueling infrastructure alongside the vehicles I discussed in the previous slide.

We expect that an increasing share of funding from this category will go towards dedicated fueling infrastructure for freight and fleet vehicles.

We also expect that the Energy Commission will continue to work with the California Ports Collaborative to help implement the California's Sustainable Freight Action Plan.

The Energy Commission has also been tasked with administering up to $75 million for the retrofit and replacement of school buses. These buses will likely use zero or near-zero-emission power trains and may also require fueling infrastructure. So, funding from this category may be used for those purposes.

In addition, any suitable projects for natural gas vehicles and fueling infrastructure will likely be funded from this category once the dedicated natural gas funding is depleted.

Finally, we do expect to continue to fund advanced technology freight and fleet vehicle demonstrations in some capacity as the ARFVTP has been a stable source of funding for these projects since the inception of the program.

For the coming fiscal year, we're

proposing to continue the Manufacturing category with a $5 million allocation.

The 2017-2018 Investment Plan restarted funding for manufacturing after a two-year hiatus and we haven't yet gone forward with the solicitation for these projects, so we don't have much to report at the moment.

This category is expected to fund projects that expand in-state manufacturing facilities for zero and near-zero-emission vehicles, vehicle components and infrastructure. We expect the $5 million allocation will be able to fund one or two projects that will indirectly support the other ARFVTP categories, as well as the general goals of the program.

The projects are also expected to create jobs and economic benefits in the State.

Finally, I'm going to provide a summary of the remaining Related Needs and Opportunities categories. These allocations are meant to support alternative fuels and advanced technology vehicles beyond what is proposed in the previous categories.

The emerging Opportunities allocation is largely 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 project to bring Federal grant money to California. And it may also target cost sharing opportunities with California Air Districts in the future.

We're proposing an allocation of $4,200,000 for this category and this is based on the historical and projected needs for funds.

Our Workforce Training and Development activities are also continuing with interagency agreements and these also support the California Community Colleges system. This category has and will continue to provide funding to help meet emerging workforce needs associated with the fuel and vehicle types we fund in other parts of the program.

For the coming fiscal year, we're proposing a $3,500,000 allocation based on the anticipated need of these agreements and activities.

Those are all of the categories we're proposing for funding in this Investment Plan Update. Going forward we will be seeking feedback on all of these allocations, the Investment Plan, and the program in general from all stakeholders.

In order to incorporate any comments in the Revised Staff Draft, we're asking to receive them no later than Friday, November 17th.

We prefer to receive comments through the Energy System's Ecommenting system and there's a link to that on this slide and in the workshop notice.

We also accept comments via e-mail and regular mail, and instructions for where to send these are also in the workshop notice.

We expect to release the Revised Staff Report of the Investment Plan in advance of the January 10th deadline we have, and are planning to hold a second Advisory Committee meeting in late January or early February, with a location yet to be determined.

This final slide shows a summary of all the funding allocations we are proposing in this draft of the Investment Plan Update.

The Advisory Committee discussion will begin momentarily, during which we hope to have an open and frank discussion about these proposed funding allocations and categories.

I can also answer any clarifying questions about this presentation, now. However, please hold off on any questions or comments about specific fuel types, technologies or allocations until the discussion or the public comment period.

Thank you.

COMMISSIONER SCOTT: Thank you, Jacob.

Do we have questions from our Advisory Committee Members for Jacob, on what he’s just presented?

Please, go ahead.

MS. SHARPLESS: I was wondering, just so I can get sort of a better understanding of how you evaluate the barriers and the opportunities when you establish the direction for allocations, do you ever do surveys? I just don’t understand right at the moment why some allocations, when we have these categories, are not being used. And, you know, so they either carry over or we redistribute them. Can you tell me why that’s happening?

MR. ORENBERG: So, this is a forward-looking Investment Plan. You know, we are dealing with fiscal year 2018-2019 and it's done up to a year in advance. So, we try to evaluate the opportunities and barriers that we foresee by discussing these issues with our technical staff and the subject matter experts, as well as engaging with industry, reviewing what other State agencies and the Federal Government are doing, and their plans for funding.

And yes, actually in the past we have done surveys with our funding recipients.

MS. SHARPLESS: But can you specifically, in those categories where the money is left on the table because there's not enough response to the solicitations, have you done an analysis of why that happens?

MR. ORENBERG: We are currently conducting an analysis. In the respect to natural gas vehicles and natural gas fueling infrastructure, some of the barriers that we're encountering there is a poor price differential between natural gas and other petroleum fuels, specifically diesel. For several years they've been at about the same price. You know, one goes up, one goes down. But there hasn't been a significant price benefit for natural gas for a few years, now.

There used to be a substantial benefit of a dollar or more per gallon equivalent.

So, that's one of the primary barriers we're seeing with the natural gas vehicle incentives.

There are some other issues that we're looking into with the structure of the actual incentive project, but I can't really get into that right now. But we are trying to see how we can better distribute this funding.

COMMISSIONER SCOTT: Bonnie and then Ellen.

MS. HOLMES-GEN: Hi. Thank you. Bonnie Holmes-Gen. I didn't introduce myself earlier, sorry. American Lung Association in California. Thank you for the excellent overview.

I have two questions. One, just given the influx of climate investment money, as you've mentioned in several places there's so much more funding available directed to many of these purposes, including freight, and I'm just wondering if you could just kind of step back and give kind of a little bigger picture as to has anything changed about the way that you're suggesting to allocate this money, given the mix of the pots of money that's out there and the additional funding that's available? Has there anything changed about the purpose or the niche that we see for this particular pot of money, given the array of new funding that's out there?

MR. ORENBERG: The primary change has been to the Advanced Freight and Fleet Technologies category. Because the Air Resources Board is providing substantial funding to near-zero and zero-emission vehicle deployment and demonstration projects that category, Advanced Freight and Fleet Technologies, we expect it to shift significantly towards infrastructure to support zero-emission and near-zero-emission medium and heavy-duty vehicles.

MS. HOLMES-GEN: And I didn't hear you mention specifically about -- is the zero-emission infrastructure for heavy-duty embedded in the Advanced Freight and Fleet Technologies pot or is that part of the zero-emissions pot? Where is that piece of it?

MR. ORENBERG: The infrastructure for the heavy-duty, zero-emission vehicles we expect to fund from the Advanced Freight and Fleet

Technologies category.

We have also left the electric charging infrastructure category open to fund infrastructure for medium and heavy-duty vehicles if we see an opportunity and a need to do that. But the Advanced Freight and Fleet Technologies category is expected to be the primary source of funding for those types of projects.

MS. HOLMES-GEN: And is that something that will just be considered along with the applications for the specific vehicles or is there any separate set aside for the infrastructure piece?

MR. ORENBERG: It's not -- we don't make a distinction in the Investment Plan as to how much money will go to each project type. That will be determined by the specific solicitations.

COMMISSIONER SCOTT: And that's something that we will workshop. You know, we often do those pre-solicitation workshops where we gather a lot of information to understand exactly where the need is. And so, we will be doing that in this space as well.

MS. HOLMES-GEN: But it would just -- it would generally be -- it's just one of the projects that can be applied for through that bin, whether it's tied to a specific deployment of vehicles or not? Is that correct? I mean it could be a separate, it could be a combined project with vehicles and infrastructure or it could be separate, is that --

MR. ORENBERG: That would really be determined by the specific solicitation.

MS. HOLMES-GEN: All right. Okay. I mean it seems like another change in this pot, in this package is that we're not suggesting any backup for CVRP because we finally, hopefully, have enough funding for CVRP. So, it's nice to know, finally, that we are hopefully not going to have gaps in CVRP funding for the next year.

I guess another question is just regarding equity. And as you're looking at this package of expenditures what kind of review has been done in terms of looking at where, specifically, the funding has gone and what the goals are in terms of ensuring that as much funding as possible is going to be assisting disadvantaged communities? Is that a frame that's been used here?

MR. ORENBERG: It is discussed a little

bit in the Investment Plan. Again, that is an issue that we typically incorporate in to our solicitations. I believe all or substantially all of our solicitations do have scoring criteria that takes into account the CalEnviroScreen 3.0 score, which measures community impacts such as air pollution and water pollution. I think income is included in those.

So, all of these factors are taken into consideration with almost all of our funding. And so, the goal is there to encourage the deployment of these beneficial projects in those communities, for the benefit of those communities.

COMMISSIONER SCOTT: I have Ellen and then Steve.

MS. GREENBERG: Thank you. Ellen Greenberg, Caltrans. Jacob, thank you to you and other Energy Commission staff. Thank you for the presentation and for all the work on the proposal.

Just staying on the topic of the Advanced Freight and Fleet Technologies Program, could you describe a bit more what’s included under that program? I’m specifically wondering about equipment, on-road equipment that's not freight related, necessarily. Like for example hydrogen street sweepers, and charging infrastructure necessary to support some of the new equipment available?

MR. ORENBERG: The Investment Plan Update, that chapter of the Investment Plan Update is written to incorporate a broad variety of different project types. So, we target with that category basically medium and heavy-duty vehicles. These are, you know, almost exclusively used either for freight and goods movement or in vehicle fleets. That's where the name comes from.

So, these vehicles have a gross vehicle weight of 10,000 pounds or more. I believe that's Class 3 and above. And again, we target a variety of near-zero and zero-emission power trains with these funds. So, we wouldn't specifically call out, necessarily, hydrogen but that could be open to it.

And I think as I said before, we are looking into supporting the fueling infrastructure to support these vehicles and provide a significant amount of this funding for those purposes.

MS. GREENBERG: Okay, thank you.

MR. ORENBERG: Yeah.

COMMISSIONER SCOTT: Steve and then Casey.

MR. KAFFKA: Bonnie's presence here and her comments remind me of an item I found in the actual document, the proposal that's been released that we're reviewing today. And I just want to bring it up. On page 27, you have a comment about the State Implementation Plans for air quality. And you talk about both the South Coast and the San Joaquin Valley being two areas in extreme non-attainment, which are really quite true.

And then you mention that there are actions in the State's policy program to affect a very significant reduction in emissions in the South Coast Air Basin by 2031. And it stops there. There's no further comment about the San Joaquin Valley. And I think that's a significant omission. And I'm just curious if there are either no programs that are particularly focused on the San Joaquin Valley or is it omitted here for reasons that effectively are just overlooked, or what?

MR. ORENBERG: There is no reason for that omission. I will certainly look into that for the Revised Staff Report and see if I can incorporate something for the San Joaquin Valley.

COMMISSIONER SCOTT: Yeah, that's a great catch. We can add that in.

MR. KAFFKA: I mean, are there such programs?

COMMISSIONER SCOTT: Yes, the San Joaquin Valley certainly has a series of clean air programs. I don't have their attainment dates right off the top of my head. Someone around the table may. But we should absolutely include that. That was just an oversight. Thanks for pointing that out, though.

MR. KAFFKA: Well, it's related to another set of comments I have and I'm not sure where the right moment is to bring them up. It's what I consider perhaps a significant omission from this plan. And I'm not sure whether it should be discussed now or later when there's going to be a more thorough discussion of biomass.

COMMISSIONER SCOTT: Yeah, why don't we

do that during the discussion of biomass and we'll just do this part for additional clarifying questions for Jacob. And then, when we get into the discussion we can get into the details there.

Casey, please go ahead.

MR. GALLAGHER: Hello. Yes, in reference to workforce training and development and as well as the commitment to diversity, is there any form of criteria in the creation of -- criteria in the quality of jobs that this plan would create?

MR. ORENBERG: I'm sorry?

MR. GALLAGHER: Like with the idea of the job creation, was there any kind of -- in the decision-making process of who would get the funding, of the quality of jobs that this plan would create?

MR. ORENBERG: I'm not sure I can really speak to that. That might be a little beyond my k knowledge with the workforce training and development. Our funding does -- it targets, I guess, what could colloquially be called green collar jobs. The funding is distributed to other State agencies right now for programs such as the Employment Development Department, the Employment Training Panel, and the California Community

Colleges System.

As far as the quality of the jobs, I'm not entirely sure how to address that.

MR. COOPER: This is Peter Cooper from the Employment Training Panel. I think I can respond to a part of your question there. Not necessarily the job creation.

But with the workforce training dollars, with ETP's process, we require there to be a minimum wage for any training that's being reimbursed through our funding programs. As well, placement in the jobs, as well as healthcare benefits.

So, we do have -- you know, we seek to support high quality jobs, but I can't really speak to the job creation from, let's say, the investment in manufacturing or something like that.

MR. GALLAGHER: Thank you.

MR. KATO: And I just want to add, also, that those basic qualifiers are things that we are actually focusing more on as we move forward because those are very relevant as far as performance and what we're accomplishing. So, I mean those aren't lost.

COMMISSIONER SCOTT: I have Brian, followed by Jan.

MR. GOLDSTEIN: I just wanted to follow up on Bonnie's question about additional funding coming in from other programs. So, I guess the Volkswagen one I think would be a good example. So, as that comes in that funding's directed specifically to one fuel type, is that correct? So, is it possible to balance out the other fuel types and reallocate monies to that?

You take a look at the overall picture of funding going to the fuel types and try to maintain some sort of balance considering kind of the disproportionate amount coming in from external sources for one type. Or, are the funding levels locked in per fuel type here?

MR. ORENBERG: The funding levels are generally locked in as -- I mean not locked in. This is a proposal, they could still change. But once we adopt the Investment Plan they're generally locked in and we'd have to go back and change them.

When we do develop these funding levels, we do try and take into account all of the other funding sources out there. So, especially with electric charging infrastructure. As I stated earlier, we're expecting an average of, I think, $48 million per year from Volkswagen to go towards electric charging infrastructure.

But even so, we've placed a $2 billion price tag on the amount of electric charging infrastructure that we needed in the State by 2025. So, we do think that the $20 million allocation here is justified.

And similar analysis has gone into all of the other categories here.

MR. GOLDSTEIN: Okay. But just to clarify, that's not necessarily locked in until the budget's approved and that's something that you can take a look at annually to, you know, kind of evaluate whether one technology's getting a disproportionate attention or funding.

MR. ORENBERG: Correct and we do. We do evaluate that every year.

MR. GOLDSTEIN: And then my other question, well, it may be more of a comment. You know, you have the cumulative awards and percentage of funding and number of agreements. But it would be good, I think, just for us to have some type of idea of, you know, for each funding category how many vehicles that could be serviced over a certain period of time. So, you know, how many vehicles per year can be fueled with the biomethane or ethanol, and biodiesel-specific categories.

And then, an additional idea of what the air quality impact is there. You know, what are the emissions mitigation per vehicle. It would just kind of give us an idea of the overall impact of the funding that's going into each category.

MR. ORENBERG: We can certainly look into that.

MR. GOLDSTEIN: Great, thanks.

COMMISSIONER SCOTT: We also have incorporated into our Integrated Energy Policy Report the benefits of the ARFVTP program and so it talks about the greenhouse gas reductions that we have associated with it, the clean air reductions. It does have a count of the number of vehicles. Maybe not quite the way that you've described it but we do have -- and I don't think we incorporate -- we have some of that in here, but there's a whole chapter that will be in the Integrated Energy Policy Report that's got those details as well.

MR. GOLDSTEIN: Gottcha, thank you.

COMMISSIONER SCOTT: Yes, you're welcome.

Jan, followed by Joel.

MS. SHARPLESS: Yes. Speaking to the question regarding the San Joaquin Valley expenditures of this money, there is a good figure, ES.2, on page 4 that has the colored wheel. And it does show that $114.8 million from this program has gone to San Joaquin Valley solicitations.

But the question goes back to sort of the initial question I had. Isn't this program driven by who responds to the solicitations? So, it's interesting because when you look at this wheel you see that the districts that have huge air quality problems, South Coast for example, San Joaquin Valley, they are getting a substantial amount of the money from this program for their solicitations, even though this is sort of, you know, a need-to-respond kind of program.

So that was what went back to my initial question of, you know, why is some money being left on the table? You know, where are the opportunities, where are the barriers?

It seems that when there are barriers, such as the cost differential between natural gas and other forms of fuel that that's kind of a barrier that we accept and we don't try to drive through the barriers. We respond to the barriers by going in another direction sort of.

That kind of gets at the nut of the question I'm asking. Because I can't quite get my arms around, you know, the $3 million more in this category, the $2 million less in this category as to what is -- I read the analysis of doing the assessment and you've done a great job. But it still raises the question that this program is a responsive program and there's a lot of different things happening in the market now.

We used to, under electric vehicles, that was the rock being pushed up a very steep cliff. Now when you read the news, you know, you've got car companies basically dedicating their future to electric vehicles and automated drive trains. And so, it's less of a rock now and more of a game of how do we harness the market to meet our goals?

Because this program has so many moving parts. I just think you guys are doing an amazing job. I don't know how you keep track of all the moving parts of everything you're trying to cover and plus all of this new money that's coming in.

So, I guess that's a comment. I don't know if there's question attached to it.

(Laughter)

MS. SHARPLESS: Except just, you know, this is a solicitation program and so somehow, we need to make sure that when we do the solicitations we are responding in the solicitations to what the stakeholders say they need in order to transform the market. Rather than responding sort of in a defensive way.

COMMISSIONER SCOTT: Yeah, we agree with that. And I think that's very much what we, and the team that works all day, every day really hard on these are trying to do. And so, I appreciate the comment. And we will continue to keep working on that and thinking about ways to improve that and continue to do it better.

But that's -- you know, when we put together our pre-solicitation workshops that's what we're looking to do, get the latest and greatest, most current information. Is there a barrier in an area that we need to put the money towards solving? Is there a technology tweak? Maybe that's not quite the right word if you're engineer. That if we can figure that out then everyone who's using that technology then is able to -- it raises all boats. We're always looking for those types of things when we're putting the funding in. And we get most of that information when we do our pre-solicitation workshops. But also, just from the staff expertise and the different folks that they interact with every day.

So, I have Joel and then Thomas.

MR. ESPINO: Good morning. Thanks for that presentation, Jacob. So, I have a couple questions here and they're mostly, I think it's a little bit of my lack of prep. So, I apologize that there might be something in the Investment Plan speaking to this, but just taking the opportunity to ask the question.

You mentioned all the various, and it's been mentioned already the various pots of money that are out there, climate investments, Volkswagen. All them related to zero-emission vehicle technology.

I'm curious if Energy Commission has worked with the Air Resources Board and the other agencies to sort of map out those different pots of money, and maybe in a chart or something that we can kind of reference to see which categories, which vehicle types are being supported across various pots of money, which ones are lacking. I think that would be really helpful.

If there's something in the Investment Plan that you can point me to, I think I would really appreciate that.

MR. ORENBERG: Yeah, that sounds like a great idea and we can look into including something like that or posting something like that on our webpage.

Chapter 2 in the Investment Plan goes into depth into each of the other funding categories we've taken into account. So, one by one it talks about each different source of funding or each policy goal. So, that would be a good chapter to review. And it talks more in depth specifically about the ARB's Clean Transportation Incentives.

MR. ESPINO: Okay, great. I'll make sure to look at that.

And my other question, similarly, I'm more familiar with the ARB process. And I know that in their funding plans part of it is because they're required through law, they break down the investments that are going into disadvantaged communities. And I'm wondering if there's a similar chart or somewhere on the website with the Energy Commission that we can reference for that purpose?

MR. ORENBERG: We do not have that in the Investment Plan, but I believe that actually is mapped out on our website.

MR. ESPINO: Okay. Is there like a specific site I can go to?

MR. ORENBERG: We'll have to follow up with you on that and send you the link.

MR. ESPINO: Okay, I would appreciate that.

And then, I just kind of wanted to end with a comment and just really appreciate Bonnie bringing up the points around equity, and really appreciate the Energy Commission emphasis on the inclusion in equity.

Our work with the Greenlining Institute, we focus on social equity across these policies, so I really appreciate that.

And my last point is around the workforce piece. I'm definitely going to get up to speed on what that program entails. But just to provide some overarching comments here, I think the emphasis on job quality is important.

A lot of the points that we raise is as we're transitioning, right, to kind of a cleaner energy economy we want to make sure that that economy is better than the one we have right now, right. So, we have a lot of income and equality, a lot of issues in this current economy.

And so, to the extent that we can lift up minimum wages, provide living wage services, and just kind of more robust employment protections for folks, I think that that should be reflected in not just the Workforce Training Development money but also, you know, the manufacturing piece emerging opportunities.

I think we should leverage -- at the end of the day these are public funds, right, so we should try to maximize the public impact that these dollars can have.

COMMISSIONER SCOTT: Great. I have Thomas and then Brian. And then, maybe Steve, we'll end with you just so we can get to the part where we get into the details of each.

But Thomas, please go ahead. Then Brian, then Steve.

MR. LAWSON: Thank you, good morning. Sorry I was late. I had a couple of points and a couple of questions. And I wanted to start off, obviously, with Slide 21.

And I think one of the issues that our industry has been dealing with over the last couple of months is communication, I think, in trying to figure out how do we deal with problems.

Obviously, I'm reading here that the incentive funding is under-utilized. And to me that's a red flag that there's some issues that we need to work out with the particular program administrator and maybe some changes we need to make inside the program.

And I would love to have a conversation with staff and maybe UCI folks and figure out what are some feedback that they're hearing from folks that are interacting with the program, and how do we incorporate some changes to make it work much better than it is right now.

I think as an industry we've been trying to obviously engage, not just with CEC, but also with the ARB on some of these programs and trying to tweak different things here and there. And I think that, you know, we'd love to have a more robust conversation about that because I think that there are some things that we may be hearing that we're trying to push for, that may not be coming all the way up the pipeline.

So, I'm very much looking forward to some real engagement on that in the next couple of weeks, and month or so.

You know, and then I'd love to get into some of the data as well, right, and figure out -- you know, we talked yesterday a little bit about the reservations and some of those coming back, and really getting into some weeds on that at that time, as well, to figure out a percentage of folks that are returning, and how do we kind of encourage folks to follow through on those collections.

And then, we've talked briefly about some of the issues with folks like Penske, and others, that are having some difficulty with trying to figure out how they can interact with the program in a better way. So, they have an opportunity, especially for fleets or smaller fleets, folks that can't afford to purchase new vehicles on their own, and how do we get those folks. And I think that can be very impactful especially as we're talking about what's going on in the realm of ports.

The other thing I wanted to talk about was on the workforce development piece. I think we've talked about this quite a bit over the last couple of months or since our last plan. And I know when we were lobbying the Capitol one of the issues that came up was what do you do about jobs? Right, what do you do about these "oil jobs" that people are going to lose because we're transitioning to this greener economy.

And so, I just want to know that that's part of this plan, right. I mean, you start talking about these manufacturing jobs, these engineering jobs, some of these more specialized positions can definitely roll over into our energy projects that we have going on. Obviously, CFA's got a lot of funding in those programs and we expect to see a lot of those projects coming online.

And it seems like a very natural way to push folks that may be in, you know, a different industry into the green industry. And, you know, if not have equal income, if not better income. And I think that having some kind of specific language about how we do that or if there's issues on how we can make that happen, some kind of internships or I don't know how we can do it.

But then I think the next step to that is communicating that to the Legislature, right, so that they understanding that that's not just -- that we're not just -- we, as an industry, you know, folks that are involved in clean tech want to just take away old jobs, but that we're thinking it all the way through and trying to make sure whether folks can put food on the table.

So, I think that could go a long way in getting the Legislature on board with some of the things that we're trying to do and ask for in the future.

So, those are two things that I wanted to talk about and we'll get into some of the other stuff later on. But thanks.

COMMISSIONER SCOTT: Okay, thanks.

Brian and then Steve.

MR. GOLDSTEIN: As Jacob mentioned, and threw up the chart as far as number of hydrogen vehicles we're expecting in the coming years, and kind of the anxiety we have about being able to build enough stations to fuel those. And so, along that line of thinking I'm always trying to consider, you know, how can we build more stations or save money on the stations as we can, and stretch ARFVTP dollars.

And I'm wondering if the Energy Commission looks at overlap in the cost of installing the various technologies, right? So, if site prep is 10 or 20 percent of building a hydrogen station, is there similar site prep to building a CNG station, right. And if you co-locate them would you be able to save money on both technologies and then have more money to spend on additional stations?

So, it's stuff like, you know, either zoning, permitting or laying the infrastructure to actually get to the station, or the electrical, specifically. I know that there are some huge electrical requirements on several of these fuel types.

So, you know, I'm wondering or suggesting that we take a look and see where that overlap is and figure out if we can save money on the individual stations by co-locating them. Thanks.

COMMISSIONER SCOTT: Thanks.

Steve.

MR. CLIFF: On pages 15 and 16 in the Proposed Plan there's a discussion of cost benefit analysis, which I think is very good. And it's particularly focused on carbon reductions for innovative investment.

But to support some of the other comments that have been made here, including Mr. Lawson's, my question is whether or not -- I mean, I think carbon reduction per unit of investment is very critical. It's a fundamental piece of the program. But is there some other way to also account for some not as readily carbonized or monetized benefits that might come from these programs?

So, for example, employment opportunities and growth. And other secondary benefits, since I think about biomass, I think about the beneficial uses of biomass from a landscape, wildfire reduction for example could be greatly enhanced by providing a market for that biomass, and some of which would be in the energy economy.

And so, while carbon reduction still is the most important thing, we have to also account for the other things that people desire, such as infrastructure, and homes, and let's say less wildfire for example. So, I just wanted to raise that.

COMMISSIONER SCOTT: Thank you.

So, let's go on to our staff presentations on the ARFVTP activities. So, those will be brief, just to kind of whet your appetite a little bit about what's taking place in each of these categories, and then we will discuss the categories.

Let me just turn to the -- oh, I'm sorry, Steve, did you have something you wanted to say? No, no, this Steve.

And let me just make sure, Shannon, if you want to jump in at any time, and we forget to call on you, please raise your hand I'll make sure that my WebEx folks are flagging me down so that you can participate fully, as well.

MS. BAKER-BRANSTETTER: Thank you.

COMMISSIONER SCOTT: I did want to say

welcome to Peter Cooper, to Bonnie Holmes-Gen, to Steve Cliff, and to Thomas Lawson who have joined us since we did the round of introductions at 10:00 a.m.

And also, to let folks know that if you are wanting to make a comment we have blue cards. They're sitting up on the front table there. You just pick it up, put your name on it, let us know what you want to comment on. And then, if you bring it over to Patrick, who's waving at you there, he will get t hose up to me and that's how we know that you'd like to make a public comment, for those of you who are in the room.

So, with that, let's get going on our presentations and discussion.

MR. ORENBERG: Thanks, Commissioner Scott. So, as you said, we'll now begin the Advisory Committee discussion on low carbon fuels. And our Biofuels team will start off with a brief presentation on the allocation.

We will then proceed with the discussion. After which we'll have a public comment period specifically for low carbon fuels.

Just also, as a note, if you're participating via WebEx and you would like to comment, please use the raised hand feature. We'll then call your name to speak, and unmute you during the public comment period.

And Shannon is actually a panelist on the WebEx, so she is unmuted 100 percent of the time.

COMMISSIONER SCOTT: Oh, great. Okay.

MR. ORENBERG: So, with that I will turn this over to Bill Kinney, who will be presenting for our Biofuels Unit.

MR. KINNEY: Thank you, Jacob. Good morning, everyone.

COMMISSIONER SCOTT: Good morning.

MR. KINNEY: My name, for those of you I haven't met, is Bill Kinney. And I am the Technical Lead for the Biofuels Unit, within the Emerging Fuels Office. I see a few familiar faces here today.

So, in the, what is it, it's been nine years, almost, since we started doing this, we've funded 60 projects. We've invested a total of $168 million in those projects.

In response, I'm just going to try and ad lib here a little bit in some of the questions. We do try and coordinate our funding with other agencies and what's going on that affect the stakeholders in our area. So, we're ever mindful of what's going on out there and trying to balance what we do with what everyone else is doing so that we're meeting the needs that we can, as well as we can.

We have some discretion about how we allocate or divide up our money so that we have, in the past, done fuel type allocations. Most recently, we did a funding opportunity based on scale. And, you know, we're still trying to evaluate how that worked. But we do have some discretion to try and meet changing needs.

And we do have a small amount that we've reserved, which I'll talk about in a minute, for emerging technologies and emerging needs in the market.

Okay. So, we've funded approximately 135.7 million gallons of capacity within the State. And the average weighted carbon intensity, volume weighted carbon intensity is 24.1 grants of CO_2 equivalent per megajoule.

We've reduced the transportation GHGs by 1.3 million tons, which sounds like a lot. But, of course, that's pretty small compared to the 440 million that Jacob talked about earlier.

And so, our funds have leveraged over $500 million in public and private investment statewide. And of that, approximately $390 million have been invested in disadvantaged communities. So, that's about 78 percent. So, responding to, you know, the concerns about that.

And of that, we've generated about 572 long-term jobs and 1,589 short-term jobs. And the total impact that we've measured from our stakeholders is almost $106 million a year in State and Local tax revenues. And of that, almost -- again, almost 89 percent or $84.4 million in disadvantaged communities.

Let's see, I guess that's covered that. So, as we look at the emerging needs and opportunities to fulfill our mission, we have sort of broad funding areas. So, large commercial facilities are typically high volume, high cost effectiveness, low-carbon fuels. And these typically have higher employment impacts in the communities. Not always.

Community scale facilities are an attempt to match production capacity with totally -- sorry, locally available feedstock supply. And these projects typically address complementary

State goals such as short-lived climate pollutant reduction and also waste management.

And then, finally, the sort of third area that I mentioned a minute ago, transformative technologies. So, there we're looking at technological advancements that increase the yield of fuels for a given level of feedstock or general productivity, or cost effectiveness. And an example of that would be, you know, a renewable gasoline that we can help hurdle the blend wall.

Additionally, we look at sustainability and we look at the applicant's ability to bring new feedstock sources into the market. Such as woody biomass, for instance.

This is an example of one of our projects. It's an interesting business model. It's AltAir Fuels, in Paramount, California, southeast of L.A. And they retrofitted an existing oil refinery to produce biofuels.

And they produce about 40 million gallons a year and they support 200 direct and indirect jobs. They produce renewable diesel and jet fuel. They can vary their production process to meet the changing market needs among those two fuel types.

And then, further -- other recent examples in this area are Crimson Renewables, Tracy Renewable Energy, SJV Biodiesel, Community Fuels, and New Leaf Biofuel, LLC.

So, this, we've got two maps here. The one on your right, the yellow areas are, as I understand it, the areas of disadvantaged communities. And all the dots are different kinds of feedstock sources.

The map on the left shows a particular project, California Bioenergy, and they are trying to link a series of dairies and combine with the low volume and low pressure gathering, collecting pipelines into a centralized facility that then is able to utilize economies of scale, and clean up. And pipeline injection. Sorry.

So, am I running out of time? I'm just trying to -- okay.

So, this is a quick slide here. This, on the left, is Tracy Renewable Energy and they are utilizing sugar beets for ethanol. And it's sort of a combined, multi-renewable energy project.

And then, G4 is a project that we completed about a year and a half ago, or two years ago, and it is converting woody biomass to biomethane.

So, kind of returning to the -- whoops. What did I do here?

(Pause)

MR. KINNEY: So, anyway, emerging opportunities for advancement here. Renewable drop-in diesel and drop-in gasoline, woody biomass conversion, and other renewable fuel pathways, including biocrude.

We have approximately $17 million available from previous solicitations and we probably will allocate that between commercial scale and transformative scale solicitations. And we’re hoping to do a demonstration facilities solicitation early next year, and commercial facilities perhaps in the future.

And the proposed allocation, you already heard about that.

Do we do questions, now? Should we do questions or later?

COMMISSIONER SCOTT: Unless anyone has a clarifying question for Bill, please feel free to ask. Otherwise, we will jump into our -- anyone on the Advisory Committee. Otherwise, we’ll jump into our discussion.

I also wanted to -- thank you, Bill, for the presentation.

Welcome John Shears, who has joined us on the WebEx.

And we'll start with Steve and then go to Joe.

MR. CLIFF: Hi Bill. I want to actually start by saying I think that the Energy Commission staff does a great job with this program, with all the conflicting demands that are there.

But I also want to ask a question about what I think of as an absence in the kinds of things that perhaps might be being considered. And this is not simply an issue for the Energy Commission. I think it's also the Air Resources Board and other State agencies.

And that is there's, I think, an absence of the consideration of higher octane fuels or alcohol blend alternatives in not just this plan, but in actually the State's consideration of its future transportation fuel structure and opportunities.

It's not that that particular pathway

might be the most, the best pathway or even an appropriate pathway for the State. But I notice in trying to look for such things an absence of consideration.

And I think that’s -- if we’re going to be thorough and since the original AB 32 legislation suggested that the State should not favor any particular pathway, the absence is in fact, I think, a significant thing.

And my reason for pointing it out is because I think about biomass use. And it’s quite -- there are a number of beneficial uses of biomass that would be, I think, incentivized or enhanced by having a market for liquid transportation fuels, perhaps ethanol. Ethanol being one of the easiest or most efficient fuels to make from biomass.

Those might be in the California context, for example, ethanol made from woody biomass. They might be in the national context, since California imports so much feedstock from the west currently, and the rest of the country does as well, the opportunity for perennial crops to be introduced into the largely annual crop-dominated landscape in the Midwest production environment. The idea of using perennial grasses for erosion control and remediation of nutrient loss and so on is actually a very positive thing that would be a nice secondary benefit from the use of these kinds of fuels.

And I see nowhere, including in the Air Board's energy model that's online, where you can look at alternative pathways, and there's not even a category for this.

So, it's absence is striking and I think here as well. There's other benefits from this. I mean if we were to be able to support in-State production of additional ethanol fuels that leads to significant job creation of the most robust and beneficial types of jobs. Particularly in areas where biomass exist, which are largely among disadvantaged communities and disadvantaged areas.

So, there's, I think, a number of potential benefits that might accrue, I just think that they should be more thoroughly evaluated than I see happening in current policy. Circles, particularly, in the agencies that are most effective in this area.

COMMISSIONER SCOTT: Joe and then Joy.

MR. GERSHEN: I also want to thank everybody for the great work. I mean, it's a pretty Herculean task and you guys are doing a great job. So, thanks again for all that work.

So, I don't know if now's the exact time, just wanted to point out a couple of things in the actual plan I found and didn't have a lot of time to review. So, I'm going to submit written comments later, before the 17th, and get into it in more detail.

But there's a part in there, in Chapter 3, where it talks about low carbon fuel production and biodiesel, in particular. There were 11, I think, awards and only two projects are completed.

And I don't think that's correct, unless I'm not understanding what is meant by completed. But I know if you look at the Crimson Projects, and the New Leaf Projects, and the Biodico Projects, and there was another one that there are certainly more than two that are complete and producing fuel. I mean, I personally know of more than two.

So, you might want to go back and look at that. And if I'm wrong, you know, and there's something that's officially not completed, I know they're producing fuel, though.

So, also, I agree, you know, there's enormous petroleum and greenhouse gas emission reduction potential for any of the drop-in fuel, the renewable crude, and petroleum replacements. I'm just, I think similar to what Steve's saying, cautious about jumping away from certain things.

Obviously, I talk a lot here about what I call downstream biofuels versus some of the upstream biofuels is how I'll describe them. And as most of you probably know, I'm really supportive of a variety of modalities, including the upstream and downstream biofuels.

But I just caution you guys to not sort of go too extreme in one direction or another. There's plenty of interesting things.

I think six or eight years ago, when I joined the Committee, at one point I was asked, you know, what do I think is the best bang for the buck? And I had sort of pointed out, well, there's existing companies that are doing this. They're actually successful and why not look at those, and hopefully bottleneck them and expand. So, several solicitations came out and those companies have expanded and they're producing a lot of low carbon fuels and doing a great job.

There's some great technologies out there. And then, probably there are some that are not so great. And I think vetting some of those projects carefully is important.

You know, there are a lot of technologies that could be expanded. That can go through various upgrades to lower the carbon intensity of those fuels that are already making fuel, rather than jumping into something that's more esoteric. It's certainly transformative. It's worth putting investment dollars into some transformative technologies for sure, but don't want to orphan some of the ones that are existing that really have a great amount of expansion, and further carbon reduction, carbon intensity reduction potential.

Happy about finally getting some extra money into this category. So, thanks, it's only taken six years, or eight years, or whatever it's been that I've been pounding on the table about it.

I've also been asking for blending and storage infrastructure for biodiesel. I mean, biodiesel, I think there's a strong argument that it's been doing a big part of the heavy lifting, a little more than 20 percent of the carbon reduction under the Low Carbon Fuel Standard. And so, by my calculations that's about a 3X return on the investment dollars from this.

And I think one of the main stumbling blocks for larger implementation of biodiesel in the State is blending and storage infrastructure. Only about 25 or 30 percent of existing California bulk fuel terminals and racks are capable of blending. And I think with a minimum investment from the State and potentially this program into that infrastructure it would send a really strong message to the industry that we're serious about this. And I think you'd see an incredible return on that kind of investment.

So, it's something to continue to consider, I think. Thanks.

COMMISSIONER SCOTT: Thanks.

Joy and then Claire.

MS. ALAFIA: Okay. Thanks. So, just a couple comments. I'm really delighted to be here today. Coming here a few years ago we were talking about basically fossil-derived propane.

And in light of Jim's presentation, I just want to make sure -- I'm sorry, is it Bill? Bill. Sorry about that. All Payer is one of the refineries that we've been looking at for producing biopropane. So, they have the capability, they have all the things, and the things, and we're just hoping to get the right incentive. So, we're working with CARB and the Low Carbon Fuel Standards, an inclusion for biorenewable propane. And really just need the support on many fronts, and from this group it would be the funding to make this a reality in the marketplace.

Propane offers low NOx, low particulate matter. It's particularly important in San Joaquin AQMD.

A very big market for propane is school buses. Biopropane is completely fungible with fossil propane, so it presents an opportunity to have a very huge impact without a large investment when you're looking at the greenhouse gas emissions. Thanks.

COMMISSIONER SCOTT: Thank you.

I have Claire and then Jan.

MS. JAHNS: Thank you. I appreciate the

references to the tree mortality state of emergency in the Sierras that were in this report, because that's something I think I had mentioned last round as well. And I think it's right that that's been identified as a ready feedstock looking for utilization pathway. And looking at climate policies, existing and emerging, both supported by the California Cap and Trade climate investments, as well as other sources. We're expecting that feedstock to grow as we increase the rate of active forest management.

And so, I guess I have two questions. One is I know that there has been a report underway, I've been speaking a little bit with Mr. Kinney about that, for the last couple of years looking at kind of sustainable harvest of forest biomass for fuels.

So, I'm wondering if there has been any early feedback from that report or what the status might be.

And then, the second question is what sort of outreach have you done or might you do as you look at putting together the solicitation to figure out how to maximize effectiveness to draw on the forest biomass, as well?

Because I know working in these issues you get into issues of forestry, and legal issues there, and so it might be helpful to work with some of the folks who are experts in that area.

COMMISSIONER SCOTT: Bill, do you have a status update on the report?

MR. KINNEY: Sure. So, we've received the reports from all of the task members. This project was approximately two and a half million dollars over, I guess, six years, five years.

And probably two dozen principal investigators, plus the technicians and so on.

So, 12 -- 11, excuse me 11 technical tasks. So, it was a complex and inter-dependent set of work plans that had to be executed. And that was an ambitious goal.

We do have, in the report, the Task 12 Report is an attempt to integrate all of the information from the different tasks.

We're hoping to get some of these task reports out in the near future. And so, we're just trying to sort of clean things up a little bit.

And part of the problem was that some of the tasks were dependent on results from the other tasks and the timing of that wasn't always optimal as we tried to finish up, bumping up against our deadline, our funding deadline.

So, we're just seeing how we can patch together the few little pieces that we need to complete the circle and we're hoping to get some stuff out in the very near future.

COMMISSIONER SCOTT: Thanks.

And I think to your question on outreach, we would love to call on you and others around the Advisory Committee table to help to make sure that -- I think you're right. I'm not sure that our biofuels list serve, which will certainly get the information about pre-solicitation workshops and things like that, but it may not capture that broader set of forestry folks and others that you've raised. And so, if we can be creative and think about if there's a list serve that you can also share it with, or if there are folks that you would like us to contact, and add, and reach out to I think we'd be delighted to do that.

MS. ALAFIA: And I guess it's not just distribution, but rather creating the solicitation. What is the process for that?

COMMISSIONER SCOTT: So, we typically do that in what we call our pre-solicitation workshops. And the staff will present what their best ideas are in the space based on, you know, information that they've gathered, and research, and other things that they do.

But then we will hear back from experts in the field about are there things that we're missing? Are there things that we should tweak? Are there things that we should include? Should we write it with these types of criteria in mind? Should we write it with those other types of criteria in mind?

And they really do help and give us really good feedback on what that solicitation ought to look like. Is there an entire category -- hopefully, there's not. But, you know, is there an entire category that we're missing that really needs to be included? Those pre-solicitation workshops are where we get a lot of that information in from experts all around the field and that's what we use to then help design our solicitations.

Is that a fair description?

MR. KINNEY: It's a fair description.

COMMISSIONER SCOTT: Yeah, so that's the place to have folks engage.

MS. ALAFIA: Thank you.

COMMISSIONER SCOTT: You're welcome.

I have Jan and then Joel.

MS. SHARPLESS: Yes, thank you. I, too, think the staff has done a great job in this area and I'm just trying to track how we're trending. We've been at this for ten years so how are we doing, right?

COMMISSIONER SCOTT: Uh-hum.

MS. SHARPLESS: In terms of meeting our goals. So, this is one of the categories that we're doing an increase in and I'm wondering if that increase is partially driven by the fact that there's more maturity in this area than we've had since the beginning. So that now we have more interest, more demand, more maturity in transforming the industry. Is that a correct sort of reading of what's happening in the program?

MR. KINNEY: Well, there's never enough money, right.

MS. SHARPLESS: Oh, sure.

MR. KINNEY: We've always -- we've been

consistently over-subscribed from the very first solicitation. So, we have other stakeholders who would like to benefit from our program. So, yeah, I think to some extent the maturity of the industry. We're hoping to do this demonstration solicitation in the near future, small scale, to develop some of the emerging technologies, including higher alcohols, to respond to Steve's question.

But yes, it's a matter that we've actually -- I don't know, I guess I can't comment on that. But anyway --

MS. SHARPLESS: I would just say that looking at Table 6, on page 22, which is one of the NREL analyses that the fuel production area is one of the biggest areas where we gain petroleum displacement and global climate change reductions.

And so, this seems to be a really important area to put our funding in, if we do the solicitation and take into consideration some of the comments that have been made by those who are the stakeholders in this area. I really support funding in this area.

COMMISSIONER SCOTT: Thank you.

I have Joel and then Bonnie.

MR. ESPINO: Thank you for that presentation. So, I think this is just for me to try and understand here. This question or this comment, followed by a question, I think is just my lack of sophistication around the ARFVTP scheme here.

But it seems to me that there seems to be some sort of conflicting objectives from the State. And again, I'm more familiar with the ARB process, so maybe that's what's skewing my comments here.

But, you know, we have these climate and air quality goals that we're all trying to meet collectively as a State. You know, I think as a social justice advocate I'm concerned about the disproportionate pollution in local communities of color from extractive and refining sources of energy, right.

And I think it's well documented through studies by the State, and other independent third parties that we need to electrify our transportation sector like, you know, decades ago to meet our climate goals, right. And so, there's an exponential increase of electrification.

So, I guess my question and again, I think this is my not understanding the history of this program. But is there a long-term strategy that the Energy Commission has around ensuring that, you know, in the short term these fuels do have a purpose, right, in terms of reducing our GHGs and helping us there?

But I think, increasingly, we're going to have to sort of ramp down these types of investments and increase our investments around electrification in order to meet those goals. And I think that that's -- I mean, maybe I'm just coming from the ARB, but I think that that's a consensus among lots of experts.

And so, I'm wondering if there's been discussion around that within the Energy Commission and within this Advisory Committee around what's the long-term vision there of ramping down on this investment category and sort of increasing on the other ones around electrification, since it's starting to become a lot more viable, now?

COMMISSIONER SCOTT: Yeah, I think that's a fantastic question. The history of the program is that the Legislature directed the Energy Commission to put the funding into a broad portfolio of fuels and vehicle technologies. I think that you see us transitioning from -- to biofuels that are the lowest carbon intensity biofuels that we can find.

The idea is for those to go into, you know, your internal combustion engine that's not transitioning to zero-emission as quickly as we would like, but you get benefits by using those cleaner fuels.

And we're also looking with those cleaner fuels in some of the areas where, you know, on the light-duty side we've got the hydrogen fuel cell vehicles, we've got batteries, we've got plug-in hybrids.

On the heavy-duty side, and airplanes, we're not allowed to fund stuff that's necessarily off road, because this comes from an on-road fee. But that's the kind of place where we're looking to put these fuels, in some of the areas where we don't see the zero-emission technologies coming as quickly as we'd like to see. So, we feel like it goes hand in hand.

This Committee, I don't think, not in the four years that I've been here, had a conversation about is there a point in time where the Committee might want to recommend moving out of biofuels entirely and moving all into the zero-emission technologies?

We have not had that conversation. But what we're trying to do is balance kind of that short-term near term with the longer term. And we're also trying to hit what the Legislature asked us to do in terms of kind of putting together a broad portfolio.

So, I don't know if it specifically answers your question, but that's a little bit of the background on what our thinking here is.

MR. ESPINO: Oh, yeah, that's really helpful. Thank you for that.

COMMISSIONER SCOTT: Yep.

Bonnie and then Steve.

MS. HOLMES-GEN: Thank you. Well, I appreciate the previous question and it is really important. Every single time we meet we talk about this push and pull between the long-term goal and our focus on that, and trying to make sure that we're putting enough money in key categories, like electrification, hydrogen which is included in electrification, to make sure that we're really breaking down barriers and making the kind of progress we need.

And so, it's always a struggle to provide some near-term solutions, but also make sure that we are doing enough to really ramp up our progress. Because climate change is urgent and we need to make sure -- we have a lot of work to do. We are pushing the rock up the hill, but we still have a lot of pushing to do. We've made some progress, but a lot of pushing to do.

So, I'm always concerned about those issues, also. And I know we're always trying to get different metrics to better measure what progress have we made with this money? I think you've provided a lot of really helpful metrics as we look back over the ten years, and looking at where has all this money gone? Looking at the relative mix of -- you know, relative spending on one category versus another. I think we've done pretty well.

But I do think we need to keep very focused on, and I think we'll talk about it more in the next category, you know, are we doing enough to really push electric transportation forward given what we know we need to do, even in the next five years.

But on this category, related to that I'm very happy to see that you've included the renewable hydrogen, because renewable electricity and renewable hydrogen is extremely important to make sure that we're driving enough -- we're driving our progress not just at the tailpipe, but that we're reducing emissions, greenhouse gas, and criteria pollution emissions throughout the fuel cycle. So, I really appreciate the inclusion of that.

And I was happy to see that we've achieved a goal of over 33 percent renewable hydrogen across the board. It sounds like not at very station, but across the board, which is awesome considering I know that was debatable at one point how quickly we could get to that point.

So, I guess one question is when could we get to 100 percent renewable hydrogen? That's one question. I mean, have you looked at that at these stations? And I know that you've boosted the funding in this category partly to help fund renewable hydrogen, so I appreciate that.

But are there any metrics for how quickly could we get there?

COMMISSIONER SCOTT: I might pause that one until we get to the hydrogen discussion.

MS. HOLMES-GEN: Yeah, it's kind of in both categories.

COMMISSIONER SCOTT: Yeah.

MS. HOLMES-GEN: Yeah, okay.

COMMISSIONER SCOTT: And our hydrogen team has the details on that.

MS. HOLMES-GEN: Okay, that would be great.

My second question, if you don't mind a real quick question?

COMMISSIONER SCOTT: Please go ahead.

MS. HOLMES-GEN: You know, I just wanted to comment. We're trying to get, of course, as much GHG reduction as possible. I mean that's the whole purpose, GHG and air pollution benefit is the whole purpose of doing this.

I know we have estimates in here for the different pathways that we're funding. And I think that it seems like those are mostly based on the LCFS work that's being done.

And I'm just curious, when might we get a more clear understanding of the GHG emission reductions from the fuels in this category? Because it seems like these are not necessarily completed LCFS pathways. I think they're underway and you're using estimates. So, I wonder if you have any comment on when we would have a more clear understanding of the average GHG reduction, for example from biomethane or --

MR. KINNEY: So, we've done some of those calculations. All right. They're complicated and we haven't worked them to the level where we want to put them in, you know, a publication at this point.

But we have definitely looked at the cost effectiveness of all of our different fuel types and the investments we've made in them, and what our return is per dollar for, you know, how many tons of GHG emission reductions do we get per dollar and so on.

So, we've already started that process and I'm hoping to be able to move forward on that within the next year.

MR. ORENBERG: Yeah, also, so the actual greenhouse gas emission reductions from each project or fuel type that's, of course, a function of both the carbon intensity of the fuel and the production volume of the fuel.

It is up to the Air Resources Board and the applicant to get that pathway certified. I believe, I assume they're all going forward with that. Right, Bill?

MR. KINNEY: What's that?

MR. ORENBERG: Are all of our applicants going forward with an LCFS pathway for their fuels?

MR. KINNEY: Well, we try to, yeah.

MR. ORENBERG: Yeah. So then, as far as the volume goes that's a little trickier. We will have a nameplate capacity of all of these facilities, which is the maximum production capacity.

But the biofuel production facilities frequently don't actually produce at their nameplate capacity. They produce based on how much feedstock they can get and how much fuel they can actually sell. So, that's where it becomes a little trickier and we need to track the actual fuel production.

MS. HOLMES-GEN: Thank you. I just wanted to comment that we do need to track this closely. You know, it's a number in a chart, but it's not -- these are not settled numbers. I mean this is all under investigation. So, we do need to track this closely and understand as we go forward what are the benefits we're realizing from these different categories.

COMMISSIONER SCOTT: I think that you will also see -- so, the chart here, I think you're referring to Table 6 on page 22, and maybe Table 7 on page 23 of the report. This is our work that we have done with NREL. We're using the best information that we have available to us.

I take your point, as does the team, very seriously that as the numbers change that we get -- we see from ARB and from others that this needs to be updated accordingly.

But these are kind of the best numbers that we have based on the projects that are funded right now. And maybe we need to pull some more of the benefits from our benefits report that's in the IEPR, forward into this document.

It's a little bit of a balance between trying to keep it a little bit of a higher level and a summary versus pulling in -- because the benefits report is also another, you know, solid hundred pages or so. But, you know, we can pull some of that information forward.

The other thing that we did last year, maybe it was two years ago, that I think we would be happy to do again is to walk through those benefits and how we're calculating them, continue to get great ideas from you all about other ways to calculate things, other ways to present the information.

There are, in my opinion, some great benefits from this program and we need to think really carefully about how do we tell that story and how do we highlight those because it's pretty cool.

But we're doing the best we can to get the information from ARB and others to have pretty -- I mean, I think these are pretty robust numbers. But I do take your point that some of that may change based on updated analyses from ARB and others.

MS. HOLMES-GEN: Thanks. And I know it's always easy to pile more work on people. But I do think it would be helpful to fill out a little bit more on the benefits section. Because as you said, there's a lot to brag about and it would be great to just pull some of that in here.

And I think we all need to talk about how we can help get the word out about the tremendous benefits that we are achieving from this program and these projects. And I would be happy to include that in the discussion, too.

COMMISSIONER SCOTT: Great. Sounds good.

I have Steve and then Tyson.

MR. KAFFKA: I just am so struck by these discussions at how challenging a balancing act policymaking in this area is because there are benefits and advantages for a number of different strategies and pathways, obviously, and as well as costs.

And I think it’s also, if you start taking into account the cost to the public, the financial cost and so on, it adds another element.

But I did have a more specific comment. And I know that there’s some interest in renewable gasoline and renewable diesel that might be made, for example, from biomass pathways.

But thermochemical pathways, gasification pathways have, as far as I remember, still a barrier in policy on the level of emissions that are possible from such technologies. And I'm wondering if I'm still correct about that and if those represent a significant policy barrier to increased levels of gasification adoption.

In other words, there's very -- I think there's almost zero-emissions possible from such pathways. It's somewhere in statute. Whether the Energy Commission has taken that into account?

MR. KINNEY: So, could you rephrase the last part of that, I'm sorry?

MR. KAFFKA: It's my understanding that there are particular requirements for gasification technologies that their emissions be zero. And that represents a difficult obstacle for any transformation process and a particular barrier to thermochemical conversion. And I'm not sure if that's still in policy or still effective in policy?

MR. KINNEY: I'm not aware of it. We don't -- in evaluating thermochemical technologies, we've never considered that so I don't know.

COMMISSIONER SCOTT: We'll have to look

into that. I just kind of checked with the folks on both sides of me and we don't know either. So, we'll do a little recon and see if we can circle back with you on that.

MR. KAFFKA: It's come up in the past in MSW conversion technology discussions, particularly.

MR. KINNEY: Right.

COMMISSIONER SCOTT: Okay.

I have Tyson and then Brian.

MR. ECKERLE: Great. Well, thank you very much. Obviously, this is a really important category for lots of reasons. I think I was particularly excited to see the renewable hydrogen component in there. I think we're seeing there's a gap between where we are going to be with stations and where the demand is for cars, but also on the supply side.

And I think the important signal that we need to send to the market now is we want our new supply to be renewable hydrogen.

And I think, Joel to your point, you know, connecting to the zero-emission future I think that's -- we're building towards the zero-emission future. There's going to be stops along the way but, ultimately, you have to get to that place. I think that's where this connection is. We have a lot of renewable resources in the form of biomass that can be leveraged.

And so, I think to throw out an idea that I haven't thought through completely, but one interesting thing that might be interesting for the staff to look into is the connection between the biofuel investments of today and how those can be leveraged to turn into, you know, hydrogen resources tomorrow. In terms of, you know, future proofing. And so, just something to throw out there.

But definitely, I think this is a great and important category.

COMMISSIONER SCOTT: Great, thank you.

Brian and then Eileen.

MR. GOLDSTEIN: I want to echo Tyson's comments about the inclusive of renewable hydrogen in this sector. I think in the past we were talking about that really is an emerging opportunity. And now that we see several stations utilizing, you know, on-site production of renewable hydrogen it's no longer emerging, it's here.

And, you know, Tyson also mentioned that we're not only facing kind of a gap in infrastructure, but we're facing a gap in supply. Even whether we're talking about conventional hydrogen or renewable at this point.

So, in the research that we're doing at EIN, you know, our fundamental thesis is start now. This is something we really need to work on because it's going to take a little while to develop. And we're going to see this influx of cars over the coming years.

So, you know, the report mentions, under Alternative Fuel Production and Supply, the extent to which we already have hydrogen production, you know, for the stations that the CEC has funded.

But it seems like the funding for the production on those has come out of the actual infrastructure tranche for hydrogen. Is that correct?

MR. ORENBERG: Sorry, could you repeat that?

MR. GOLDSTEIN: Well, I'm not seeing where -- it doesn't look like the Alternative Fuel Production and Supply category, and the funding allocated for that category has gone, up until this point, to renewable hydrogen.

MR. ORENBERG: That's correct.

MR. GOLDSTEIN: And so, the renewable hydrogen production that we already have seems like it's coming out of the infrastructure tranche?

MR. ORENBERG: As far as the specific funding sources, I believe last year -- well, last year we did have renewable hydrogen production and dedicated facilities included in the Emergent Opportunities allocation.

As far as the on-site electrolyzers at some of the renewable hydrogen stations, I can't say for certain whether or not they were funded by the ARFVTP funds. If they were funded by ARFVTP funds, they would have come from the Hydrogen Refueling Infrastructure allocation.

MR. GOLDSTEIN: Gotcha. So, there were a couple of workshops this year which would go, you know, I guess towards last year's funding on renewable hydrogen solicitation. Is that funding still earmarked from the past year's budget or is that carrying forward into next year?

MR. ORENBERG: The workshops that were

already held about renewable hydrogen production would be for using fiscal year 2017-2018 funding, which was the Investment Plan we were developing last year.

MR. GOLDSTEIN: Oh, I see.

MR. ORENBERG: And so, it would have come from the Emerging Opportunities category.

MR. GOLDSTEIN: Okay. And that's still available for those projects it just hasn't been released, yet?

MR. ORENBERG: Yes, I believe so.

MR. GOLDSTEIN: Okay, great. And is there guidance for production and supply as far as which types of fuels that would be allocated to in this budget or is it just kind of the overall funding number that we have here, and that will be determined later?

MR. ORENBERG: So, the former Biofuel Production and Supply category, and the proposed Low Carbon Fuel Production and Supply Category does not separate out based on fuel type or production stage. The entire allocation is open to any low carbon, or renewable, or biofuel that is included in the Investment Plan.

And how is that process determined moving forward?

MR. ORENBERG: Staff analysis, pre-solicitation workshops and engagement with the public.

MR. GOLDSTEIN: Okay. All right, thank you.

COMMISSIONER SCOTT: Okay. I have Eileen and then John. And welcome, John.

MS. TUTT: Thanks. Eileen Tutt with the California Electric Transportation Coalition. This is actually more of a comment to staff, and maybe a second to Bonnie and a few others.

I really think it's going to be important to have some sort of follow-up workshop with the Advisory Committee on how the benefits are calculated and even what they are comparatively between the projects.

I think the only thing I would caution is there's some -- there's actually really -- well, I'm sure you're going to be surprised to hear this, but that's sort of really hard to do. Because it's hard, like what is the benefit of a hydrogen or an electric vehicle fueling station, for example? I don't know how you calculate that. But I'd love to get more up to date on that.

And then, also, I think things like workforce development, the investment by this agency is really, really important. And it's not clear to me how you would calculate the benefits, especially from an emissions perspective.

Although, I think that it's a critical component of this plan. So, I want to be -- I mean I want to be really respectful of how challenging that is, but I also am kind of interested in how it's done, and then in the relevant benefits of the different kinds of vehicle types or fuel investments. Not, you know, just because I don't -- yeah, everybody does it a little differently.

And I know we have, at CalETC we have our own numbers, which are the right ones. But we're happy to share those with you.

But anyway, I just want to put it out there that I think we could have a whole meeting just on that and it would be incredibly valuable for the Committee. So, thank you.

COMMISSIONER SCOTT: Thank you. And as I said, sure, we'll be happy to do that. So, we'll figure out when to make that happen. I'm going to guess given the holidays it will probably be early next year. But we will certainly put that together. We do have that I information and we'd be happy to walk you through how we put together the calculation. And then, as I said, you've got great information, I know others have provided information as well about how we can calculate things, how we can talk about the benefits. We're happy to get that input, as well. So, thank you for that.

John.

MR. SHEARS: Good morning, everyone.

COMMISSIONER SCOTT: Good morning. Oh, and let me have you speak into the mic so the folks on the WebEx can hear you.

MR. SHEARS: Can you tell I'm frazzled? No rest for the wicked.

Good morning, every one. John Shears with the Center for Energy Efficiency and Renewable Technologies. My apologies for being late. I listened in on this morning's discussion as much as possible.

I want to thank the staff, again, for you know -- my standard line, working with the program that includes the kitchen sink.

I just wanted to touch on a couple of points. You now, Steve recently just raised this issue about gasification. As it turns out, Steve and I had this discussion in another public venue a few days ago and I actually was checking Public Resources Code last night.

You know, Lara 498, from 2014, redefined conversion to include organics. But the problem is the definition of gasification in the Public Resources Code is as I represented it the other day. Which, basically, so -- so, you know, there’s been a tweak in terms of feedstocks, but the process is still defined problematically the way it’s been defined for a decade or more now. So, just to clarify on that point.

And then, to also refer back to our organization’s shared concerns over, you know, working to minimize dis-benefits and maximize benefits in disadvantaged communities. We’re very sensitive to those issues. And as tension, which is also, you know, the tension of the strategy overall for the plan of, you know, what do we do near and midterm versus what we need to be doing in terms of sort of helping to blunt risk, to bring in venture capital and investor capital into the space to develop the suite of solutions. Because we don't know -- even though, you know, EVs and fuel cell vehicles, and hydrogen look like, you know, the zero-emission solution that we can foresee right now, we still need to sort of keep other things going because none of us really has a crystal ball.

And there are other things going on. I know, Steve, you touched on the point, you know, we have this problem now with the biopower plants shutting down and the fate of, you know, orchard trimmings and things like that in the valley, let alone what's happening with the State and National Forests.

Where we may end up going backwards in terms of what happens to the fate of agricultural residues. And while it's not the ideal solution to use those feedstocks in power generation, you know, using thermal technologies they, you know, if done right can actually help improve if not, you know, at least maintain. You know, avoid going backwards in terms of air quality, in terms of the emissions that come from that sector.

Another thing that I just also want to point out because I think this next session we're going to have a lot of discussion around legislation that's going to try and be far reaching, and sort of set out an aggressive vision for the State around transportation.

We have to be careful that in any of our attempts to move forward in the future we don't create the Osborne effect, which refers back to the first portable computer, successful computer in the world.

And they basically announced that they were going to bring out this next super duper portable machine. And what happened was, basically, all the business dried up. They didn't have any cash flow coming back in and they went bankrupt.

If we overreach, we might send a signal out to the investor community where they just say, well, that's just -- you know, we're not going to take that risk on to spend hundreds of millions or billions of dollars in the transportation space. I'm not just talking fuels, I'm also talking the technology companies that are building the actual vehicles, whether on-road or off-road.

We risk, you know, basically setting an

impossible task and their shareholders and investors will just say we're not going there. And in which case we end up with nothing.

So, for all of this work that we've done in terms of this fantastic infrastructure that California has built here to work, you know, with regulations sort of being a stick, but also incentive programs that work as the carrot to work to move industry forward, we need to make sure that we don't -- in trying to do what we need to do that we reach too far too soon. So, I just wanted to add that in there. So, that's my initial opening comment. Thank you.

COMMISSIONER SCOTT: Okay, thank you.

I have Peter and then Thomas.

And before you start speaking, Peter, let me just note if you'd like to make a comment on biofuels, please fill out a blue card and get it to our team. I don't have any, yet. But if you'd like to make a comment, please do so. Please fill out your blue card and bring it up to the team and that's how we'll know.

Peter, please go ahead. And then, you'll be followed by Thomas.

MR. COOPER: Yeah, I just wanted to

support the idea of having a meeting or a gathering to discuss the equity, looking at the different fuel types and the benefits for the different fuel types specifically as they relate to workforce development, equity and jobs issues.

At the Employment Training Panel, we're currently in the process of having a third party look at our program and look at how it has benefitted some of our contractors that will include the funding that we received from the Energy Commission. So, that might also be something that -- well, I would be happy to bring that forth in the meeting and participate in the discussion on the benefits by fuel type, for workforce and equity issues.

COMMISSIONER SCOTT: Thank you.

Thomas?

MR. LAWSON: Thank you. I had a couple of just quick comments related to RNG projects, but also projects in general.

I think one of the things that is important to remember, as we're doing this every year and dealing with funding plans is it takes a while for these projects to get off the ground, right. And we've got quite a bit of activity happening every day in and around planning, and zoning, and permitting, and things like that. But I think that there are quite a few companies and groups that are working on trying to meet some of these goals by creating projects.

And, obviously, the CalBio Energy Project is something that's taken quite a bit of time to get off the ground and that's just one of a few projects in the hopper relating to renewable natural gas and how do we deal with dairies and their methane.

And so, I think that while we want to be at a certain place at a certain time, we do have to allow those projects to mature and to produce the results that they're set out to do.

So, I just wanted to caution folks on that.

And then, I have a housekeeping question that I probably missed earlier. But when are the comments due on this Draft Staff Report?

COMMISSIONER SCOTT: November 17th.

MR. LAWSON: Okay, great. Thank you. That was it.

COMMISSIONER SCOTT: You're welcome.

Let's go to Steve and then Joe. And

then, I'm going to ask if there's any burning questions or discussion points, we should definitely get them out there. But then, I want to be mindful of the fact that we do have other categories to talk through.

Steve, please go ahead.

MR. KAFFKA: Yeah, I wanted to say, you know, we had some discussion about whether -- what's the best strategy for the Energy Commission with respect to these funds for the future, going forward. I want to also say that, you know, the EDs are very exciting and it looks they're really on the verge of breaking through. And they are zero-emission vehicles. And I'm looking forward to getting one.

But one of the side effects of EVs has a significant effect on employment. You don't need car dealerships particularly, at least in the form that we have them. You don't need gas stations. You don't need repair shops. You don't need mechanics.

So, it will be a very disruptive technology as it comes along. And I think the idea of keeping those kinds of issues in mind is also important as we think about kind of mid to long term transition strategies. It will take a while for the economy to make up for rather substantial impacts on basically the way of life as we know it now, that are related to our vehicles.

COMMISSIONER SCOTT: Joe.

MR. GERSHEN: Yes, and I will be brief. I just wanted to commend John and his statements. I think I agree with that wholeheartedly. I think it’s important not to overreach. I think that, obviously, the State can’t support all the investment. We want to get private equity and private investment involved.

And, you know, sometimes some of these folks look at this and they go, you know, we’re not going to march off the cliff and risk billions of dollars on something that’s maybe questionable.

So, it’s important to sort of keep things that are working funded well, and then build on that. And again, you guys are doing a great job. But just, I think, John made a very salient point there. Thanks.

COMMISSIONER SCOTT: Thanks.

I have only one comment from the public

on the biofuels space. This is from the WebEx. It is from Linda Erata, from the Kern Council of Governments.

And she says, “With the closure of the cogeneration facilities is the Energy Commission looking at diverting the municipal ag and forestry wood waste to biofuel and/or hydrogen fuel production? The cogen facility in Delano used to take in 310 tons per day of wood waste and green waste. Looking for solutions and investment. Producing electricity and hydrogen costly and full need not met.”

So, I don’t know if anyone has a response for that, but that’s the comment that we have received from the public on the biofuels.

Do I have anyone else online?

MR. ORENBERG: Well, I was just going to suggest that might be a comment for a solicitation workshop.

As far as the specific projects we fund and the specific solicitations we release, it’s a little too detailed for this discussion. But I don’t believe there’s anything in the Investment Plan that would preclude such a project.

COMMISSIONER SCOTT: Thank you. Do we

have any other on WebEx? We do?

MR. KINNEY: Yeah, so I did neglect to sort of detail all of the aspects of that forest biomass sustainability project that Claire brought up.

But, you know, several key tasks are looking at for the economics and logistics of siting biofuels facilities throughout the Sierra Region to produce biofuels. So, we have some of that data that we're going to be bring out soon.

COMMISSIONER SCOTT: Okay, great.

I'm looking to see do we have any -- okay. So, that is it for public comment on the biofuels. And, of course, please feel free to submit comments to us in writing. We look forward to receiving those from you.

What we'll do right now is we will go on our lunch break. It is 12:00, so please come back by 1:00 p.m. and we'll pick up the conversation on the rest of the categories.

On the front table out there, if you are looking for places to go there's a list of restaurants that are nearby the Energy Commission.

Thanks everyone, see you at 1:00.

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

(On the record at 1:00 p.m.)

COMMISSIONER SCOTT: Hello, everyone. This is Commissioner Janea Scott. We are waiting for just a few more of our Advisory Committee Members to return back from lunch. As soon as we've got a handful more of them we will get going. So, just for those of you who are promptly back at 1:00, we'll need a few more folks in the room and then we'll get going.

(Pause)

COMMISSIONER SCOTT: Okay, we have gotten some Advisory Committee Members back in the room and at the table. So, we are going to go ahead and get going again. This is Commissioner Janea Scott.

And we are now going to turn to our Electric Vehicle Charging Infrastructure discussion. And we will start with a brief presentation by Brian Fauble.

MR. FAUBLE: Thank you, Commissioner. Good afternoon, everybody. My name's Brian Fauble. I'm staff with the Electric Vehicles Unit, in the Fuels and Transportation Division. And today I'll be giving you an overview of the types of projects we've been working on.

I wanted to begin with the slide that shoes the types of electric vehicle projects the Energy Commission has been involved in over the years.

In 2010, we partnered with the Federal Government to install general charging stations. In 2012, we focused on regional planning for PEVs, deployment of EV infrastructure, and upgrading the older legacy chargers.

In 2014, we increased the number of charging stations deployed to meet specific needs.

In 2015 and 2016, we addressed corridor charging to allow -- corridor fast charging to allow for border-to-border travel for EV owners.

And in 2017, we released our Block Grant project which will release multiple targeted incentive projects for EV infrastructure.

Primarily for the light-duty vehicle sector, but expanding to others, the Energy Commission has been a leader in establishing the early network of electric vehicle charging stations that allow major vehicle manufacturers to produce cars without concern for there being an established charging infrastructure.

To date, the Energy Commission has invested over $80.1 million for almost 8,700 electric vehicle charging connectors that range from home charging, workplace charging, and also strategic network charging along major highways throughout the State.

It's important to note that the AFDC website only lists currently available public sites. The AFDC serves as a station locator tool and tracks the number of available sites and connectors for the number of vehicles that site may be able to serve.

The Energy Commission, for its projects, tracks both sites and connectors, but also the number of actual charging stations. We have 1,053 sites that are already listed on the AFDC or are already completed that are not yet listed on AFDC.

244 sites are still in progress and should be added once they are completed.

There are different levels of charging stations as well, level 1, level 2 and DC fast. Depending on the type of charging station there are different connector standards. For example, a DC fast charging station can have either the CHATAMO or SAECCS, or both connectors.

As of October 2017, California was projected to have sold just over 340,000 plug-in electric vehicles. California is home to approximately 46 percent of EVs deployed throughout the United States.

Again, in 2015 we released -- in 2015 and 2016, we released solicitations for projects to install DC fast charging stations on corridors throughout the State. These two solicitations added the planned 187 DC fast chargers and 129 Level 2 charging stations at 120 sites. These sites are represented on this map by the blue dots.

The red dots on this map do represent existing and previously Energy Commission planned fast chargers. So, we can kind of see we're trying to fill in all of California to allow border-to-border travel from Oregon to Mexico, as well as to Nevada and Arizona.

The Block Grant Project, which we have just formally renamed to the California Electric Infrastructure Project, which we are calling CALeVIP, is a grant agreement with the Center for

Sustainable Energy to design and implement geographically targeted incentive projects to install EV infrastructure aimed to support that specific region's future charging needs.

The agreement currently is funded for $15.25 million and allows for up to $200 million in funding.

Our first project is the Fresno County Incentive Project and is expected to launch in December of this year. The Fresno County Incentive Project has a total of $4 million available and will provide an online reservation rebate system to install Level 2 charging stations at public, private, and MUD sites in Fresno County.

It's also important to note that this Fresno project is coordinating with San Joaquin Valley APCD on their Charge Up Program that also offers rebates for charging stations.

Our most recent solicitation's purpose is to demonstrate innovative mobility services among disadvantaged communities using -- I'm sorry -- using zero-emission vehicles. The solicitation has a total of $3 million and four projects are being awarded funding.

Envoy has two awards to provide car sharing for affordable housing. One of those projects is in the Bay Area and one is in the Northern Central Valley, ranging from Yuba City to Los Banos.

CALSTART has one award to provide electric ride-hailing for college students in Kerman to commute to Fresno City College.

And StatosFuel has one award to provide car sharing using fuel cell electric vehicles in the Riverside and Ontario areas.

In our data collection and analysis efforts, we collaborate with the National Renewable Energy Laboratory, NREL, who manages the Nationwide Alternative Fuels Data Center.

We are trying to automate data collection of networked EV charging stations to streamline a method for network providers to provide data. We also use our EVI-PRO. We use EVI-PRO, which is a modeling effort to quantify charging station needs for the growing of PEVs in California.

This includes incorporating regional, county level, passenger travel data and considers consumer charging behavior with higher details, and the results will include charging installation profiles on a county level.

We continue to support infrastructure for PEVs by monitoring vehicle markets and consumer response by evaluating electric vehicle charging requirements and support infrastructure demands through funding-focused efforts.

We work with community-based programs in under-served areas.

And we work with utilities, regional readiness planning coalitions, air districts, OEMs, and many more to strategically place infrastructure for deployment of adequate service to support chargers and to support zero-emission vehicle deployments.

And I tried to get that real quick for you guys.

COMMISSIONER SCOTT: Thank you very much, Brian. Let us turn to discussion amongst our Advisory Committee Members.

As folks gear up to put their nameplates up, so I know they'd like to say something, I will also let you know that after this we are going to do workforce training and development because Peter has to leave a little bit early. And then we'll go back to hydrogen.

So, just so folks know that after the Electric Vehicle Charging Infrastructure discussion we will do Workforce Training and then go to Hydrogen.

MS. TUTT: Thank you. Eileen Tutt with the California Electric Transportation Coalition, CalETC.

So, I just want to first say that I think this is probably, and from an electric vehicle stand point, probably one of the best investment plans that I've been a part of. And I really think you've done an excellent job.

The funding, I think, for this EV infrastructure is definitely adequate, particularly given the limited funding. Obviously, if there was more money, we would want more. And because more is definitely needed.

I also really like the framing in the plan around the investment in this space by utilities, and VW, and EVGO, and the fact that we're all coordinating because I think that's absolutely essentially.

I also really like the MUD discussion. I think it's very -- it's forward looking. And the focus on autonomous vehicles is also innovative and I've not seen that before. And it's clearly going to be essential as we go forward.

I do think you might want to add looking at pooling, so in addition to autonomy and sharing, the pooling is where we could really get some VMT reduction and emission reduction. So, there's some real opportunities there. And there's already apps for a really successful pooling program.

So, I'd like to just talk to you maybe offline about what's out there now, and what's working and what's really innovative, especially in urban areas that are highly congested and polluted. So, there's some real opportunities there.

I do think also I want to congratulate you on the CALeVIP acronym. Way better than ARFVTP.

(Laughter)

MS. TUTT: So, glad that that's part of our Electric Vehicle Program.

I want to respond to something Steve Kaffka said and that's about the jobs. We did a jobs assessment, which I think we've shared with you. Transitioning the transportation sector and the light-duty sector to electrification is a jobs creator. And there's a number of reasons for that. There are a few job losses in the oil industry. But the jobs per dollar spent in the vehicle sector and in the electricity sector are quite a bit higher. There are more jobs per dollar spent in those sectors than there are in the oil sector. So, overall, we see a direct shift in jobs to the positive.

We also see the jobs shift, the economic benefits are progressive, so low and moderate-income households benefit more than wealthy -- an affluent household. So, there's really tremendous job benefits from shifting to electric from oil. So, I want to make that really clear.

This maintenance issue is kind of a non-issue, people. There are cost savings with the maintenance, especially on the heavy-duty, medium- and heavy-duty side.

On the light-duty side, so much of the maintenance for new vehicles is around IT. Irene and I were talking about this earlier. You can actually buy a warranty, now, for the IT on the car because it's so complex it tends to -- and that doesn't matter what kind of car it is.

Those jobs are still going to be safe.

And the newer vehicles in general just require so much less maintenance no matter what they are.

The IBEW has been extremely supportive of the investment by the utilities. And in part because there's a lot of jobs creation for their members around infrastructure.

So, I don't want anybody to leave this room thinking that shifting to electrification in any segment, whether it's light or heavy, is going to harm jobs creation in the State because that's just simply not the case.

And those are my comments for now. Thank you.

COMMISSIONER SCOTT: Thank you. Will you make sure we have a copy of that report in our record, if we don't already?

MS. TUTT: Yes, I will send it.

COMMISSIONER SCOTT: Awesome, thank you.

Irene.

MS. GUTIERREZ: Thank you. Irene Gutierrez with the Natural Resources Defense Council. I appreciate the level of support that's provided for electric vehicle infrastructure in the next version of the plan. I think that's really great and something that's really needed in the State of California.

Having not participated in this forum before, I'm not certain if this is the bucket of funding that typically provides some coverage for CVRP, if there's a shortfall.

But I did want to encourage the Commission to sort of, looking down the pipeline as we look towards the landscape or the Federal incentive structure, maybe changing. There may be a need in the future to help ARB cover the CVRP shortfall. So, I do want to encourage the Commission to preserve some flexibility and reconsidering allocations on that point in the future.

And then, something that Eileen was saying on the jobs point reminded me that the BlueGreen Alliance and NRDC have produced a report on the jobs that are created by clean vehicle technology and clean vehicle manufacturing. And that's something that I'd be -- it's called the "Supplying Ingenuity Report" and that's something that I'd be happy to submit into the record, as well.

COMMISSIONER SCOTT: Great. Thank you very much. Yes, please, do submit that report.

This is a category that did used to cover the CVRP. We don't typically anymore because this program has about $100 million that, as you've seen, is spread across quite a few areas. There are several hundred million dollars going into the vehicle space and we recognize how important those incentives are. We also recognize how important it is to have the infrastructure to support these vehicles.

And so, we try very hard not to take money out of that infrastructure piece to put into the CVRP. But your point is well taken in terms of needing to have continuous investments, and signals and support for both, for both the infrastructure and the vehicles.

But that you are correct. That's where it typically was and that's the change in us not funding CVRP has come because of the hundreds of millions of dollars that are in the Cap and Trade Funds to help support that, just for some background.

So, I have Thomas and then Tyson.

MR. LAWSON: Good afternoon, Thomas

Lawson, California Natural Gas Vehicle Coalition.

We spent a lot of time this morning talking about, you know, working with other regulatory agencies, and other monies, and pots, and whatnot. And so, I was wondering how does this fit in with the VW funds of the first three pots of money funding EV infrastructure. As far as from my understanding there's over $600, $700 million going to EV structure. EV infrastructure with those pots of money, in addition to the $20 million in this pot, is that taken into account here as far as the numbers?

I mean, obviously, we're not where we want to be on the hydrogen infrastructure to get to the hundred, but I just wanted to have that conversation.

MR. ORENBERG: Yeah, thanks Thomas. And I actually wanted to clarify about the Volkswagen funding. You know, Volkswagen, as part of the diesel emission settlement and other settlements is going to provide the State I think $1.4 billion over ten years. That is not all going to electric charging infrastructure.

The main part of their settlement that is going to electric charging infrastructure is $800 million over ten years. They provide 30-month, that's two-and-a-half-year investment plans.

During the first investment plan that they have released for the Volkswagen settlement, it appears as though they are planning to provide an average of $48 million per year for electric charging infrastructure and that is throughout the State.

So, that comes out to $128 million estimated over two and a half years.

And we are definitely taking into account these projects that Volkswagen, and the Investor-Owned Utilities, and the other utilities are in fact doing and we are avoiding duplication and overlapping of projects. And so, it's all taken into account with this allocation.

MS. TUTT: Can I add one thing to that? Just to clarify, Thomas, the VW funding will meet about four to eight, that's not 48, that's four to eight of the charging needed for the 1 million vehicles that we're trying for.

So, it actually seems like a lot of money, but it's not nearly what we need. So, this $20 million's essential.

COMMISSIONER SCOTT: I have Tyson and

then Ralph.

MR. ECKERLE: I'll jump on that train. You know, I think that this category is extremely important and I think for a lot of reasons. But, really, it's filling gaps. I think it's easy to kind of go down -- or, tempting to go down the path of seeing how much money is in there going into EV charging, and think that that would cover the State. When, in fact, there's -- you know, the IOUs are within their own territory. Electrify America is set up as a for-profit company, looking to go to the most, you know, beneficial for driving a business.

And so, I think the importance of this program to fill those gaps and help blanket the State is really critical. And I think it's also important to have this expertise within the State agencies in terms of developing projects and pushing them forward, and so we can leverage across the State and across the State agencies to kind of -- to use our properties to help fill the gaps. And so, I think it's really important and commend the Energy Commission for the way it's presented here and the forward-looking nature of the investment.

COMMISSIONER SCOTT: Ralph and then Joel.

MR. KNIGHT: I think it's great to see this. This is going to be a big boost as far as the yellow bus is concerned. That's what I've done for the last 12 months is going up and down this State, teaching our directors and administrators in the schools that electric bus is here to stay.

You know, I had the first two in 1997 and that was a challenge. That was very challenging. My mechanics would rather have seen them as anchors in the ocean somewhere, other than in the shop all the time.

(Laughter)

MR. KNIGHT: But I think things have changed, technology's changed. It's gotten much better. I think that with this money, you know, we need to see not only do we transport kids home and to school, but we do on field trips, too.

So, you know, we've been talking with PG&E and have them in our works to try to get us charge stations around so that when we get to a community somewhere, for a sporting event or whatever that we'll be able to recharge that bus if we need to, to bring it back home and things of that sort.

So, we've got a little bit of a challenge to be able to get out of town and do those jobs. But to do the home to school, I think that we've finally convinced a lot of our compadres out there that this is the way to do it.

And I think that we're not losing jobs in our shop out there, as far as the mechanics are concerned. We've got some very good training coming from Bluebird, Thomas. I see all of the big manufacturers that are now playing in the ball game, again.

I think that we're seeing excellent training coming to the mechanics to be able to do that. True, they're going to have to learn how to run laptops and talk to that bus, now, where they haven't in the past. They've brought out wrenches and parts and that was how they got them back on the road.

But today, it's a different story, now. Now, they've got to talk to it. And I think that the education that's going along with that is going to be very helpful for those guys and make them a different style of mechanic out there today.

So, I think it's a big plus in our operation and we're seeing a lot of funds coming to us right now that's going to make the purchase of those buses much easier for school districts to get involved and to use them out there.

And, like I said, I've been playing with them since 1997. I never thought we'd see this kind of a day arrive in the yellow bus industry.

COMMISSIONER SCOTT: Great. Thank you.

I have Joel and then Bonnie.

MR. ESPINO: So, I definitely appreciate the amount of funds going for this category. As I mentioned in my previous comments, I think transportation electrification is key to not only our climate goals, but the social equity goals that California as codified in various pieces of legislation.

I have a question around this CALeVIP program. I know that in the early discussions, when the Commission was entertaining this block grant, there was some discussion around the possibility of obtaining stakeholder input around the program design of what some of these incentive programs might look like.

And I'm curious to hear if there's a more thought out process on how that might begin? Because I know that, you know, there's a large stakeholder community out there, really focused on the EV equity aspects, right. And, you know, as has been mentioned, there is a lot of money going to disadvantaged communities from the utility programs. But even then, you know, those are only reaching a lot of times workplaces, and not necessarily multi-unit dwellings or homes of low-income folks.

And we've done a good job here, in the State of California, of really creating robust EV incentives for low and moderate-income folks.

And so, a lot of the times we're hearing anecdotes from some of these administrators of EV equity programs that they're running into the problem of, you know, not having access to charging, and so folks not wanting -- not being able to participate in these EV equity programs.

And so, the value of this fund from the Energy Commission has always been that it's flexible. And so, I'm wondering if there's an opportunity to either include an equity focus component to this, or maybe even create a separate equity charging solutions program that could be continuously funded through the years. So that it kind of is married with the EV incentive structure that ARB has created, so that we kind of have both funding streams covered and we're able to really maximize those EV equity dollars that ARB has. I would definitely encourage that.

And then, I definitely wanted to uplift the Innovative Mobility Services Program. I'm really excited to see it.

I know that the Greenlining Institute has been looking more around this question of mobility. And one of the phrases that I've been using recently is that I think we get very siloed in our sort of policy arenas, right. And so, transportation electrification folks only look at the technology, and we've got to get this out there.

But, you know, these issues are not happening in a vacuum. They're multi-faceted issues that need multi-faceted solutions.

And so, this idea of right sizing your EV I think is important. So, what I mean by that is not doubling down on this paradigm of single-occupancy vehicles, right, and seeing that as the future, when we really need to think more about environmental sustainability. Especially as urban cores start to get more and more dense, we're seeing trends from populations moving more and more to urban cores.

And so, we need, actually, more efficient forms of mass mobility. And obviously, those have to be electric, right.

So, not just encouraging the solo driving but encouraging electric buses, electric van pools, carpooling that Eileen mentioned. So, really trying to set up this Innovative Mobility Services Program in a way that it encourages those kinds of different mobility services and not just doubling down on this single occupancy EV, for example, I think would -- I think is key moving forward.

COMMISSIONER SCOTT: Brian, do you want to talk a little bit about the outreach on CALeVIP and some of our most recent solicitations?

MR. FAUBLE: Sure. So, with CALeVIP we do work with our modeling -- we start with our modeling, basically, to analyze the county needs for future needs, and then we also look at what's in place already. So, we do a gap analysis as part of our ranking.

We also then look at currently available funding through other programs, and projects, incentives.

And when we come up with our ideas for projects, we then hold a workshop in that region. So, for the Fresno one, we had our Fresno workshop I want to say late September. So, we do, we present all our requirements, and what we're basically looking to do, take in comments, and we're definitely open to changing different requirements that we present.

With future projects in development, we'll see a lot more capability once this is more up and running, and we kind of get some of the minor bugs out. We'll have more capability to have different caps available for maybe MUD and workplace. So, not one specific site type takes all the funding. We do want to make sure we're trying to cover all the site types, and we'll have different funding caps, and maybe rebate amounts, and the whole structure available. So, we're covering every site type, basically.

With the Innovative Mobility, it is our

first demonstration for this. We're definitely looking forward to it.

And in our CALeVIP we also look at exactly what each region needs. And so, if we see a need for ridesharing or E mobility, those re also options that we can do with the -- or, with CALeVIP, sorry.

COMMISSIONER SCOTT: And I do think that we're setting it up very much so that we can hear from the communities and get great ideas from the communities.

And, two, the program and working closely with our friends in the Air Quality Management Districts, and others as well to see if we are able to leverage each other's' dollars and complement each other's programs.

Let's see, Bonnie. And then, John, did you still have a comment or --

Okay, Bonnie and then John.

MS. HOLMES-GEN: Yes, thanks. I wanted to also jump in and say that we are very excited about the $20 million for electric vehicle charging and for the Innovative Mobility Services. And happy to see the Innovative Mobility Service category focused in disadvantaged communities. So, I think it's a great, very important category of funding, and it's important to our overall goals to get to the 1.5 million, at least, by 2025 and over 4 million, hopefully more than that by 20150.

I mean, I would be really -- I keep hearing different estimates of when we're going to get to the point where -- of cost parity between electric vehicles and conventional. I mean, I've heard really near-term estimates. I'm wondering, I'm curious, as an aside if the Energy Commission staff has any research to cite on that?

But it seems like where we're fast getting to the point where it is going to be as cheaper or cheaper to make electric cars. Which doesn't mean we need to let up at all on our preparation and infrastructure and this is all really important.

And I think I've mentioned that the Lung Association has done a study of the benefits of electric vehicles and we found 15 billion in benefits just in California, health and climate benefits, including quantified benefits of reduced illness, and hospitalization, and premature deaths from expanding, dramatically expanding our penetration of electric vehicles in California, to at least 60 percent EVs.

And I appreciate that you cited our "State of the Air Report" in your document. You might also want to cite our "Clean Air Future Report". So, I can make sure that you have that citation.

So, having said all that, and thank you, and I really appreciate the excellent presentation of all this.

Is there anything more to be said, number one, about how we're strategically placing these EV chargers? I know, we've had some discussion, but is there anything more? We kind of covered that.

You know, with all these different agencies rolling out the chargers, you know, I hear things that local governments want to get involved with this, but they don't even know where to put them. I mean, if they were going to put one in, they wouldn't know where to put it. And, you know, they put one at the community center and they put one at the city hall and like, well, where else do they go?

And so, I just -- number one, I'm just wondering if there's anything more to say about how the State is watching over between these different programs, making sure these are strategically placed. And that we are getting beyond L.A. and the Bay Area.

You know, I think it will be helpful if the report specifically mentions, in this section, San Joaquin Valley and the need to be focusing on deepening the network in the valley.

I know there's funding going to that. I know that the Electrify America has specifically mentioned the valley as one of the communities where they're going to be focusing some funding for their Community Charging Networks under the $200 million.

So, that's another reason, I think, to mention Fresno specifically in this report.

So, I guess those are my two questions I guess right now. How are we being strategic in placement and working with local governments? I see that you have some comments here about that, but it's still pretty high level.

And what more can be done in terms of the San Joaquin Valley and underserved areas?

COMMISSIONER SCOTT: I think, so to the coordination point I think Thomas raised this, as well. There is lots of coordination going on, both kind of informally and formally.

The Governor's Office has a convening every month -- more than one convening, actually two every month that has high level folks, like Carla Peterman, and myself, and Richard Corey, and others to talk about what we're doing on the zero-emission vehicle infrastructure.

A lot of this is following up, of course, on the 2016 ZEV Action Plan and action items, if there are any left over. I think we've got most of them done from the 2012 Action Plan.

But we do talk to each other. We coordinate very well. We are working very hard to ensure that we're not tripping over each other in these spaces, and that we are being additive, and complementary, and accelerating the infrastructure into the places where we need it to be.

One of the nice things about the Energy Commission Program, Joel pointed this out, is that we have some flexibility in where we put the funding. And so, for us, that's been really exciting. That's why we started the CALeVIP with Fresno, and getting infrastructure deployed in Fresno.

We also, you know, when we weren't sure a couple of years ago where the Investor-Owned Utilities were going to make the investments, we decided to focus primarily on destinations and on corridors because we knew that you have to have infrastructure there. And those are places that it was not likely that the IOUs were going to be rolling out their first set of infrastructures.

So, we do have the ability and flexibility to work together, to work well, work in a complementary fashion and we are doing that. And some of it's just informal, us catching up with each other during the day. And also, some more formal with our meetings with the Governor's Office.

I think for the strategic deployment, we have spent some money on Regional Readiness Plans over the last few years. And that was really what the point of those were, to bring together MPOs, and local transportation agencies, and others to think through where do we think that the -- where do we think that the cars are going to be deployed such that we can determine areas that it makes sense to do infrastructure?

We have some really exciting projects in places. Like Burbank Water & Power, for example, did a Regional Readiness Plan and then they were able to get some of their infrastructure out. And it’s pretty exciting. They said it’s a little bit of an art and a little bit of a science. You know, so they have some like outside of Porto’s. So, I don’t know if anyone’s familiar with the Burbank area, but it’s a very famous area in Burbank. So, they put some of the chargers, curbside charging outside of Porto’s.

They put some across from a multi-family building where a lot of folks have electric vehicles.

So, it’s still curbside charging. It’s you can’t park your car there and leave it overnight, but it is across the street from your apartment building.

They were very creative in how they put that together, but it was based on some of those Regional Readiness Plans.

The other thing that we are poised to do, that I think I can talk about because I’ve mentioned in other forum, is we want to do -- I don't know if you ever follow any of our EPIC grants, which is the Electric Public Interest Charge. It comes through a fee on electricity and it's research and development in EPIC.

And they did what they called the EPIC Challenge, and it was to develop an advanced energy community. And they put out money. People were able to compete for dollars to plan what does my advanced energy community look like? And who are the partners that we're going to work with? Who's going to make this happen? Where are we going to put the small windmill, or where are we going to put the different components of solar? Where are we going to put the charging and really make this -- and it's on our way to get to the zero-net energy in buildings.

But how do you get to a zero-net energy community?

And I was like, why can't we do that with charging? So, the team has been working very diligently to put something similar together on charging. Where the first round would be sort of a more detailed level of planning on the charging. Who am I going to partner with? Which mom and pop restaurant? What school district? What, you know, library? Which city hall building? Who wants to be the partners to get infrastructure, where to put that infrastructure in our community? What is that going to look like?

So, we'll put money out there for the planning. Then, the people who -- so, that's the first competition, get money for the planning.

Then everyone who wins money for planning can come back when their plans are done and compete for implementation dollars so that they can actually get the chargers and put them in those places that they developed in their plan.

So, stay tuned, that's coming. So, we are trying to think very much about strategically where should the infrastructure go. And not only just how do you plan for it, but once it's planned for how do you get that infrastructure out there?

One of the things that's exciting about the EPIC challenge is that they were able to fund 13 plans. They probably will only be able to fund two or three to be implemented. But the plans I think are going to be fantastic. Which means other folks, maybe the Air District wants to put some money in to help implement it. Maybe, well, we'll see, DOE or EPA could put some money in to help implement it. Maybe there's a private business that says, hey, this is really exciting, I want to get in on this. And they can help put money in to implement it.

So even, if we may not be able to fund all of the implementation plans, hopefully, they're well-written and exciting enough that other people want to jump in and help to fund them.

So, that's what we're going to try to do in the infrastructure space to kind of move from planning to planning and into implementation. So, that's -- that was my pitch on that one.

MS. HOLMES-GEN: No, that's all really helpful. I appreciate that. And I'm really excited to know that these Readiness Plans, and we spent years talking about putting some money in these Readiness Plans, and I'm really happy to know that there were some really solid outcomes from those plans. You know, to really help build the charging structure in a way that makes sense.

Who's funding the EPIC Challenge? I know there's parts of it you still have to get funding, but initially?

COMMISSIONER SCOTT: So, that's out of our EPIC Program.

MS. HOLMES-GEN: Okay.

COMMISSIONER SCOTT: It's the Electric Public Interest Charge Program. So, if you go up onto our webpage, there's all the tabs across the top. And if you click on the funding tab you can see the ARFVTP funding, but you can also see EPIC funding, Prop. 39, all the other programs that we have.

MS. HOLMES-GEN: I just might add, quickly, that since Sacramento now is a Green City under the Electrify America Funding, $44 million coming here, that there should be some great, new advances in community charging to look at and draw into our discussion here.

COMMISSIONER SCOTT: Uh-hum, absolutely.

John and then Jan.

MR. SHEARS: So, thanks. So, I just wanted to clarify, so is this $20 million limited to passenger vehicles or is this just broadly to all EVs?

COMMISSIONER SCOTT: This is focused on

passenger vehicles.

MR. SHEARS: Right, okay.

COMMISSIONER SCOTT: We are looking to get into medium-duty and heavy-duty space. And we'll talk about that some more when we talk about the medium-duty and heavy-duty category, as well.

MR. SHEARS: Yeah, it's just didn't have time to go over the plan as thoroughly as I would have liked to before today.

So, just wanted to clarify, too, on the VW ZEV Investment Plan, it's a ZEV Investment Plan. This is phase one.

And as one of the people who put the full court press, and there's some other colleagues here in the room and worked with me to put full court press on them, you know, that was worth it. Largely got them to have a consciousness change about the Valley and Fresno County.

But also, they've assured us that going forward, you know, and CARB has talked with them about this, extensively, as well, that hydrogen is not out of the picture. So, I just want to clarify for everyone that this is a ZEV program. This money is ZEV money.

And, you know, decisions will be made. You know, it's VW's money to spend and so it still has to basically meet a business case for them to invest it. So, they'll be the final sort of decider on that within certain bounds.

And then, with regards to the Readiness Plans, as one of the instigators that encouraged the Energy Commission to set up that funding program, and I've actually been having e-mail exchanges with a couple of colleagues here around -- I haven't been clear now, for a little while, about what the status is in terms of the implementation of the Readiness Plans. And I'm working extensively on the ground, in the Valley for example, and it's not clear to me like exactly how everything is being viewed sort of through that lens. Although, all of it could, you know, nominally be said to be part of the meeting of the Readiness Plans.

And then, with the rapidly evolving and changing shape of what's going on with electric transportation in the State, I think we need to make sure that we might need -- I think we might need to revisit funding to update and re-jig the plans, especially once the SB 350 transportation plans are finally signed off by the Public Utilities Commission, so that we can sort of have a more sort of formal reassessment and realignment of the Readiness Plans in terms of, you know, all of those new resources that can be brought to bear. You know, not just the passenger vehicle side, now, but basically all other aspects of electric transportation. So, I just wanted to highlight that for now and I will save my other thoughts for later. So, thanks.

COMMISSIONER SCOTT: Okay, thank you.

Jan and then Tyson.

MS. SHARPLESS: Yes, this has been a very fascinating conversation. And what I would like to bring to the table is perhaps you've been working with them, but I haven't heard them being brought up in the conversation, and that is the Council of Governments.

This is very important, powerful agencies in the State of California that receive Federal money and make decisions on allocations and expenditures.

So, to Joel's point about multimedia and not just providing funds for the single passenger vehicle, the COGs are the ones that really put together the blueprint on how multi-modal plans are going to be implemented in each region. And they are made up of city council people, supervisors, public transit authorities, paratransit authorities, and so these are the decision makers of where the money's going to be spent on multi-modal transportation systems in the region.

So, if they're not a part of your outreach, I think it would be important to bring them into your conversations because I think they could lend a powerful, powerful force to whatever you're trying to accomplish.

COMMISSIONER SCOTT: Thank you.

Tyson and then Joe.

MR. ECKERLE: Just to build on that, I wanted to -- Bonnie brought up a good point. So, I think that from the State perspective we can only reach who we can reach or who we have reached. So, if you hear of people who don't know where to start, please let us know. Because I think we want to make sure that we just -- I mean, we're all part of the State government in this way. If people haven't heard of the programs -- sure, please.

And the Energy Commission, I mean, yeah, exactly.

COMMISSIONER SCOTT: I will echo that. Please feel free to call any of us to get started. And if we're not the right person, we will happily put you in touch with the right person.

Joe and then Brian.

MR. GERSHEN: Yeah, I meant to ask this morning, and John mentioned something about PV money being EV money. So, I know this morning in the natural gas it was under-subscribed and I know in the past there have been biofuels projects that were either under-subscribed or went back into the pot.

And I'm just curious, is there any recordkeeping about what happens to that money and is there a way to track that and know what ended up happening to the money that went back in? Because I know, obviously, everyone's looking for money. Not the least of which is the biofuels folks.

But for projects that don't either take all the funding, or use their funding, or they go bankrupt or whatever happens, I'm just curious whatever happens to that? Is there a way to track that and report that back to all of us?

COMMISSIONER SCOTT: We do track it. Let me talk to my folks and figure out --

MR. GERSHEN: Okay. That would be great. That would be good to know.

MR. ORENBERG: Oh, just to clarify, we do track all the money, of course. We track exactly which projects, you know, finished on budget, under budget, which are cancelled with money spent. Everything like that we track.

Regarding the actual money, the program funds, you know, we have fiscal year allocations. Once we receive that money we have two years to what we refer to as encumber it, which means dedicate it to a specific grant or contract. And that doesn't change.

So, if we encumber -- you know, the 2018-2019 money needs to be encumbered by, I believe, June 30th, 2020. I think so. Let's say June 30th, 2020.

Past that date we cannot reencumber it. So, if we dedicated that money to a project and the project for some reason cancels, or fails, or completes under budget, the money we cannot add back to these allocations in the Investment Plan. It goes back into the ARFVTP fund, into the, I guess, the prudent reserve, or just the money that's left over in the fund. I guess, come January 1st, 2024, we'll have to figure out what happens with that money.

MR. GERSHEN: Yeah, it would just be interesting to find out what happened to projects that didn't happen, that didn't use the funds, where did those funds end up going?

COMMISSIONER SCOTT: Brian?

MR. GOLDSTEIN: Yeah, I just wanted to say that we saw, through EIN, firsthand how impactful the Readiness Plans can actually be. There just seems to be a lot of bang for the buck. They're, you know, relatively small amounts but the groups that get together to compile the plans usually consist of local stakeholders, governments. There are so many different agencies and folks that come together to contribute to the plan that they seem to really raise awareness among those agencies.

Certainly, in locations that aren't necessarily the ones that already are getting funding for infrastructure.

So, whether or not they receive State funding after compiling the Readiness Plan, it seems to really raise the level of awareness of what it will take to build out infrastructure.

And, you know, I just really think that the Energy Commission is getting a lot of bang for the buck in those plans and really hope to see them continue to move forward.

That said, I have one question about the Readiness Plans. And it seems like that funding is coming out of the Emerging Opportunities budget, is that correct, or is it coming from the individual fuel type?

MR. ORENBERG: So, the Regional Readiness Plans are actually funded through the Regional Readiness Plan category. There is no funding proposed for fiscal year 2018-2019. And there was no funding proposed in the last cycle, either.

So, there is, I believe, $1.8 million left over from fiscal year 2016-2017 that we still need to use.

MR. GOLDSTEIN: And does that need to be released in a new competitive grant or can people still apply under the old ones?

MR. ORENBERG: I believe that needs to be released through a new competitive grant.

MR. GOLDSTEIN: Okay. And then, I had a similar question for the Innovative Mobility Services. You know, what tranche is that coming out of and is there another opportunity to extend that program? So, I think that's a wonderful program, as well.

MR. ORENBERG: For that specific solicitation, and I invite the EV Unit to correct me here, if I'm wrong, I believe that was funded both from the Electric Vehicle Infrastructure category and the Emerging Opportunities category.

MR. GOLDSTEIN: Okay. And is it too early to say that, you know, there would be an opportunity to extend that into the next year or is that something that's undecided at this point?

MR. ORENBERG: I think that's undecided at this point.

MR. GOLDSTEIN: Okay. All right.

COMMISSIONER SCOTT: Okay, I don't see any more comments from Advisory Committee -- I'm sorry? Oh, Ellen, I'm sorry. Please go ahead, Ellen.

MS. GREENBERG: Thank you. This is

really just a point of information for folks, in light of the comments about local government activities. I just wanted to bring people's attention to the fact that the language in SB 1, right, the transportation funding package that was passed in the spring, in the Road Maintenance and Rehabilitation Program established by SB 1 there's specific language about the cities and counties that are receiving funds under that program. Using those funds among other uses for charging and fueling opportunities for zero-emission vehicles.

So, those who were thinking about ways to best work with local agencies on this might want to be aware of those provisions.

COMMISSIONER SCOTT: Great, thank you.

I have no blue cards from commenters in the room. I do have a couple on EV, for medium-duty/heavy-duty, which I thought we'd do in the medium-duty/heavy-duty space, unless you also were wanting to comment on light-duty.

Yeah, go ahead.

MR. ORENBERG: Oh, just to clarify for everyone in the room, if you'd like to make a public comment please fill out a blue card, and provide it to Patrick Brecht, over by the laptop.

And if you are on WebEx and would like to make a public comment, please use the raised hand feature and our WebEx staff will make note of that.

And, of course, since there are so many people present and we do have limited time, we do ask the public comment to be kept to three minutes or less. Thank you.

COMMISSIONER SCOTT: Sorry, go ahead, John.

MR. SHEARS: Yeah, sorry, just a clarifying question just in case I don’t -- if Ellen has the answer to this question or not, or anybody else in the room. We were just wondering, over here in our corner, you know, if you knew what mechanism and where parties would have to go to access that funding because --

MS. GREENBERG: So, all of the cities and counties in the State will be getting, I believe directly from the Controller, funds that are generated through the sales -- sorry, through the gas tax and the other new revenue sources through SB 1, or augmented revenue sources. They’ll be getting funds for their local road maintenance programs.

And so, the department has no -- the Department of Transportation doesn't have any role in that. There is, I would say generously, ambiguity around whether the expectation is that those funds would be used directly for this purpose. But, you know, I think there's a real basis for some local agencies that want to be at the leading edge of this to try it out and see what happens.

Tyson and I have spoken about this and ways that this might support the active use of those funds. So, I think it's going to take some pioneering, but the overall plan is for road maintenance and rehabilitation program are for all of the cities and counties in the State.

COMMISSIONER SCOTT: Okay. Let's turn to a public comment. I do have blue cards in the room. We'll start with Ryan Schuchard. And he'll be followed to Dedrick Roper.

We'll have three minutes for each public comment in the room and then we'll turn to the folks on the WebEx.

And again, as Jacob mentioned, if you are a member of the public and you'd like to make a comment, please fill out the blue card, give them over to Patrick, who's waving at you. That's how we know you'd like to say something. And we'll go from there.

Please go ahead, Ryan.

MR. SCHUCHARD: Good afternoon, Commissioner Scott, Mr. Kato, and Committee Members.

Let me first just say that great -- Ryan Schuchard, with CALSTART: CALSTART greatly appreciates the tireless work of Commission staff here, year after year to consider a very large number of very difficult tradeoffs in a landscape that's changing very quickly.

And on that point, we're really making a lot of progress in California on EVs and the Commission and its staff have a lot to thank for that, so we recognize that.

We do support enhanced levels of funding in this category. And I have two general comments. The first on what is now called CALeVIP, the block grant. Just two thoughts on some direction.

First, as we talk with our industry stakeholders and think about this, we're a little anxious that there could be a risk that if there is increased investment from outside the CPUC in Investor-Owned Utility districts, you could run into a situation where there would be ratepayer advocates saying, well, now we don't need to do this work through utilities. Which, in fact, has a much bigger burden they should be bearing. So, we want to be aware of that and, in that regard support the idea of Municipal Utility District investments. So, a long way of saying any focus we think is a good idea for this type of funding.

Also, a key barrier not being addressed yet, I think anywhere very well, is corridor rapid charging and getting business models that make cost effective. So, we'd support investment for CALeVIP, the block grant, in corridor rapid charging. So, energies in corridor rapid charging.

And then, I'll make this part brief because I heard you say medium- and heavy-duty is elsewhere. I didn't see a different category for that, so I had a comment on here.

But I'll briefly just for now say we do like the CALeVIP framework for light-duty. And by extension, we think that the Energy Commission should develop a similar program for medium- and heavy-duty as a distinct and separate program. And I guess I'll wait for the medium- and heavy-duty category to say more on that.

And let me also just say, for Eileen, I think she makes a really good point that employment in this sector is not just a large number relative to clean transportation, but EV jobs is really one of the big bright spots for California economy jobs overall. So, this is definitely a place we need to continue to invest. Thanks.

COMMISSIONER SCOTT: Great, thank you.

Is Dedrick still here?

MR. ROPER: Good afternoon. This is Dedrick Roper with ChargePoint. Thank you for the opportunity to speak today.

I've been involved with sort of helping the development of the Investment Plans for the last three years. You know, from ChargePoint's perspective. And I really appreciate the sort of renewed focus to expedite the deployment of the infrastructure.

It's clear that the Energy Commission is looking for new ways to get the funds out quicker. Programs like rebate programs with the Fresno Initiative, coordinating with Investor-Owned Utilities, Municipalities, and Air Districts. I really want to express support for coordinating with the Air Districts that tend to tap into more innovative funding sources, such as local DMV funds.

These funds oftentimes aren't enough to have a really substantial project. But if you bring additional investment from the ARFVTP program, as well as local investment, those programs could actually have a much larger impact.

Also want to express support for continued investment in low-income communities, as well as multi-families. Even when there are large subsidies for these types of deployments, it's still an uphill battle encouraging a lot of the property developers and owners that EVs are important for their property. So, you know, the additional incentive of subsidized infrastructure is a huge help, but those markets are still pretty tough to tackle.

And also on the Readiness Planning side, I know that there were substantial plans developed in previous years. In working with the PEVCCs through some of our corridor work, you know, we know that those plans have been great in helping develop those regions.

But there's also a need on the local level. So, on more of the city level, some of these cities that want to implement streamlined permitting processes, over-the-counter sort of online processes, as well as streamlining permitting is very critical into helping the infrastructure get out.

So, I just want to encourage the use of those funds that are remaining from 2016, and I'd like to see a new program coming out this year. Thank you.

COMMISSIONER SCOTT: Great, thank you.

Those are all the blue cards I have from folks in the room.

On the phone we have Linda Urata, from Kern Council of Government.

MS. URATA: Hi. Thank you so much for this conversation. I'm not sure if this is applicable now that the discussion has proceeded. But I did just want to bring up that there's things changing on the Federal budget scale and I don't know if that's going to lead to looking at things a little bit differently as far as making these investments in all fuels.

So, for instance, the recent Federal budgets are eliminating the $7,500 Federal Tax Credit for vehicles. It's also eliminating most of the budget for the Clean Cities Program. And these are people that have been traditionally putting together projects and building capacities for the programs that you're funding.

So, I just wanted to bring that into the discussion as far as Federal investment versus State investment and if we're looking at perhaps having to raise incentives through the Clean Vehicle Rebate Program. If the Federal Tax Credit goes away and perhaps that would be better at developing the market than continuing to invest in infrastructure in some areas.

And then, the other comment I would have, being from Bakersfield, would be that we are -- we have been working, I work with the San Joaquin Valley Electric Vehicle Partnership, and we're thrilled to see all of the investment that's going to Fresno. But I would remind you that there's Bakersfield, Stockton, Modesto and other places that are your gateways either to National parks, like Sequoia National Park, or serving rural communities, or on the highway that’s the main route through to Las Vegas and down to Los Angeles for freight and other investments.

So, I would like to remind people that an investment in Fresno, while being a wonderful and new investment in the Central Valley does not end there, but that we continue to fund projects throughout the San Joaquin Valley.

COMMISSIONER SCOTT: Great. Thank you.

I have also a comment from Ed Pike.

MR. PIKE: Yes, this is Ed Pike with Energy Solutions. And thank you for the opportunity to provide comments today.

We work at State and Local level on all different kinds of building codes and standards. And I just want to echo some of the comments made earlier about the benefits of funding for local cities, as well as regional funding on ZEV Readiness Plan implementation. Such as adopting local codes and standards, permit inspection streamlining.

And I would echo the comments about the benefit of using the existing funding that’s already being held for that purpose.

And also, reconsidering providing funding for the future. Because I think that there's a lot of activities where there's still a lot of opportunities that haven't been tapped, yet, on plug-in electric vehicle infrastructure. And then, certainly with fuel-cell vehicles coming out, I think there will be a lot of opportunities on the fuel-cell side as well. Thank you.

COMMISSIONER SCOTT: Thank you.

I have two comments that have no microphone, so I will read them for you.

One is from Jody London, from Contra Costa County. She says, "Our County is working to develop an EV shared mobility readiness plan, looking more broadly than passenger cars. We think we will better positioned to pursue the utility, VW and other funds. Will there be funding opportunities to help us do this work?"

And I think we have talked through some of the funding opportunities that we'll have in this EV space. The answer is, yes, please follow our list serve, if you're not already on there, to make sure that you're hearing about those opportunities.

And then I have another comment from Steve Davis, from Oxygen Initiatives. Steve says, "Needed reporting to State agencies will be a challenge for utilities, particularly POUs, which have limited resources. Oxygen Initiative recommends funding some IT support for these utilities to enable them to streamline onboarding of vendors to accelerate infrastructure deployment."

And I think those are all the comments that I have on EV. Okay, great. So, we're going to move over to the Workforce Training.

I just want to be mindful of time. It's 2:10, I know we're slated to go up until 5:00. I hope everyone can stay until then. But I just want to make sure that we have a chance to get through. We still have about six categories to do.

So, just with that in mind, I don't want to quash the conversation because we're having great dialogue. I just wanted to make sure that we're mindful of time as we continue along.

So, Tami, please.

MS. HAAS: Good afternoon. I'm Tami Haas, the Energy Commission Specialist in the

Fuels and Transportation Division.

The Workforce section of the Investment Plan addresses the State's environmental and economic goals by preparing new and incumbent workers for the manufacturing, maintenance and other servicing of clean transportation technologies, leading to increased job opportunities and higher wages.

Ensuring California's competitiveness by building a well-trained labor force for new and expanding manufacturers and suppliers to draw from, assuring prospective buyers of advanced technology vehicles that there are local, well-trained technicians to service these vehicles.

The ARFVTP has invested in workforce development and training since 2009. ARFVTP has predominantly funded workforce training delivery through these State agency partnerships. The most direct ARFVTP investment to private employers is through the Employment Training Panel, or ETP.

ETP contracts directly with private companies for workforce training of incumbent workers. This means training for jobs that aren't hypothetical, we know they exist.

Additionally, ARFVTP investments leverage existing entities, such as community colleges, which has been our primary pathway for reaching future workers in this area.

Staff recently toured several community college programs offering courses in automotive technologies, and were funded by ARFVTP through the Advanced Transportation Technology and Energy Center, now known as Clean Energy and Transportation Initiative.

This is the California Community Colleges' Economic and Workforce Development Program.

Cerritos College, which hosts the CETI staff, is highlighted for several reasons. They've established curricula in alternative fuels. They have grown OEM and municipal fleet partnerships in which trainees in disadvantaged communities go for jobs. And they work with area high schools that feed into the colleges.

Rio Hondo College also has a curriculum focused on alternative fuels and advanced technology vehicles. Rio Hondo College recently won an $800,000 National Science Foundation Grant to develop safety certification for technicians who work on electric and fuel-cell electric vehicles.

There are several key drivers of workforce training and development needed today and in the future. It's important to understand how companies position their products in response to these drivers and to better understand their workforce needs.

Under Senate Bill 350, the Energy Commission has been instrumental in producing reports on low-income barriers to clean energy, including transportation electrification.

The Energy Commission will continue to assess the workforce development aspects in disadvantaged communities.

The 2016 ZEV Action Plan provides an updated roadmap toward 1.5 million zero-emission vehicles by 2025. The plan also identifies where workforce is important and the role of the Energy Commission in meeting these goals.

Senate Bill 110, established in statute this year, provides up to $75 million to schools, for school bus retrofits and replacements. As alternatively-fueled school buses become available, we anticipate a need for schools to have a trained workforce.

New areas for workforce training and development investment and partnerships are in the freight sector. In the California Sustainable Freight Action Plan, under State Agency Action Number 8, the Energy Commission is partnering with the Governor's Office of Business and Economic Development, as well as the California State University, Long Beach.

CSU Long Beach will establish a working group to assess and prioritize freight workforce challenges associated in advanced technologies.

Another new partnership is with the Port of Long Beach and Long Beach City College. These entities will evaluate existing workforce development and training programs that support 2030 zero-emission vehicle goals for the Port of Long Beach.

For the fiscal year 2018-2019, the Investment Plan proposes to allocated $3.5 million.

COMMISSIONER SCOTT: Thank you.

Joe? Oh, not Joe. Peter.

MR. COOPER: So, I wanted to give you a kind of a quick update on what --

COMMISSIONER SCOTT: Oh, she says you're

not coming through the mic.

MR. COOPER: There we go.

COMMISSIONER SCOTT: There we go.

MR. COOPER: All right. So, I just wanted to give you a quick update on some of the things that we've been working on, some of our demand and supply for the workforce training dollars that have been administered by our program.

And our program, obviously, works together closely with the State Board, with local Workforce Development Boards, and colleges, trade unions, and other State partners to administer the funding.

Some of our recently funded projects include futurist automotive, to train manufacturing and production technicians, and engineers. These are -- they produce car seats that are a part of the supply chain for Tesla, Faraday, Future and Karma.

And we funded, recently Drexler Automotive. And this is a company that also produces parts for Tesla. So, we're really looking at the supply chain and not just the car manufacturers.

One other thing that I wanted to mention was that we are in the process of designing new marketing materials for outreach, as well as having a study done of our program, and interviewing some of our contract holders. So, this will be a resource for finding out what's important for employers regarding their workforce training needs in the future.

Just a couple of the contracts we've funded in the last two years, Nass Energy Works. Tesla has a contract. El Camino Community College. L.A. Community College District. GFP Ethanol. Buster Biofuels. Applied Materials. KLA Tencor. And the California Labor Federation Transit Project in the South Bay.

Regarding our current funding status, right now we have about $384,000 remaining in our interagency agreement. And we see a demand of significantly more than that.

The training -- the funding is not enough for the demand that we see of about $3.5 million.

Some of the projects that are in development include Next EV, Proterra, Santa Clara Community College District, Los Rios Community College District, Karma, BYD, Faraday, GM Cruz, and a couple of others. So that, all taken together has a demand of almost $3.5 million. Taking out the $384,000 that we have left, we have a need of around $3 million.

So, we're requesting $3 million from the 2018-2019 allotment. And we're supporting the staff recommendation for $3.5 million overall for workforce training.

I have a couple of other comments. I just also wanted to mention that not only do we use the dollars that we receive from the Energy Commission, we also use some of the money from our core funding. As I've mentioned before, we get training funding when employers pay their UI tax, they pay their training tax.

And there are situations when an employer will come to us and they will have a very broad array of training needs. Some of them may not fit within the confines of the requirements of training under the ARFVTP. And so, they decide to use our alternative funding, our core funding for that.

And examples of those recently, Karma, Futurist, and Drexel Meyer Automotive used our core funding.

We continue to work with Governor's Interagency Working Group on Zero-emission Vehicles, and coordinate with GO-Biz.

And one of the suggestions coming out of a recent meeting with the ZEV Action Group was that there needs to be a better understanding of the workforce needs in the zero-emission vehicles field.

And so, we are thinking about seeing if there's a way that a study can be conducted of the workforce needs to guide future investment.

And lastly, some of the areas we see for opportunities for training with these dollars include the Sustainable Freight Executive Order, SB 110, the school bus retrofit, and VW diesel emission settlement. Probably not in the first round of their funding, but maybe in their second or third round of the VW settlement funding.

And there are a couple of other minor changes that I would suggest to the text, but I will put those into my written comments and send them to you, so they can be incorporated.

COMMISSIONER SCOTT: Thank you.

Thomas.

MR. LAWSON: Good afternoon, Thomas

Lawson. You know, we had this discussion last year and I'm really supportive of the workforce investment funds.

One of the things I wanted to talk about is I see a lot of this funds is going into the community colleges. And it's been my experience that you've got to go lower than that to reach folks that may not even thing community college is an option for them.

And so, my question is how much of these funds can we create a pilot project for maybe a high school and in an area that has really terrible graduation rates? Or, is there a portion of the funds that go to the community college where they can start to outreach to some of these high school folks?

To date myself, I just had my 20th high school reunion. Ran into a lot of folks, some doing well, some not.

But, you know, high school's where you start having that conversation. You know, what are you going to do with the rest of your life? And, you know, just knowing just kind of what some of my friends and I went through, it's a good time to provide them with an inkling of what the future's going to hold.

You know, you talk about 2025, 2030, a lot of these people who are in high school now are going to be in a career by that time. And we'd love to be able to have them working in the green energy space. And so, that's something that I'm just really concerned about. It's a really big issue for me.

COMMISSIONER SCOTT: I think outreaching to high school students is something that we are definitely open to as well. And so, as we are crafting what the upcoming solicitation ought to look like, I think the best information, and suggestions, and ideas that you can provide to us on that would be warmly welcomed.

I have Joel, followed by Casey.

MR. ESPINO: Yeah, so really supportive of this pot of money, too. I don't think we appreciate how valuable this pot of money is in terms of, again, its flexibility and the fact that it's a yearly allocation for this purpose.

Like I mentioned previously, I worked through the ARB and I know that there's a lot of discussion around meeting our greenhouse gas reduction goals and really focusing on cold benefits. But, you know, that the climate investment money has limitations in terms of the GHG nexus that there has to be.

And so, the fact that there's money for clean energy job development is really important. So, I'm glad that the Commission continues to provide funding for this purpose.

I would echo the comments that Eileen and others have mentioned about the growth of jobs in the clean energy economy. I don't think that we should -- I think we should definitely consider that as a fact of what's happening.

I think from a social justice advocate, there are a few trends that give us pause in terms of how this economy is developed and whether it's, you know, solar, energy efficiency or transportation electrification, which is -- you know, I mentioned this in my previous comments that the whole point of this is that we're trying to move into a better economy. We're not trying to replicate this bad economy that we're in, in terms of income and equality, and access to opportunity. We're trying to create something better, right.

And so, some of the bad trends that I'm

starting to see is particularly around, you know, Tesla for example has been in the news recently around essentially suppressing its workers from unionizing. Some safety concerns there.

And so, I think again, as we use public dollars to incentivize these companies we should really use the -- you know, use the power of that this is public funds to make sure that there's some minimum requirements in terms of the wages that they provide, the safety of their workers, and so on, and so forth. I think that that's key.

But we also have some positive trends in the industry. BYD is an example of that. They recently reached a community benefit agreement with some labor folks and some social justice advocates to make sure that they're targeting the job opportunities to folks who come from disadvantaged backgrounds, folks that are facing barriers to employment.

I think these concepts should be no-brainers in any of this type of investment, whether it's in the CEC money, ARB money, or otherwise there should be these types of components embedded into it.

And I would definitely echo the comments that Thomas made around, you know, really thinking about the pipeline, right, and figuring out ways to connect. At least start developing some skills that are going to be necessary for this future economy at the high school level. And in particular, those high schools that have kids who really lack opportunity, right. Some of these come in under-served areas in California. We need to really focus in, hone in on those areas, build the skills there so that we actually reach this just transition or else we're only going to exacerbate kind of the existing inequalities that we have.

And then just a couple more points, or I guess questions around this workforce money and things that it's funded in the past. I know that there is a great need, when you talk about low income folks, low income workers who are low skilled, many of them, there's a great need for pre-apprenticeship type programs. So, to the extent that we can fund those types of programs with this funding I think is really important.

And then, sometime that gets lost, too, is this concept of support services. If you're trying to help a low-income person gain a job opportunity, there's a lot of barriers that that low-income person might have. Transportation being one of them. A lot of these apprenticeship programs have very strict attendance schedules. And so, just getting to the training is a difficulty. And so, to the extent that we can provide support services to help a low-income access this training on a regular basis, I think is key.

Child services. Obviously just income to live. Because when you're a low-income family you're living paycheck to paycheck. And if all of the sudden you have, you know, this curriculum that you have to take on and you can't work, then you need to find, you need to have support income for that.

And so, we need to bold about creating and starting in vetting some of these things into our programs, right. Or, else, this transition that we all talk about and I've heard, you know, for the past years is not going to happen.

So, just thinking about how we can be bold, push the status quo and start thinking about how we embed some of these things into these programs.

COMMISSIONER SCOTT: I think I just want to add to that. We are also, as you know, the Legislature directed the Energy Commission, under SB350, to study barriers to low-income communities, being involved in renewable energy and energy efficiency.

The Air Resources Board is looking at the transportation component. And this is very much on top of mind, as well. And so, the lessons learned there are translating over to this program and how we set up workforce development and training, and vice-versa.

So, we do have -- even though the SB 350 Barriers Study is not the topic of today, we've got lots of great information there that we're also pulling in to help support the types of training that we would be looking at.

Casey and then Ellen.

MR. GALLAGHER: I would like to echo Thomas and Joel on, yes, we need to create a more strategic pipeline. That it's not just the community colleges, but also thinking about high school. But also, what is the mechanism that connects each one of these paths, including pre-apprenticeship programs, apprenticeship programs and anything that leads into a full-time career?

This could be community-focused, demand-driven, so any kind of partnership with employers, but also being worker focused at the same time.

That we need to create careers that's not just a gig, not just a job. That those partnership linkages with the community colleges. The community college is one of the best kept secrets in this State. They're basically in the forefront of vocational training at a great price, but always a way that employers can be linked up to them.

So, example, my question is, after singing praise, would be the Cerritos College Partnerships, that plan, what way, if anyone know how they incorporate employer partnerships or leaning towards actual full-time employment?

MS. HAAS: We visited Cerritos and they have the partnership with the OEMs and some of the utility maintenance workforce. And some of the OEMs actually offer scholarships to some high school students, or their students. They also offer dual enrollment, you know, so that these high school students can come and attend, and get college credits.

MR. GALLAGHER: Excellent.

MS. HAAS: So, they are outreaching.

MR. GALLAGHER: Okay. And with the Cerritos and Rio Hondo, do they have any kind of numbers on job placement or internships that they might be introducing?

MS. HAAS: Not at this time, but we are working with them to try and determine a way to measure that.

MR. GALLAGHER: Okay. All right, thank you.

MS. HAAS: Uh-hum.

COMMISSIONER SCOTT: Thank you.

Ellen.

MS. GREENBERG: Thank you. Sorry. Just another connect-the-dots here. So, career pathway is a big emphasis at L.A. Metro, given the size of the infrastructure project. So, Phil Washington who's there, GM has spoken. This last week I heard them talk about their efforts to start a grade 6 through 12 transportation school. And they are, you know, focusing very seriously on long-term pipeline, you know, within the industry.

So, I think for the Commission and others around the table that might be a connection really worth making.

COMMISSIONER SCOTT: Great, thank you.

Go ahead, Peter.

MR. COOPER: Yeah, I just want to mention that my other hat, pretty much at ETP is working on apprenticeship programs. And this has mostly been in the construction trades. We fund about $15 to $16 million a year for pre-apprentice, apprentice and journeyman training through our core funding.

A good chunk of that has been with the IBEW. And some of those IBEW apprenticeship contracts have been the installation of EV infrastructure. So, we're coming at it from that direction as well.

I would love to be able to use more of the funds from the Energy Commission, from AB 118 for pre-apprenticeship and fully fleshed out apprenticeship programs.

One of the big challenges, as I think I've mentioned before, is a lot of times there's not the direct nexus that's required from the legislation between what is -- what kind of training is being provided. If it's a lot of the pre-apprenticeship and some of the beginning apprenticeship programs have classes that are more general in scope for mechanics, for example, and they're not specifically for, let's say for hybrid engines, and things like that. They're not technical enough to meet the criteria for that nexus and so they're not permitted to be funded through. At least this is what I've been told.

So, we're working on that and seeing if we can expand the outreach of our funding to both pre-apprenticeship to apprenticeship programs.

But I also wanted to mention one of the kind of more innovative things that the Employment Training Panel is doing. If you're from Sacramento, you probably know Mayor Steinberg's initiative, called Thousand Strong. It's an internship program across the City for high school students. It's to try to get them in the program, into career training. This is for juniors and seniors.

So, we're supporting that program through our core funding, as well as in collaboration with the State boards, with some of their discretionary funds. We usually don't fund down to the age 16, 17. Usually, it's 18 and above. But we're stretching, we're going down to age 16. And we're looking at this as hopefully the beginning of a new era for ETP to fund some of the more -- some of the youth training which has traditionally been the realm, the area for the State Workforce Development Board.

And so, hopefully, we'll have more flexibility as we see the success of the Steinberg Thousand Strong campaign to work with youth in this sector and other emerging sectors.

COMMISSIONER SCOTT: I don't have any -- I don't see any other members around the table. I don't have any blue cards or yellow cards for comment.

Okay, I'm seeing no public comment on this topic.

So, let's now turn to our Hydrogen Refueling Infrastructure overview.

Thank you, Tami.

MS. BERNER: Good afternoon. My name is Jane Berner and I'm going to be speaking about hydrogen refueling infrastructure.

The Energy Commission's Hydrogen Unit is supporting the development of hydrogen refueling stations to achieve a network of at least 100 publicly accessible stations, which is a milestone established in Assembly Bill 8.

These stations will support the early fuel cell electric vehicle or FCEV market in California. Thus far, the Energy Commission has funded 60 stations. Of these funded stations, 12 are located in disadvantaged communities.

Collectively, once they are all completed and open to the public, the funded stations will be able to support nearly 19,000 vehicles.

To put this in context, the California Air Resources Board, their most recent projections, based on auto manufacturer surveys, estimate that 13,400 of CEVs will be on California roads by 2020, and 37,400 by 2023.

Today we have 31 hydrogen stations open to the public and they are capable of supporting about 8,500 FCEVs.

The vehicle count data from auto manufacturers through September of this year indicate that there are just shy of 2,700 vehicles in California. Even though this number seems small, we are achieving great growth. Two years ago, there were only about 200 FCEVs in California. And this time last year there were 925.

The amount of hydrogen that the stations are dispensing to vehicles is growing at a rate commensurate with that of vehicle rollout. And a demand for fuel in some high use areas is beginning to approach the available supply.

Here is a summary of the makes and models of FCEVs that are available or are soon to be available in the California market.

The Honda Clarity Fuel Cell is currently available for lease at select dealerships in California. And the Toyota Mirai is available for purchase or lease.

Mercedes Benz has announced that the GLC F Cell, which will actually be a plug-in fuel cell hybrid, combining a fuel cell with a plug-in battery, will be coming to market soon. And the vehicle is scheduled to be on display at the L.A. Auto Show next month.

There's also a Hyundai Tucson Fuel Cell available to lease in California, now. But this model will soon be replaced by a next generation model known as the Hyundai Future Echo, or FE Fuel Cell.

These vehicles all have or are expected to have zero tailpipe emissions and have over 300 miles of range on a full tank. The refueling time for these vehicles is about five minutes.

And other auto manufacturers, such as General Motors and Kia, have made announcements that they are including FCEVs in their plans for the future.

Here is a look at the geographic distribution of the hydrogen refueling network today. The green icons show the 31 stations that are open today. And the yellow are funded stations that are in development.

The size of the icons represents the stations' nameplate capacities, with smaller stations offering up to 180 kilograms today and larger stations offering more than that.

The maps on the right side of the slide zoom in to show that the majority of stations are clustered in the core markets of the San Francisco Bay Area and the Greater Los Angeles Area, which includes L.A. and Orange Counties, and the Inland Empire.

The network also supports the early markets here in Sacramento, and in San Diego, and allows for travel between Northern and Southern California with the station in Coalinga, which is near Harris Ranch on Interstate 5. And with another planned station for Santa Nella.

Travel to destinations like Lake Tahoe and Santa Barbara is also possible. And note that the Energy Commission has also funded a moveable, temporary refueler, which is not shown on these maps.

To share with you the most recent developments with hydrogen refueling infrastructure, here is a picture of the Fremont Station, in the San Francisco Bay Area, which opened on September 7th, of this year. It is located between Interstates 880 and 680. It has a unique station design that we expect to see in more of the forthcoming stations, which is that the hydrogen dispenser is integrated under the same canopy as the other fuel types.

You may have seen photos of some of the existing hydrogen stations and they are often off on their own, on the side, or near the back of the gas station property. But here the dispenser is located in the front with the other fuel dispensers.

Another notable aspect of this station is that this station's fueling protocol testing took only two and a half days, and this usually takes at least a week.

There are a series of tests that all stations go through to verify they are meeting necessary standards before they can be declared open to the public. And many of our partner stakeholders, including the California Air Resources Board, have been working to find ways to make this process more efficient. So, we're beginning to see some good results and Fremont has been the best example of this so far.

While Fremont is the most recent station, or the 31st to open in California, it also marks the 18th station that Developer First Element Fuel has delivered. We now have several developers who have had a good amount of experience going through the hydrogen station development process, which is helping to reduce the time needed to build stations.

And finally, on October 9th, 2017, there was an event, attended by Commissioner Scott, to celebrate the reopening of the Torrance Station, which is located right off of Interstate 405, in Southern California. This station has previously been a non-retail station and the Energy Commission funded an equipment upgrade. The upgraded station opened to the public on August 18th, of this year, making it the 30th station in California.

This event, though, is later on October 9th, and was scheduled in conjunction with National Hydrogel Fuel Cell Day. And on this day, there were several events with FCVE drivers and that demonstrated a lot of excitement about the vehicles and the technology.

This station is notable in a few ways. First of all, it has two dispensers and two fueling positions, which means that two vehicles can be fueled at the same time. This two-dispenser design also provides redundancy. So, if one dispenser is undergoing maintenance, the other is still available for use.

And almost all of the most-recently funded hydrogen stations will have multiple fueling positions, as well as greater station capacity to be able to fuel more vehicles each day.

These features should not only build customer confidence in fueling availability, but they should also improve the economic potential for station ownership and operation.

Second of all, this station is the first retail station from Shell, in the United States. And it is located on Toyota property, right next to the Toyota campus, in Torrance. And it's a good example of how our public dollars are encouraging additional private investment in these stations, including investment from major energy and fuel companies, and auto manufacturers.

Thank you.

COMMISSIONER SCOTT: Thank you.

So, we're going to start with Brian, who I know has to depart shortly. And then, Bonnie, you had a question from earlier that we'll follow up on when Brian's done.

MR. GOLDSTEIN: Thank you very much. I'll try to keep it as short as possible. But I'd like to thank the Energy Commission for continued support of the hydrogen program. Obviously, the launch, kind of a nascent fuel type, it’s taken a long time. And I think in the last year or so we’ve seen huge benefits.

I think it’s funny to say, but we’ve seen a thousand percent increase in the number of hydrogen fuel cell electric vehicles on the road just over the last year. We’ve gotten great numbers that are projected in the latest AB 8 report. And that’s straight up thanks to the fact that the Energy Commission’s building infrastructure right now.

So, of the 60 funded stations, it’s amazing to see that 12 of them are in environmental justice communities. And I’ll kind of just go down the list here.

One thing that struck me was the importance of the mobile refueler that you guys are focusing on, which allows extreme flexibility in kind of the early days of infrastructure development. And that flexibility could send refueling to disaster zones that would enable medium-, heavy-duty vehicles to get in and out. It can send it, you know, to event locations, like the upcoming Olympics to facilitate clean transport for large events.

And can open up, you know, tourist

traffic to National Parks, to the ski reports. So, the mobile refuelers really offer a lot of flexibility and I would certainly encourage, you know, additional research into what's kind of the sweet spot of the number of mobile refuelers that we could use to really open the State up to hydrogen transport.

You know, we talked a little bit, and to build on Thomas' comments, I think that education outreach opportunities are huge. I think, you know, across fuel types reaching out to whether it's high school students, the education community as a whole, and the environmental community, media, whoever it may be. I mean, it seems like as a group we're constantly, you know, defending the work that we do to support each of these fuels types, right.

And so, the ability to kind of reach out beyond, you know, our own group and kind of talk about the wins that we've had, and well beyond just the environmental wins.

The job creation numbers, the tax benefits, GHG displacement data, you know, we've seen those numbers broken down for some for some of the specific fuel types here. But I think it would be great to actually break those down for each of the fuel types.

And that way we'll be able to show, you know, internally in the State we'll put policymakers in a position to continue to defend the programs that we have and to support new programs. And we'll continue to set an example for the rest of the country and the world, as well.

And for those that just don't want climate change to be a part of the conversation, we can show hard data on the economic impacts of the work that we're doing.

So, happy to see that for some of the fuel types, excited to see it for the rest.

I want to encourage funding for research in emerging opportunities relative, you know, specifically to hydrogen and the other fuel types. But the Energy Commission has begun to put funding behind renewable hydrogen production and, obviously, you know, we're well into the infrastructure development phase of the funding here.

But I think looking at research into how to launch private market initiatives to eventually take over the investment into both production infrastructure and fueling infrastructure would be relatively inexpensive compared to the budgets that we're talking about and could really help kind of boost private market efforts into eventually, you know, kind of taking over development.

So, I want to encourage additional research into, you know, financial modeling and methods to start to incorporate the private market there.

Community readiness planning, I spoke a little bit to this and I realize that there's not new community -- well, there is no new community readiness planning funding available. But I've seen huge progress. Specifically, you know, some of the funding went to the Central Coast and the Tri-County area, I think it was Santa Barbara, San Luis Obispo and Ventura.

And they realized that they are not necessarily, you know, a population center that's going to see multiple hydrogen stations come in, but they are a connector community between Northern and Southern California.

And being part of those meetings, we

really saw -- you know, I saw the stakeholders in that group acknowledged that, hey, we're probably not going to get a lot of CEC funds here, but let's look for other ways to try to attract infrastructure investment here. So, they were reaching out to fleets. They were looking for funding with their local APCDs.

And so, it really encouraged that conversation and acknowledgement, hey, even if we don't receive CEC funding, if we're not a great candidate, let's find other ways to find that funding and to build the infrastructure.

And so, I think that would hold true across fuel types.

But I think for, you know, a little bit of funding, relatively speaking, that went a very long way.

I'd like to encourage the CEC to look for connector station opportunities. And not just hydrogen. I think there would be opportunities to co-located all the fueling infrastructure and, again, try to save money on whether it's the zoning and permitting or the infrastructure that, you know, is going below the station.

But, you know, I think finding those

connector opportunities on the coast. We have one connector on the I-5 Corridor, which is great. I think some redundancy would certainly be helpful there and allow the automotive OEMs to really kind of push the fact that you can drive from north to south pretty easily.

But looking at kind of the far western corridors and the far eastern corridors that would open up, you know, tourist traffic through the State Parks and National Parks and, similarly, along the coast.

Let's see. And, finally, I just wanted to -- well, there are actually two more things. I want to encourage the Energy Commission to continue looking at manufacturing opportunities in this space. I mean, this is really an emerging market there. We've seen some consolidation among the like electrolyzer manufacturers. We'll certainly see domestic component manufacturers coming in to try to supply parts for these vehicles moving forward.

So, to encourage them to come to California, I think it's kind of the low-hanging fruit here. We know that we're going to be selling tens of thousands of these vehicles in coming years, so the opportunity to manufacture either hydrogen production equipment or vehicle components in California seems like it's right there for the taking. We know this is coming right now.

And then, finally, I just wanted to make a comment about the advanced freight and fleet technology section. I think, you know, it's great to see that there has been some funding allocated for hydrogen medium- and heavy-duty vehicles there. But I think we're seeing great strikes in that area from, you know, everyone from the automotive OEMs to some startups. But it looks like roughly 10 percent, a little over 10 percent of the overall funding has been allocated for hydrogen medium- and heavy-duty vehicles.

But I think that you'll see there's a growing demand for that type of technology. It's a little more expensive, but the range benefits are absolutely huge. Especially, in areas that need that range. So, goods movements coming out of the ports. You know, frankly, those trucks need to be able to move 100 to 200 miles out to the distribution centers.

And I think they're highly interested in hydrogen, but they're a little scared of the expense of it right now.

So, again, I want to thank the Energy Commission for its ongoing commitment to this fuel type and to the other four that are represented in the program this year. And looking forward to seeing the progress in 2018. Thank you.

COMMISSIONER SCOTT: Thank you.

Bonnie and then John.

MS. HOLMES-GEN: So, I guess as a follow up -- my question was if we could get more information on the status of renewable hydrogen and the development of that resource? Right now, it looks like we're about 37 percent across the stations. So, what would be a likely date we could get to 100 percent renewable hydrogen I guess is my quick snap shot of the question?

MS. BERNER: Yes, thank you. So, in terms of reaching 100 percent, I think we are investigating that and we aspire to that, but I don't have a firm number to give you today.

As was mentioned previously, we had a few workshops this year, exploring supporting the production of renewable hydrogen. And so, I think we will know a lot more once we get further along with that process about the technologies, the facility designs, the what is reasonable in terms of how quickly we could get to 100 percent renewable.

And we have begun looking at just the numbers in terms of how much hydrogen we need, if the vehicles and the stations roll out as we project.

For instance, we believe we will need about 5,500 kilograms a day of renewable hydrogen by 2022 to meet the 33 percent goal. And, of course, more for 100 percent. So, we're beginning to look at those numbers and certainly should have more information in the future.

MS. HOLMES-GEN: Well, I appreciate that. I think it's great that we have both the other category that includes funding for renewable hydrogen.

Now, I'm assuming that there's funding also from this category that would also go towards assisting with renewable hydrogen stations. Correct, both of these categories would go toward that?

MS. BERNER: I don't know, did you want to, Jacob, or do you want me?

MR. ORENBERG: Actually, I don't know for certain whether or not the funding from renewable -- sorry, from hydrogen refueling infrastructure. I don't know for certain if any of that funding has gone to the on-site electrolyzers that produce renewable hydrogen.

Actually, I spoke with the head of the Hydrogen Team earlier today, at the lunch hour, and she suggested I point out page 37 that talks about renewable hydrogen production on the bottom.

You know, at the moment we don't have an estimate of when we'll hit 100 percent, but we're working towards it.

MS. BARONIS: So, I'm Jean Baronas, Supervisor of the Hydrogen Unit. And so, we've funded six electrolysis on-site stations, which is on page 37 of your report.

Currently, one is operational and open retail and dispensing around 60 kilograms a day. And that station cost $2.125 million.

So, as Jane pointed out, the stations now are larger than 300 kilograms a day. So, it's not linear, but it would probably cost more than $2.125 million to obtain a large electrolyzer station.

MS. HOLMES-GEN: Do you have any estimates on the cost curve going down?

MS. BARONAS: Yes, we do. We expect the cost curve to go down. And we publish that in December, in our Annual Joint Report with the California Air Resources Board.

MS. HOLMES-GEN: Well, thanks for the information. It's of great interest in terms of getting to zero-emissions.

And it would be helpful just to get clarification, then, if any of the hydrogen -- the $20 million could also go to that electrolyzer or other process to produce renewable hydrogen. Thank you.

COMMISSIONER SCOTT: Thank you.

I have John and then Tyson.

MR. SHEARS: Yeah, sort of along similar lines, and I'm not sure how thoroughly it was covered at the beginning of the presentations this morning. But I just wanted to highlight that through SB 1383 there's the work that's going on under the Low Carbon Fuel Standard to try and develop ways to sort of incentivize fuel production, renewable gas, renewable hydrogen from dairies.

Likewise, there's the workgroup process where sub-group two of the Short-Lived Climate Pollutants Dairy and Livestock Workgroups is looking at ways of incentivizing, you know, greater production of methane for commercialization purposes. Economics are more attractive on transportation than on the grid side.

But also, would like to encourage not necessarily specifically through the ARFVTP program, but just more holistically, a deeper dive into -- continuing, you know, into the deep dive in terms of hydrogen, the duck curve issue, and the connection between hydrogen and a continuing de-carbonized grid.

A lot of folks get focused on hydrogen and fuel cell cars, but the story going forward in terms of climate and where we need to go is going to be not just about a near-zero grid. And it might have to be an, actually, zero carbon grid. Because some of the other economics sectors, you know, that have their targets may not make it. So, we’re going to need some things to be able to perform really, really well to compensate for those that just can’t get there.

The other facet of that in terms of de-carbonizing the economy is that hydrogen will have a much broader economic role than just transportation. But transportation is a key component of that.

The work around, you know, the inclusion of electrolyzers and what the best strategy is, you know, whether it’s like small on-site, or if we go to a sort of a similar model with a sort of centralized electrolyzer that’s delivering out to local stations.

You know, we have projections that are based on what we know now, but we need to develop better learning curves that comes through learning by doing.

Because the challenge we have right now is because the gas companies right now are not in this business as retail fuel, competitive retail fuel business. They recognize there’s a potential business opportunity right now.

But we need to put as much pressure on this market to get the hydrogen produced for transportation fuel to really be sold at a competitive rate to the station providers. And that's like one of the challenges that we're still dealing with right now. So, a lot of the auto companies basically subsidize, if not completely absorb the cost of the fuel right now.

So, we really need to keep our eye on that issue and work hard to, you know, push the market in a direction where we can get competitive juices going in terms of the pricing of the fuel.

So, just wanted to offer those perspectives. And, you know, let's keep on funding those stations.

(Laughter)

MR. SHEARS: And in terms of the success in the accelerating facility with which they're being permitted and installed, I want to thank our colleague, Tyson, and the staff at GoBiz for all of their great work in helping the providers get better on that.

I have a few other issues around performance requirements through the solicitations that should be imposed on the grantees and that, but I'll leave that for a sidebar discussion.

COMMISSIONER SCOTT: Okay, thank you.

MR. ECKERLE: Great. Well, thanks for the lead in, John. And the expedited permitting and stuff, a lot of the credit goes to the CEC staff, who also played an active role and continue to play an active role in doing that. So, we've had some really, really good -- and I think we all know this is a particularly important category.

I think, you know, we talk about the plug-in charging infrastructure, there's a lot of other places that are funding that and this really is the only game in town here.

And so, the importance of the Energy Commission staying strong is great and sends those big signals. And we're seeing a lot of great things happening.

Next week, the Hydrogen Council will be releasing their report, which shows a bunch of the market potential across the glove for hydrogen. So, on November 13th we should be looking for that.

But, yeah, I just wanted, in the interest of time, just voice a strong support for this continued funding.

COMMISSIONER SCOTT: Other Committee Members?

Okay, I have one blue card and that is from Bud Beebe from the California Hydrogen Business Council.

MR. BEEBE: Good afternoon. I'm Bud Beebe with the California Hydrogen Business Council. Thank you very much for the opportunity to speak to this great program.

You know, I just wanted to say like two things. I've got three things to say, but two of them I'll actually get out, I think.

One is that this is a great program and it's an important program. And I think that people around here, when we look at a funding program it's inevitable that the mind sort of like begins to think in terms of zero sum.

But, you know, these programs, this budget, this plan is not a zero sum, really, because there are many integrated programs across different agencies that are really important. Some of them, in other agencies, are absolutely dependent upon your refueling infrastructure or they can't go forward.

Some of the other programs that would bring, say vehicles into this process, are essential to you in order to go forward if you're going to do some refuelers, right.

So, there's a lot of interdependence here. But the question is, like how un-zero sum is it?

Well, what we're looking at in terms of electric vehicle charging stations, suddenly, is a -- we're starting to use the term "billion dollars" socially funded program through IOUs and POUs to really, really accelerate the availability of electric vehicle charging stations in California, and that's wonderful.

You know, we've worked hard. Your hard-won success has brought great progress there. That's good. But it does give an upside to the recharging stations that is not available to hydrogen at its particular point in infancy.

And so, I just wanted to point out that as greater funds and other areas of recharging become available perhaps the monies available in these programs can begin to look strong towards hydrogen as one of those incubatable programs that we need so much in the future.

I was looking on page 57 of the plan and there there's a table. Is it Table 15? I'm not sure. But it just shows the growth that you've been able to give to the hydrogen refueling infrastructure there vis-à-vis a couple of other program areas. And it turns out that the amount of additional funds available to hydrogen is tiny relative to the amount that you've increased the others.

Both of those increases, all three of those increases are too little and there's not enough money, I understand that. So, in a sense, there is a zero sum here. But some zero sums are more important to programs than other zero sums. I'll say it that way.

Moving on, just to underscore --

COMMISSIONER SCOTT: So, I'll just have to ask you to conclude.

MR. BEEBE: Yes, this is my second point that I'm getting to. That both hydrogen and electricity are energy carriers. They're not primary renewable energy resources.

And so, just as we did not require electric vehicles to be fueled by 100 percent renewable electricity ten years ago -- and, in fact, if you refuel today, you know, unless you're buying that wreck yourself, you're getting grid electricity and you're still getting 40 or 50 percent non-renewable electricity in your vehicle.

So, why would we burden hydrogen at its infancy with an absolute requirement to have renewable energy? As it can do. It's a renewable energy carrier, just like it's an energy carrier for any other energy resource.

So, let's be clear that in infancy let's keep our eyes on what's going to be in the future, where you have these two strong pillars of energy carriers, electricity and hydrogen, that complement and reinforce each other.

You can convert one to the other, to the other, to the other. It gives great capability to a future place because when you use hydrogen or when you use electricity to fuel the things that society wants to fuel in our urban areas, in our rural areas, when you do that you give the capability of being able to use renewable energy to do that final function. And you can do it in a way that has no criteria pollutants and no carbon.

So, let's get there by understanding the infancy situation that hydrogen finds itself at this time. Thank you.

COMMISSIONER SCOTT: Thank you.

I don't have any other blue cards from the room. Do I have any folks on the phone? I'm getting a no.

All right, so let us -- and thank you Jane and Jean -- turn to our Natural Gas Vehicle and Infrastructure. And that will be a presentation with Sarah Williams.

MS. WILLIAMS: Good afternoon. My name is Sarah Williams. And this is a presentation, as the Commissioner said, about natural gas vehicles and infrastructure.

This is the solicitation that Jacob mentioned earlier, GFO-16-1602, where we were funding school district projects. All three projects were for local school district. We focused there because that limited provides public benefit to school children who are disproportionately affected by the emissions of school buses and are more susceptible to the adverse effects of the pollutant exposure.

Because I know it's come up, I just

wanted to take a moment while we're on this slide to mention that in response to this we have done some outreach to stakeholders to see what we can do to increase demand. And we have some great new ideas to that, that should be coming out in the future.

These are our recipients. Lemoore, Kings Canyon and Exeter Unified School District. They are all making good progress on their projects.

Here are some pictures of what our infrastructure projects look like. We have Huntington Beach over here, on both of these. This is their work in progress.

On the top left is the drier, compressor and storage vessel set and on the bottom left is the new equipment delivered to the site.

Kings Canyon is on the top right here. And then, this is Beaumont Unified School District's finished slow fill system, with a bus being filled.

So, this is a breakdown of the investment portfolio. There's a good mix of light-, medium- and heavy-duty vehicles to date. This is the funding for vehicles.

Here's a description of the UCI Incentive

Program, which has encouraged the purchase of many natural gas vehicles. We've got a large amount of waste disposal vehicles and other vehicle options.

And then, here are some samples of those vehicles. We've got buses, and box trucks, and delivery trucks and, of course, refuse trucks.

So, that's what we're doing with natural gas vehicles and infrastructure.

COMMISSIONER SCOTT: Great, thank you.

Thomas?

MR. LAWSON: Thank you for the presentation. I'm actually really excited to hear those new ideas on what folks suggest on increasing participation. Looking forward to that.

I had a question on the infrastructure piece and that was if you are a private fueling station, can you use these funds to convert it into a public/private fueling station if there are costs associated with that? And does that have to be a particular -- it has to be a school?

So, let's just say a school already has one of these stations and maybe they want to turn it into a public/private, can these funds be used for that? You don't have to answer right now. If you have an answer, that would be great. But at some point, I just want to get it.

MS. WILLIAMS: That would be solicitation-specific. And the solicitation that we had last year, the requirement was that the school district be the applicant. So, if the school district wanted to partner in that way, we probably would have looked for definite, clear lines that the school district would get their fueling needs met first.

But I believe there might have been a requirement, also, for school district ownership. I don't remember exactly.

But like I said, this is solicitation-specific, so this solicitation may have had some requirements, but future solicitations may change.

MR. LAWSON: Okay. One of the other, I guess a couple of clarifying questions I had, as well. You know, is there an opportunity to find out which reservations are going to expire by November 30th and by December 31st, just so we can get a sense of what percentage we think is going to possibly go back or not go back into the account?

MR. FREEMAN: Yeah, good afternoon, everyone. My name's Andre Freeman. I'm the Supervisor for our medium- and heavy-duty vehicle activities.

So, I know we had a discussion just yesterday on this topic and we'll be having a couple of follow-up discussions, as well as a public workshop sometime early next year.

Yes, we do have a list of individual reservations and kind of the time table of what the expectation for the expiration is for the incentive program.

And again, our next big, time point is coming up at the end of this year. And based on how much uptake we'll have seen for the vehicles, that will kind of lead us to figure out, again, is this mechanism working currently? Can some minor tweaks be made to improve the uptake of the incentives? Do we need to do a complete overhaul?

And then, also, as we discussed yesterday, with a significant portion of funding going to the Air Resources Board for vehicle deployment how can we best, you know, have a complementary program, not an overlapping program.

One of the things that we've found quite often in the request for information that we did towards the end of September, was a lot of folks are confused about which program's which? Which agency's running which program? What the certain requirements of programs are? Which ones have scrappage requirements? Which ones have -- just cover the incremental costs between diesel and natural gas? Which ones pay for scrappage plus natural gas?

So, we're really looking for ways to improve, you know, the communications and outreach on these activities, as well as the administrative aspects.

You know, our current incentive program has -- you know, it only takes filling out one piece of paper to get access to the incentive reservation and then one piece of paper with their vehicle registration forms to confirm that they utilize it as expected.

But there's challenges on the administrative aspect to get an individual fleet manager to come to the table and actually learn, read through an application manual which is a few pages to get through. Understand the requirements. And even before that know to come to the Energy Commission or through the UC Irvine Program to get access to those incentives.

So, yes, we can definitely get you a list of the upcoming incentives, but I think there's a quite larger story about, you know, what steps we can take to get that money better utilized in the future.

MR. LAWSON: Is the current administrative program, is there some kind of a contract that expires or is that something -- is there an ongoing relationship or is there an opportunity for other administrators of other programs to weigh in on best practices or, you know, apply to run this program? I don't know what that status is.

MR. FREEMAN: So, going back to the encumbrance requirements that were described earlier today, we have the UC Irvine locked up, I believe, for three more years.

When we gave them this allocation of funding, the original $10 million and then the subsequent, additional $10 million, that money had to go through the program that UC Irvine is managing for us.

MR. LAWSON: Okay.

MR. FREEMAN: But any subsequent dollars, again, we're taking, you know, a breath in the program to really say should we put more money into that funding mechanism? Maybe tweak some of the requirements? Should we go a totally different route?

Aside from the Vehicle Incentive Project that we run now, we've also done grant funding to get things like the low NOx engine deployments that we're going to be doing down at the port of Los Angeles in the coming year. As well as we're Looking into opportunities to work directly with some of the air districts to meet some of their unmet funding needs when, you know, they've already had a funding opportunity that came out, that's over-subscribed and we'll see if we can help them meet some of those needs, as well.

MR. LAWSON: Okay, great. I had a couple of questions or clarifying questions. There was some staff comments on page 56 that was dealt with, you know, diesel engines and their being clean versus natural, and versus natural gas engine using renewable natural gas.

When I was in Indianapolis two, three weeks ago, at Thomas Westport, and they rolled out and announced that they are no longer going to make a regular natural gas engine. That the remaining engines that they have will all be low NOx, a 6-liter, 9-liter and a 12-liter. And I think that that will make a big difference, obviously, on what's on the table when you start talking about incentives, and those reductions, and those comparisons.

And I just wondered if the staff has heard about that? I don't know if you have and that should be incorporated into the comments.

I think the other issue that I wanted to raise was, you know, one of the things that the industry's been dealing with is obviously the low comparison between natural gas and the cost of diesel, or oil-per-barrel over the last few years. And this time last year I think it was half of what it is now.

And so, when you start looking at particular projects that, you know, we're going to fund and, you know, they're snapshots in time, it's very interesting to say at that time what's successful and what's not.

But now we know, obviously, we're only six days into a new tax on diesel here in California. The price of oil has doubled just recently.

And then, we have the 12-liter low NOx engine which isn't commercially available until February of 2018. So, those things are on the horizon and we haven't seen the impacts of those, yet.

And so, I wonder what those impacts will be on kind of where we are as far as what monies are going to be sought after? It's hard to say how much the 12-liter is going to be compared to when people are going from that big, diesel engine to that large, natural gas low NOx engine.

So, that's something that we're working with Air Resources Board on with, you know, that cost differential and trying to figure out and nail down that number, specifically.

And then, we look at other things like the adoption of the Clean Air Action Plan at the ports, and all of these things which are just now happening which I think will generate some activity in 2018 and 2019 that we'll want to take those all into account, as well. So, those are my comments.

MR. FREEMAN: Yeah, definitely. So, we'll be following on all of those things and we have been participating in the Air Resources Board workgroup meetings for the HVIP, natural gas vehicle incentives, talking about the incremental price change.

And if you look at our program, you know, you definitely could tell a difference between five or so years ago when it was easy. You know, gas and diesel were $4.00 a gallon. It was a really easy case for the dealer to make that sale on the lot to say, you know what, there's an increased cost for natural gas infrastructure, but here's what it can bring you if you're a large fuel consumer. And that's definitely a lot different today. So, we will be taking a hard look at that.

And then, also, through our existing contracts with Cummins Westport that enabled the developed of two low NOx engines, we'll definitely be looking for the latest and greatest information from them, especially with the 12-liter right around the corner. And we'll make sure that the most up-to-date info gets put into the Investment Plan.

COMMISSIONER SCOTT: And if you could be sure to send us, too, some of the things that you mentioned, the announcements, that would be fantastic for us to have on our record.

MR. LAWSON: Happy to.

COMMISSIONER SCOTT: Thank you.

Do I have other Committee Members around the table who would like to comment?

Okay, I see a blue card coming my way from -- oh, I'm sorry, Bonnie. Please go ahead.

MS. HOLMES-GEN: Yeah, I have a couple of comments, but it kind of goes into the next section so I don't know if I should wait. I'll just say that as is noted in the report that there's a lot of information that we still need to get and to consider about natural gas as we go forward, to fully understand the methane leakage potential and how that affects the GHG, impacts the GHG reduction potential of use of natural gas.

So, I just wanted to point out, number one, that there's still information to be determined to better understand the natural gas pathway and the full fuel cycle benefits, and what is the true GHG reduction benefit of the fuel. And it's obvious it's been discussed, but I just wanted to point that out.

And the second thing, and the ARB is undergoing a lot of research specific to the LCFS pathways, to take a look at that pathway so we have more information to be incorporated in here.

And, you know, so I also just wanted to mention in terms of AB 1257 that's mentioned in here, I guess that's in Chapter 5 but, you know, the point of 1257 wasn't to -- the point was to look at all of the impacts and benefits of natural gas. It wasn't to push one particular fuel option. It was to provide a more comprehensive look at the fuel. As I know that there have been reports that have been done, and there have been updates. But just the way it's framed in here, I just wanted to make that comment.

And finally, there are -- I think we need to be looking at, as we go forward, which categories of vehicles we've had successes in, in terms of electricity and hydrogen.

For example, school buses, buses

generally, we have over five different manufacturers of electric school buses in California and we have tremendous availability of this cleanest fuel option for buses. So, I think we need to be looking at which categories of vehicles we have success, now, in getting many commercially available options that are in the cleanest category and focusing our funding then on those technologies. So, I think that's the next step that we need to take in this118 process.

And I know ARB has started to do that sort of thing in their investment planning effort to look at some categories and say, okay, this category we can dedicate the funding for electric because that technology's available, readily available.

So, I just wanted to toss those comments out and that goes into the next section, also, but thanks.

COMMISSIONER SCOTT: Okay, thanks.

Jan?

MS. SHARPLESS: This is natural gas related and it's in the executive summary. And it's on page 5. And I wondered, it's a comment that was dropped into a paragraph that started off with emerging technologies. And it specifically states that, "Natural gas engines and emission control technologies that achieve the optimal low oxides of nitrogen emission standards are now commercially available. And when combined with biomethane fuel can reduce the lifecycle emissions of medium- and heavy-duty vehicles to the levels near or equal to those of zero-emission vehicles."

So, my question is what is the Energy Commission's thinking about putting this sentence in, and is this something you're considering or is this just something that you heard about and lifted up as an example of an emerging technology?

MR. ORENBERG: So, we are just providing this as an example of an emerging technology or, rather, the technologies that are already out there. Biomethane is already out there as our D8.9-liter low NOx natural gas vehicle engines.

When you combine both biomethane, fuel, and low NOx natural gas engines, the lifecycle emissions are about equal to that of an electric vehicle that is recharged from the grid.

So, grid electricity, of course, is not completely carbon free. We're at about 30 percent renewables right now. I don't have an exact number off the top of my head.

But taking into account all the electricity produced by natural gas and other fossil sources, there are still carbon emissions and other criteria air pollutant emissions from using electricity.

MS. SHARPLESS: So, this isn't something that you're pursuing?

MR. ORENBERG: Well, we are planning to pursue this. In fact, in the Low-Carbon Fuel Production and Supply Category, new for this year we've added in a concept, Integrated Renewable Natural Gas Production and Distribution Facilities that may also include renewable -- I'm sorry, low-NOx natural gas vehicles.

And the idea is to combine all of these into one agreement to spur the use of low carbon renewable natural gas and low-NOx natural gas vehicles.

MS. SHARPLESS: Thank you.

COMMISSIONER SCOTT: Thomas, do you have another comment or -- oh, it's left from before.

Okay. Did I miss anybody?

Bonnie, please go ahead.

MS. HOLMES-GEN: Thanks. I just wanted to say that we really need to unpack the statement about whether vehicles fueled by biomethane are equivalent to vehicles that are running on electricity. And I think there's more information that needs to be looked at in comparing these two.

I think it's -- anyway, I just wanted to put that out there. I think that we need to take a closer look at our long-term goal going to 2050, what we're trying to do. And where we can, be focusing on those technologies that are going to be sustainable over the long-term to 2050. So, thanks.

COMMISSIONER SCOTT: Ralph?

MR. KNIGHT: I think there's just one other thing I want to bring up, just for informational purposes.

The nature of the beast of the yellow bus does not make significant changes overnight. They refuse to. I mean, like I say, when we played with electric buses in '97 that burnt the electric buses today, in the industry.

So, that's why I'm going from one end of the State to the other to solicit the districts to get involved with the electric buses.

So, the districts who got involved with CNG, the ones we could convince to do that in CNG, when it was early on, was a positive for all of us at that time.

Now, to change them drastically to electric buses is not going to be easy, will not happen overnight, and it's going to take years and years to convince the guys that are under me, that since I've retired and got out of the business, that there is another way to change.

And I guess the hard part is the districts don't have the money to be able to do that. So, somehow there's going to have to be support to be able to take care of those school buses.

And it was a big push at that time to get rid of all of the pre-old buses to push everybody to natural gas and they did that, and got new buses for them to get newer model equipment, and better equipment and safer equipment for the kids.

So, to turn around and make that drastic change again is not going to be an easy task by any means at all. And there's going to be more pushback than there's going to be wanting to go forward.

But I think that, you know, we've turned a corner. I think that electric vehicles are very positive. We've got manufacturers out there, now, like I say, in all the big manufacturers from the large buses down to the wheelchair buses that are electric driven to be able to wine and dine these guys and get them to start thinking about change. But it isn't going to happen overnight.

COMMISSIONER SCOTT: Thank you.

Other comments from Advisory Committee Members?

Okay, I have a blue card for Ryan Schuchard. Okay, please come on up. And then followed by Ryan Kenney.

MR. SCHUCHARD: Hello again.

COMMISSIONER SCOTT: Hello.

MR. SCHUCHARD: I think Thomas raised a number of good points and questions in his remarks. And, Commissioner, if you'd indulge me, I just had a question.

COMMISSIONER SCOTT: Sure.

MR. SCHUCHARD: And it's for staff. And I'm sorry if I'm putting Sarah in a spot. And it's just my foggy memory. I have a small child at home and I'm asking you to just refresh me and us.

I think I remember early in the summer or sometime during the summer that there was a wait list, or the funds were out until they got reupped again, and I'm maybe misremembering. But isn't that the case? And if so, does that relate to the current surplus of funds?

MR. FREEMAN: Yeah, so just to go back to how the mechanism works. So, we give incentive reservations to folks. We realize that it takes a while to build the vehicles. They have about 180 days, plus a little bit of administrative time to actually get the vehicle purchased, utilize the incentive, get us the registration and go back and kind of close out whatever money went out the door.

For anybody who doesn't meet that requirement, the money goes back into the funding pot for the program. Previously, it was early on in the summer, I think back around April or May, we did have a wait list. We were able to address that wait list through funding that had gone unused through the original allocations of reservations, plus some additional funding that the Energy Commission had allocated to it.

As of today, there's about $300,000 available for new incentive reservations to come through. That changes on a regular basis and we're closely watching that to determine whether or not we need to put additional funds in. But we will always have kind of those reservations sitting out there that have gone unused to this point.

And so, you know, going back to Thomas's comment, we're looking really hard at that list to see the specific date when those reservations are going to expire, what the overall dollar amount will be that will go back into the program, and then we'll make additional funding decisions based on that.

MR. SCHUCHARD: Great. Thanks very much.

COMMISSIONER SCOTT: Thank you.

Ryan Kenny?

And if you don't mind, if you will hand a business card top our court reporter, who's doing the transcript, that way she'll definitely get your name spelled right.

MR. KENNY: Hi, good afternoon. I'm Ryan Kenney with Clean Energy. We're the nation's largest provider of natural gas, renewable natural gas transportation fuel.

And I have just two quick points. I appreciate the comments about the grid and EVs. Our public policy work is usually tech-neutral. We advocate for natural gas vehicles, but we advocate for performance standards.

And I think with the conversation here there is a double standard when it comes to EVs on the fuel lifecycle. It's always about the full lifecycle for natural gas, but it ends at the tailpipe for EVs. And the grid is dirty. And it does need to be part of the conversation about the lifecycle of EVs, as well.

I also would like to ask Andre, and I appreciate your comments about the various comments with ARB. That's something that our industry is very interested in as far as how the puzzle pieces will come together with ARB and the substantial amount of funding.

I was wondering if you could maybe just

talk about, a little bit more in detail, some specifics, including how VW comes together. That's kind of a wildcard at this point.

And I ask especially because ARB doesn't seem to have really an idea at this point as far as where to go. They're kind of taking public comments in. They're not sure if they're going to invest in current programs, go in a different direction.

I wondered how the CEC is thinking about VW money with natural gas vehicles? Thank you.

MR. FREEMAN: So, I think I can make a real brief statement and then Commissioner Scott has kind of our policy viewpoint on this.

But whether it's VW, Cap and Trade funding, the other AB 118 funding that the Air Resources Board currently allocates, Air District funding, Federal funding pots, you know, EPA funding for natural gas vehicles, you know, we look at all of it like, you know, we're all going towards the same goals, realistically. It's finding cleaner vehicles where they're practical.

And, you know, depending upon how much money comes out of whatever funding source it may be, we will consider that and factor that into our actual solicitations and this Investment Plan to really find where the greatest needs for funding different areas is.

COMMISSIONER SCOTT: That's fine. I have nothing to add to that.

(Laughter)

COMMISSIONER SCOTT: Thank you, Andre.

Eileen?

MS. TUTT: Just quickly want to respond to Ryan. I don't think you meant to say that the grid is dirty. But I would suggest that the grid is actually not a 'tall dirty. And even, we want to keep in mind that the 33 percent RPS, which has now been increased to 50 percent, doesn't account for all the zero carbon that is hydro, and other zero carbon that doesn't count towards the RPS.

We have one of the cleanest grids in the country and we're going to pure zero.

So, zero-emission vehicles, the nice thing about battery-electric and the same thing is true of fuel cell vehicles is they actually get cleaner as they age.

Whereas an internal combustion engine vehicle, just because of the nature of an engine deteriorates as it ages.

So, I just want to clarify that I would not characterize the California grid as dirty. And I would suggest that not only is it not dirty, but it's getting cleaner at a very rapid rate over the next 10, even 15 years as a result of the great State policies that people like the Energy Commission adopt.

COMMISSIONER SCOTT: Jan, go ahead.

MS. SHARPLESS: I'm not going to disagree that the California system is not dirty, but we are an integrated system. So, we are part of the Western Intertie which includes nine states, Canada, and Mexico.

And the grid is moving toward a market-based standard where we are going to increase the efficiency and cost effectiveness of the entire grid by allowing buys and sells on short outside of California.

And we get our fuel -- or, we get our electricity outside of California, anyway, since we're integrated.

But every other state is also adopting clean portfolios. They're not quite at the level of California. And if the California Independent

System Operator gets -- if the people pass the law that I guess was in the Legislature that would allow Cal-ISO to operate beyond the boundaries of California, we'll see what impact that has on the system.

But we are an integrated system and we do receive our electricity from more than just what we produce. So, but we are getting cleaner. So, to that respect I agree with Eileen.

COMMISSIONER SCOTT: Yeah, this is a very interesting topic that we could probably spend a whole day on and, in fact, we have in some of our Integrated Energy Policy Report workshops. It's one of the great things about working at the Energy Commission, actually, is we have the ability to take all of this transportation information that we have and put it into that broader context. And we do that quite frequently through our IEPR process.

But I'm going to ask that we don't keep going down that path just because I want to make sure we have a chance to get to the rest of the Investment Plan.

But let me check to see whether we had -- I did the comments in the room on natural gas.

Did we have comments on the WebEx on -- no, okay.

So, let's turn, then, to Advanced Freight and Fleet Technologies and Sam.

MR. LERMAN: All right, so good afternoon. My name is Sam Lerman and I'm an Air Resources Engineer in the Medium- and Heavy-Duty Vehicle Technology Unit.

So, I'll be speaking briefly today on recent investments in advanced freight and fleet technologies.

Here's an overview of the total investments to date for medium- and heavy-duty vehicle demonstrations. The Energy Commission has invested over $130 million for the development and demonstration of advanced technology Class 3 through 8 vehicles.

Vehicle types include work trucks, delivery vans, buses and Class 8 trucks.

While these vehicles represent only 3 percent of the total population of vehicles operating on California roadways, they make up 23 percent of on-road GHG emissions in the State.

With the growing awareness of the economic and environmental challenges facing California seaports, the California Energy

Commission initiated the Ports Energy Collaborative in March of 2015. This Collaborative provides a forum for the Commission and the ports to come together to discuss important energy issues, mutual challenges, and opportunities for transitioning to alternative and renewable energy technologies.

Recognizing the diversity among ports, the Ports Energy Collaborative provides the opportunity to identify and implement energy solutions that will meet the needs of the ports, while helping attain California's climate and clean air goals.

The Ports Collaborative works on key projects in areas including, but not limited to, energy conservation and efficiency measures, renewable generation, and zero and near-zero-emission vehicles and equipment.

This Collaborative has helped advise recent CEC solicitations on vehicle demonstrations which have focused on the deployment of advanced vehicle technologies at California seaports.

The Energy Commission released GFO-16-604 in November of last year, awarding over $24 million for three projects. This solicitation focused on demonstrating technologies involved in freight movement at California seaports.

The projects are developing 55 advanced vehicle demonstrations across multiple applications, including yard trucks, drayage trucks and forklifts.

These vehicles represent several technology types, including ultra-low NOx natural gas, plug-in hybrid and full battery-electric vehicles.

The projects will result in the direct reduction of over 3,900 metric tons of carbon dioxide equivalents, 22 tons of NOx, and 0.4 tons of PM10 over the terms of the project.

The next funding opportunity in this area is expected to release later this year, including an expected $22 million with a focus on electric, hydrogen, and intelligent transportation system infrastructure deployment for advanced technology freight vehicles.

Here’s a breakdown of the winning awards under GFO-16-604 demonstrating technologies at the Ports of Los Angeles and Long Beach. These projects represent strong partnerships with multiple technology vendors and several fleet demonstrators.

These projects are also providing significant benefits to disadvantaged communities in and around the ports.

The Port of Los Angeles Project is directly built off prior CNC investments, while the Port of Long Beach represents a new partnership with the Energy Commission.

This slide shows some technologies that will be demonstrated at port communities as part of Energy Commission investments.

Shown here are zero-emission solutions for drayage truck, reach stacker, and yard tractor applications, as well as a low NOx natural gas engine which will be demonstrated at the Port of Los Angeles.

The far right picture shows an existing rubber-tired Gantry crane at the Port of Long Beach. This crane will be retrofitted to all-electric grid operation as part of the recently-awarded Long Beach Project.

And that concludes my presentation.

COMMISSIONER SCOTT: Thank you.

Comments from the Advisory Committee?

Eileen?

MS. TUTT: Thank you, Commissioner. Eileen Tutt with the California Electric Transportation Coalition. I do want to suggest that this particular pot of money is actually much too low. It's about the same -- well, it is the same allocation as last year, I believe. And we're merging natural gas vehicles into it.

And the need in this particular segment is massive. So, I think at the top of this meeting there was a discussion of funding that's already going in the report, there's funding already allocated to this from other pots of money.

But let me just suggest that the opportunities here are huge. And although this last, it looks like this last set of investments was focused on ports and I think that's important.

I would also suggest that it's really important to get to the valley and look at last-mile delivery because there's so many opportunities with things, even like just laundry trucks. There's all kinds of opportunities in the San Joaquin Valley and I know in other -- I

South Coast AQMD.

And just as importantly, our rural communities are feeling pretty neglected as the State's investments have rolled out. And this pot of money, and specifically, could really benefit rural communities, especially in the bus and school bus areas, but perhaps even in last-mile delivery. There's all kinds of ways that we could get some of this money into some more rural communities. Which at least for me, in my world, I'm feeling the pressure.

You know, there's all the State investments and so little is going to these rural communities that are often disadvantaged and impoverished.

So, I would suggest that this is one area where we just need more funding. And I know you hate it when people ask and don't suggest where it should come from, but I'm just going to --

(Laughter)

MS. TUTT: I'm just going to say that I would not -- maybe I would like the report to be amended sort of not to suggest that there's sufficient funding because other pots of money are funding this, because that's just not. The need is massive and the opportunities are huge here.

So, maybe we could look at that as the amendment that I would like, if I can't get more money. Thank you.

COMMISSIONER SCOTT: Thank you. I think that --

MS. TUTT: Oh, one more thing. So, I also want to suggest that the report also talks about the SB 350 filings. I'm just going to tell you that they have not been approved, yet. The priority filings, which were supposed to be approved in September, and still aren't approved, and we're being told maybe will be approved in December. I'm not sure if that's '17 or '18. But we don't have any money, yet, so through SB 350.

And so, I feel like that's another place I'd like to change in the report. I mean, that money should have been approved by now and it's not. And there's a lot of reasons for that. I'm not beating up on the agency that is overseeing those projects, but they should be. We don't have the money. I don't know when those applications are going to be approved. And we don’t want to reference it as if, well, that money’s already approved because it’s not. And it’s taking much longer, even though there’s no opposition and these were supposed to be priority projects. And SB 350 directed their consideration and approval by now.

COMMISSIONER SCOTT: I think those are great points. I wanted to address the one that you made about -- I do hope we didn’t imply that there is enough money in this space, because we don’t think there’s enough money in this space, either. So, we should certainly go back and look at the language there.

We recognize that medium-duty, heavy-duty, especially on the clean air side is just like -- I’m picturing the South Coast Air Quality Management District. You’ve probably seen Matt Miyasato do his presentation with a beaker. We know that there’s a lot of need there. And that’s actually why we wanted to keep a little bit of money there, even though there’s a couple hundred million in the Air Resources Board Programs, out of Cap and Trade. WE think that the need is so great that it makes sense for us to continue to invest in this space. So, we’ll make sure that the language reflects that and also that it is current as of what's going on when we get that next, updated version out, whether the PUC filings have been approved, or whether they're still pending. We'll make sure that that language is current. We can definitely do that, yes.

John and then Joel.

MR. SHEARS: Just wanted to say here, here to Eileen's observations and comments. And also, just highlight that more and more of the freight processing is going to be moving into the valley. Right now, there's the huge IKEA distribution center. And, you know, the expectation is there will be more.

So, we need to find as many opportunities as possible to reduce the emissions' footprint of t hose facilities in whatever local, or regional delivery activity is happening out of those facilities.

And, yeah, I would expect February, March, if we're lucky on the SB 350 plans. But just wanted to back Eileen up on the request to support the more rural regions.

And if Flynn D'Orata (phonetic) is still listening in from Kern, just wanted to also highlight that when we were really meeting and pushing VW Electrify America, we were actually speaking and pushing for the whole valley. So, we weren't just asking for Fresno County.

You know, so we at least got Fresno County and we'll use that as a building block and make sure that we keep pressing to have them expand their scope to look at the rest of the valley, as well.

COMMISSIONER SCOTT: Thank you. Joel and then Thomas.

MR. ESPINO: Actually, I think Thomas is first, if you want to go.

MR. LAWSON: I'll go later.

MR. ESPINO: Okay. Yeah, I would also echo comments made around this not being enough. I think when you put an environmental justice lens on the need, you know, it's long overdue from the impacts of heavy-duty vehicles in this communities.

And I think -- you know, I think I advocate at the CPUC and the ARB, and in this space as well, and we have been seeing an influx of money around transportation electrification and it’s great. And I feel like a lot of times there’s this tendency to want to say we should complement, right, all these different funds. But I would actually say that it’s okay if some of these are additive because of the fact that there’s so much need, in particular around environmental justice communities.

And so, I would encourage really deploying the heavy-duty electric vehicles in disadvantaged communities to ensure that we’re reducing those impacts that go back decades and decades, right, from the unequal built environment that we have.

And I think another, I guess a suggestion I would make and I’m going to provide more comments on this and more details around this concept. But something that I’ve been socializing in partnership with Union of Concerned Scientists, and Clean Energy Works which, you know, some of you might be familiar with, is this idea of a tariff on-bill financing model for electric transit bus procurement.

And that’s something that we’ve introduced into the proceedings at the CPUC. And I think the Energy Commission actually adopted this concept through the SB 350 transportation studies. And it's something that we're socializing with ARB, as well.

And basically, what it is, is that a lot of the pushback that you hear from transit agencies is the fact that the way that their accounting works they can only take on so much debt, right? And so, it's hard to procure large quantities of buses and put that on their books.

And so, this is essentially a solution to accelerate their procurement and allow for larger amounts of procurement of electric buses and use the utility on-bill financing mechanism to finance the buyback of that vehicle. And actually used, you know, assuming that we get our rate structures in order, but use the cost savings to pay back that loan or, essentially, that money over years.

I can provide more details. I'm still kind of learning the concept myself, to honest, but I can provide more detail through comment on that innovative approach to financing. I think that's always a barrier that we face with clean energy technologies, the high up-front costs. And this is a really innovative way to really accelerate deployment and I'm happy to provide more comments around that.

COMMISSIONER SCOTT: Yes, please do.

Thomas and then Ralph.

MR. LAWSON: Thomas Lawson. I probably missed this conversation earlier because I was a little bit late this morning, but on page 21 of the plan it kind of goes down and lists the recent and current investment. And there's this category of Unencumbered Funds.

And to Eileen's point about, you know, adding a new ability for low NOx in this particular category, did you guys have a discussion about how these columns interact? The proposed versus unencumbered? Because it says 17.5 this year, but 22.3 in this particular category is unencumbered.

So, is that in addition to the 17? Just a little explanation would be helpful and that may, I think, address all of our collective concerns about it not being enough.

MR. ORENBERG: Sure. Yeah, thanks Thomas. And it is a fairly confusing subject here, so let me try and explain what's going on in this table.

The ’18-’19 proposed funding, of course, is what we’re discussing today in this Investment Plan and those may change.

And then, the unencumbered funds, that’s the amount of funding from both fiscal year ’16-’17 and ’17-’18, so that is approved funding. It’s funding we have to spend right now, but it has not yet been encumbered is the word we use. So, it’s not been encumbered or dedicated to a specific grant agreement or contract agreement, yet. So, that is money that’s available to be spent on future projects.

Does that adequately explain it?

MR. LAWSON: Yeah, I think so. So, then as of today we’re proposing 17.5 for this category for ’18-’19. But if and when that 17.5 is used and there’s a waiting list, then you can use the 22.3?

MR. ORENBERG: Actually, we would use the 22.3 before we use that 17.5 that’s being proposed today.

MR. LAWSON: Oh, okay.

MR. ORENBERG: So, the 22.3 is from previous fiscal years. We would use the funding from ’16-’17 first, then the funding from ’17-

'18. And once all of that is depleted, we would move on to the '18-'19 funding.

MR. LAWSON: Okay, that's helpful. Thank you. And just to clarify, by contracts you mean also future solicitations?

MR. ORENBERG: Right. All of the -- well, all of the grants go through funding solicitations and that's how they're awarded.

COMMISSIONER SCOTT: Ralph and then Bonnie?

MR. KNIGHT: I guess I would agree with most of the comments that are going around about this particular item. I think that the medium- and heavy-duty both fit into the school bus world, in both the special needs and the large buses out there.

And I think that we have been working the last two years and more between the local districts here in California, and other states, and the manufacturers as a consultant of what the manufacturers need to come up with as far as an electric bus is concerned that will fit the schools' needs, and what will work for the schools.

And so, it's been an interesting go

around to work on both ends of the spectrum there to try to figure out what we can do with a bus.

I think we now have some great choices in vehicles. And I think we have all of the major players into it, now. So, we're seeing some good quality equipment out there. So, I guess that to get the districts to get involved is going to take the funding to do that.

There are some other sources out there that the districts can go after for funding to do that. But again, an electric vehicle's a heck of a lot more expensive than what a natural gas vehicle is and we all know that.

But we know what the difference is between the two vehicles. And I think that we want to try to convince the districts to look at them, try them, work with them. And I think that they'll find that what we have now today, in that world, in that industry is going to work and going to do a good job out there. And I think that's where we need to be.

COMMISSIONER SCOTT: Thank you.

Bonnie and then Joel.

MS. HOLMES-GEN: Yeah, I just wanted to also thank the Energy Commission staff for, again, and Commissioner Scott for again putting this forward as an important category. It’s critical for local air quality. It’s critical for disadvantaged communities. In terms of the medium-/heavy-duty sources, it’s becoming a growing GHG -- I mean, the need to reduce GHGs is growing as we control other sectors. So, it’s very important that we focus money on this category of projects. In spite of all the other funding that’s out there, we need to do more.

So, I know that this category has grown over the last couple of reports and definitely would love to see this category grow in the next -- in this year, also.

I do think that there should be a look at some specific categories of vehicles within this heavy-duty sector, and looking at those categories where electrification has dramatically progressed, and where there are a large number of manufacturers now producing those vehicles, and many choices, and that we may want to take a look at focusing the attention in the solicitations on those, the cleanest vehicles that are available.

And then, I also wanted to -- on the school buses, we all so -- we so much want to see the turnover of all the school buses to the cleanest possible buses. And the different funding pots, there's been different levels of review as to how much progress have we made and what do we need to do, what's left?

And I think it would be really helpful if the Energy Commission could work together with the Air Board and put together kind of an overview of where we are at, what the pots of funding are that are available, and how we could finally get up to date on upgrading and replacing all these school buses so that kids aren't having to deal with the older, dirty diesel buses in their everyday commutes.

So, I know that the Air Board had a report to the Air Board on school bus expenditures, I think back in March. I'm not sure who else is kind of keeping track of all of these things, among all the agencies, but I think there's just been a lot of discussion about this. And it would be really helpful to just have a quick overview of where we're at, what pots of money are left, what it would take to complete the upgrade and replacement of these buses.

So, just wanted to emphasize that point.

Thank you.

COMMISSIONER SCOTT: Thank you.

Do I have any other comments from Committee Members?

Okay, I do have some members of the public, starting with Ryan Schuchard. And then, Jon McCuen.

MR. SCHUCHARD: Hello again. I think this is the last time you'll hear from me because I have to run after this. So, thanks for a great Discussion today.

And I mentioned our interest in this topic, in particular, earlier today. And I think the staff did a good job of explaining that medium- and heavy-duty vehicles are such a concentrated portion of our GHG.

There's been some discussion, I appreciate Bonnie and Joel raising the disadvantaged community air quality issues.

You know, in the light-duty electric vehicle section we heard about the Bay Area's doing really well, in a sense. It's a place of progress.

But if you look at diesel particulate matter, you find the Bay Area is the source -- if you take the worst 5 percent diesel particulate matter, in terms of extent, we're over half of where the census tracts are located. And you can find over 100 schools, just looking at Google Maps, within 1,000 or 1,500 feet in the East Bay of California.

This is a major and not completely, I suppose, appreciate issue, the diesel particulate matter that we really have to ramp up our efforts on.

So, with all that in mind, this sector, the medium- and heavy-duty side, versus light-duty, has a lot of distinct issues compared to cars, particularly around demand charges and how fleets can stack on a lot of trucks and buses together, and do so economically.

The current Public Utilities Commission proceeding, SB 350, is really focused on the system level distribution upgrades. And there's a temporary proposal by SCE -- I shouldn't say temporary. It's a first generation of a proposal for a demand charge solution. I think we'll see something similar to PG&E.

But there's really an outstanding need for both a demand charge solution on the technology, kind of like software side, but also on EVSC. And it's a really outstanding need.

And our view is the Energy Commission is in a great position to great kind of a corollary to the CALeVIP or the block grant for medium- and heavy-duty. And that's basically our suggestion that is that you consider developing a similar solicitation.

Thanks very much.

COMMISSIONER SCOTT: Thank you.

John McCuen.

MR. MCCUEN: Hello everyone. Hi, Commissioner Scott. Thanks for giving me the opportunity to speak to the Committee Members. I'm John McCuen and I work for the United States Environmental Protection Agency.

I'm here to talk to you about a related effort that we're launching under our West Coast Collaborative Clean Diesel Program.

We're currently embarking on a new project focused on alternative fuel infrastructure planning for medium- and heavy-duty vehicles in Washington, Oregon and California. So, to cover the Western Seaboard of the Continental United States.

Focusing on four fuel types, including EV charging, hydrogen fueling, propane, and natural gas for heavy-duty vehicles.

We're attempting to dovetail with the Federal Highway Administration's current Alternative Fuel Quarter Designation Process, for which there's an open solicitation right now.

Caltrans, in partnership with several other State agencies, submitted a round one proposal last year. This is the second round of that program for Federal highways, as directed under Section 1413 of the Fixing America's Surface Transportation Act, or current Federal Surface Transportation Bill.

EPA's hope through this project is to work with our State and Local partners in the three West Coast States to identify needs and desired projects that go beyond the types that were going to be funded here at the CEC and by other State and Local funds in California to see how we can build out the infrastructure that will allow fleets to go from high-emitting, legacy diesel vehicles to low- and zero-emitting modern, medium- and heavy-duty technologies.

Including, R&G with low NOx engines for

natural gas, renewable propone using low NOx engines. Zero-emission vehicle technology for hydrogen, as well as for plug-in electric in a variety of different applications.

In freight, primarily, but also for people transportation, transit bus, public works, refuse collection, county and municipal fleets, and then other private sectors applications.

So, we're looking to folks like yourselves to help us identify where the opportunities lie for project development here in California.

I'll be meeting with a number of you, individually, over the coming months as we get this project underway. But I wanted to take this opportunity, given that you're all together here, in one room, to come here and let you know that the project's happening.

We're interested in partnering with the CEC, as we have been at our Steering Committee level to date to develop our initial work plan document.

But we're going to be engaging a number of other stakeholders in California, as well as the two other West Coast States to help inform the development of this effort.

Ultimately, we're hoping to develop a plan that's a deliverable by the end of next year, so that our State partners at the DOT level can coordinate for fund-raising and grant-seeking with USDOT to hopefully be able to secure additional funding assistance, besides State and Local funding, to help actually deliver some of these projects, and actually get some steel on the ground and reduce emissions as a result.

So, the CEC staff has my contact information. If you have any questions, feel free to reach out to me. Again, thank you for your time and attention.

COMMISSIONER SCOTT: Thank you so much, John, for being here and for raising your important program to our attention. I really appreciate that.

I want to make sure that folks do know, John, will you be here through the end of the meeting?

MR. MCCUEN: Yes, I'll be here for about 45 minutes.

COMMISSIONER SCOTT: Okay, so he'll be here for about 45 minutes more. And it would be great for you to connect with him and to learn more about the program.

And thank you so much for taking the time to come and talk with us about that today. I really appreciate it.

Let me see, we've got one comment on the WebEx, from Marie (phonetic).

MARIE: Hi, can you hear me right now?

COMMISSIONER SCOTT: Yes. Hi, Marie.

MARIE: Hello. I just wanted to first of all thank staff for the work that they're putting into this program.

And I wanted to just kind of point out that in last year's funding for the Advanced Freight and Fleet Technologies Pool, you'll notice that there's three really large ports that basically all of the applicants had to partner with prior to being able to work within this funding pool.

And I think that's a barrier to entry because the ports do have a lot of administrative layers. And getting in with the right people at the right time is a barrier to access.

And this is one of the few pools of funding that has been used for R&D. And so, having additional barriers that are business related, as opposed to engineering related, I think are a little premature. Especially given that the success of the ARFVTP can often be seen in how many of the technologies it has seeded that have gone on to be eligible for CARB funding when they're in their commercial maturity.

And so, if there's a way to focus the funding pools on the actual grants coming out of this program, in the coming fiscal year, to allow for more R&D on those technological barriers, as opposed to demonstration, I think it would go farther in supporting the beachhead approach, which is already lined up in the CARB Investment Plan and in the ZEV Action Plan.

Because things like making higher power motors, better battery packaging, higher power inverters, better integration and efficiency, those are all barriers to technology transfer that otherwise won't allow those other medium- and heavy-duty developments to transfer into those great sectors.

And think that that R&D would go significantly farther.

But also, I think that the Energy

Commission's very admirable focus on how do we increase the diversity of applicants is harmed when figuring out the team in advance to align with the port is a barrier to entry, to begin with.

So, that's all I've got today and wanted to just thank staff, as well. It was a job on this plan.

COMMISSIONER SCOTT: Thank you very much.

Do we have any other folks on the WebEx? Okay, I'm seeing no.

So, let us now turn to Manufacturing and that will be Larry Rillera.

MR. RILLERA: Good afternoon, everybody. I'm Larry Rillera and I will be addressing Manufacturing in our Investment Plan.

The Manufacturing Section of the Investment Plan addresses the State's environmental and economic goals by supporting companies that manufacture advanced technology vehicles and vehicle components in the State.

The array of companies in our manufacturing portfolio produce technologies ranging from power trains for zero-emission school buses, complete battery-electric transit buses, to two-wheeled battery-electric motorcycles, to electric vehicle charging equipment.

Manufacturing these technologies is an expensive venture. Energy Commission funding can be a critical element to these projects as companies leverage ARFVTP funds for larger investments.

There are 21 manufacturing projects funded with investments greater than $46 million, as noted.

The projects can be divided into the categories with the largest area of investment in electric trucks and buses.

Staff is active in meeting with companies that manufacture these advanced technologies. Additionally, staff engages with suppliers, as well. These meetings help staff to better understand how companies can develop products for sale that respond to California’s Clean Transportation and Economic Development Goals.

Two examples of projects in our portfolio include a manufacturer of vertically integrated battery-electric bus and a manufacturer of electric vehicle chargers.

Proterra was founded in 2004. They sold their first three buses in 2009, to Foothill Transit in Pomona, California. In 2015, they established their Silicon Valley headquarters in Burlingame, California.

In 2016, they established their West Coast manufacturing facility in the City of Industry, with our Energy Commission funding.

Today, Proterra continues to attract significant investment, while experiencing tremendous goals in sales and workforce expansion in North America and in European markets.

ChargePoint manufactures EV chargers in Campbell, California. Products not only include light-duty charging, but also include fast charging for medium-duty vehicles.

They have recently expanded their manufacturing facilities and continue to attract significant investment and are experiencing growth abroad.

Recipients of our transportation funding, manufacturing funding, also seek other available State incentives. These incentives are important to advance technology companies as they gain traction with consumers.

The column on the right shows the percentage of ARFVTP manufacturing awardees that also participate in these State programs.

To summarize, roughly a quarter of the awardees seek tax exclusion for qualified manufacturing equipment through CAEATFA or the California Alternative Energy and Advanced Transportation Authority in the State Treasurer's Office.

One quarter of the awardees manufacture eligible technologies under CVRP, the California Vehicle Rebate Project, and HVIP that help reduce the up-front costs for the purchase of these technologies.

One quarter of the awardees have received workforce support in the form of tax credits or through direct funding, as was mentioned earlier through the Employment Training Panel.

The balance of the companies have not sought other incentive funding.

Through ARFVTP manufacturing investments, over 500 California manufacturing jobs have been created or retained. The manufacturing workforce is critical to the advanced technology vehicle market in California, as production volumes are still growing and require considerable skilled labor.

Growth in zero-emission bus markets through Federal and State funding will place a high emphasis on a trained workforce capable of producing, manufacturing, and servicing these vehicles.

For the fiscal year ’18-’19 Investment Plan, it is proposed an allocation of $5 million. Thank you.

COMMISSIONER SCOTT: Thank you, Larry.

Comments from the Advisory Committee Members? Oh, John. Yes, please. And then Tyson.

MR. SHEARS: Yeah. So, thanks for the presentation. And I see that, so, 20 percent -- if I understand your presentation correctly, 20 percent of those projects that get funded under the manufacturing program have also sought out funding for training. Is that correct?

MR. LERMAN: Let me orient the question, if I could, John. And that is to slide on the manufacturing in context, and you’re talking about the workforce development 20 percent or --

MR. SHEARS: Correct.

MR. LERMAN: And so, those are ARFVTP manufacturing projects that have sought funding either through the California Competes Tax Credit or through Employment Training Panel Funding Program.

MR. SHEARS: Right. Because before I saw the table, the question I had in mind was, you know, especially since Peter had sort of highlighted for us how much, you know, funding had gone to help with manufacturing, training in the manufacturing sector. What kind of outreach or communication is sort of happening around, you know, the workforce training on conjunction with other sort of related, you know, sort of what would on the surface look like obviously related kinds of funding tranches, like manufacturing?

So, is there a lot of extensive outreach and messaging that goes, oh, by the way, at the same time you might want to also look at this other opportunity over here? So, I was just curious.

MR. RILLERA: I think I'll start in response, John, one of them is that the agencies that provide the funding do a considerable amount of outreach. That transparency that they do, that we have through venues like today on the Investment Plan, as well as our public workshop outreach help the companies to take advantage of those incentives.

GoBiz, as an example, through their California Competes provides not just the direct in-the-room outreach, but they also conduct webinars for their funding.

It is critical to these companies to leverage and know their labor and their workforce within their backyards as they grow their companies and their technologies or they will come in to some competition for that same labor and skilled workforce, if you will, within their own backyards.

MR. KATO: Let me just add here, a few things here. So, I think the critical difference of how we did business before we approached these two categories is that moving forward from this point forward we’re being a little more robust with doing our homework and reaching out more specifically to stakeholders who would really benefit from our investment.

So, we’re doing a little more outreach, more hands on, more of a personal dialogue. And that includes the city colleges, that includes the surrounding community. So, we're doing a little more robust homework, first, and then we'll begin our workshop. Kind of revealing, so this is what we've found to solicit more input before we kind of formulate more specific solicitations.

So, these two categories, workforce and manufacturing require a little bit more of a nuanced of research and engagement than the other categories. So, there's more special attention being applied.

So, I think hitting that point too much is we're doing our homework.

MR. SHEARS: Okay, good. Yeah, I just wanted to -- because it's sort of like an area I think that, or at least I've been guilty of maybe not looking at or thinking about deeply enough. So, was just curious as to -- because it seems like it's something that's really starting to blossom and so, really, that extra cultivation. So, it seems like we're simpatico on that, so great.

COMMISSIONER SCOTT: Tyson.

MR. ECKERLE: And just to build on that,

I think from the GoBiz perspective we leverage a lot of this. This is a really important category to help bring manufacturing into the State. You know, we have a lot of the policies that help grow this market and we should benefit from the economic development perspective.

So, John, I think to your point and to Bonnie's point earlier, you know, again, if you're coming into people who are not aware of these types of things, like GoBiz can be the start point at least for a lot of these businesses who are looking to expand in California or start a business. And then we can -- we work closely with the Energy Commission staff to help coordinate and make sure that they're exposed to all the different incentives we have and pull together a nice package for it.

So, this is a really important thing and we appreciate working with the Energy Commission on it.

COMMISSIONER SCOTT: Thank you. We appreciate the partnership, as well.

Joel?

MR. ESPINO: Yeah. Thanks, Larry, for that presentation. Just wanted to reemphasize some of the points I've made throughout the day around this idea of, yeah, really trying to figure out if there's a way that we can have some high road agreements. Basically, the industry is used to essentially identify economic development opportunity that, you know, prioritizes hiring folks with barriers to employment, and that they are provided, you know, family-supporting wages. You know, those things I've mentioned throughout the day.

And I think it's really important that as we develop this new sector in California that we're doing it in a way that is economically just.

And I think one thing that I have failed to mention throughout the day, too, is part of that high road sort of strategy is also ensuring that we're thinking about the suppliers that the manufacturer uses, right. So, to the extent that we can diversify and have a more inclusive procurement process for the goods and services that that particular company might need that we're encouraging hiring small, minority-owned, women-owned businesses for these kinds of things I think is also important.

And, obviously, the California Public Utilities Commission has been a leader in ensuring that the utilities really consider this idea of supply diversity. And I think that that kind of thinking should kind of be translated into the solicitations that the Energy Commission provides. And making sure that as we set these up, if there's a way to really hone in on those high road components, I think that that would really stretch those dollars in a way that really maximizes the social good that we can have from this money.

COMMISSIONER SCOTT: Bonnie.

MS. HOLMES-GEN: Yeah, I just wanted to back up Joel's comments and just say, I mean, I think there's a lot of recognition and certainly desire on the part of everybody at the Commission and in the room to make sure that the manufacturing and the workforce development funding is truly promoting our equity goals.

But I don't really see much discussion about it in the documents. And so, I just think we need to connect up what we're talking about here with the information that we're providing.

And I know, you know, again there's a lot of information you already included in here. But I do think that it's important to connect the dots in this document and talk about the ways that the funding has promoted, you know, new job skills and outreach in disadvantaged communities, and communities that are in high air pollution areas, and the way that upcoming funding cycles can help to promote equity goals.

I really think that we can do it, add a little more flesh on the bone around that issue. Thanks.

COMMISSIONER SCOTT: Thank you.

Other comments from Advisory Committee Members?

Okay, I don't have -- oh, go ahead, Joel. Yes, please.

MR. ESPINO: Yeah, a number that I failed to mention throughout the day, I think, you know, a lot of the times when you bring up the point about equity, I mean it's definitely been an evolving sort of concept in California's statutory scheme through the past few years and it's been translated into how agencies do work. And I think we've made a lot of progress.

And I think a lot of times folks think

that this equity question, you know, it's the morally right one to do. But, you know, a lot of what I've been trying to say today, it's actually the economically sound one as well.

Because, again, as we continue to grow the economy, we need a larger middle class and we need to help the low-income folks gain pathways into middle class status.

And I just wanted to throw a statistic out there just to really make the case. Our friends at Policy Link did some research and found that in 2014, in the United States, the economy would have been $2.3 billion larger had there been no racial gaps in income.

So, this is just an example of how equity is important in terms of all the policy making that California makes in really ensuring that we're looking at that macro question of, yes, we're trying to reach our climate goals. But, you know, the economy is the encompassing thing that we need to really consider and how are we making sure that our dollars are addressing the economy and making sure that it's more inclusive.

And so, I just wanted to throw that out there for folks in the room. Because I know that the Energy Commission has been looking at this issue closely for the past few years.

COMMISSIONER SCOTT: Thank you.

Any other Committee Members?

Okay, I don't have any blue cards from people in the room. Okay.

I do have a WebEx comments from Urvi Nagrani from Motiv Power Systems.

And I wanted to just say I'm very strongly in support of this pool of funding. Because one of the other benefits which I don't think is being kind of mentioned is even if you're not the company receiving a manufacturing credit, the boost in investor perspective of a robust clean tech economy helps us when we're seeking private financing. Because you're not the only one. Nobody wants to be in a single-supplier industry because that means a single failure, either technical or business can bring something down.

And one of the things that's been really good about this grant over time is it's increased the number of players, which means that, you know, everything ranging from buying batteries to cable supplies, we can talk to other companies, and other engineers, and have somebody saying, oh, have you worked with this supplier.

And when you're talking about, you know, the maintenance perspective, if you've worked on an electric vehicle before, you're more likely to understand how to maintain another electric vehicle.

And so, those sorts of ancillary benefits of knowledge transfer, as well as more robust information in general, both on the business side, as well as on the consumer side is very helpful, even on the years when we don't get anything.

And also, for Motiv, when we got our manufacturing pilot grant, it gave us an opportunity to build electric power trains that are now being deployed in school buses.

And so, the lifecycle of from the design, to the building, and the jobs created on that, as well as the implementation and the air quality benefits has led to a net win that's made it really easy for every community we've partnered with to see the benefits.

And so, I think this is one of those programs that the CEC really hit the nail on the head and should consider to support in a robust way.

COMMISSIONER SCOTT: Thank you.

Do I have any other comments on the WebEx? Okay, I’m seeing a no.

So, we have one small category left. We have made it. Thank you, everyone, for all your great energy and your advice. We’re going to be looking at Emerging Opportunities, where we have a $4.2 million proposed allocation.

Do you want to say anything else about that, Jacob, or should we just go right to the Committee?

We will go right to the Committee. And if you recall, Emerging Opportunities, is to help us with Federal grants and to leverage dollars within Federal grants. Sometimes, something comes up that we didn’t know at the beginning of the year, but do know mid-year, and it’s something that we might like to support. So, that’s the type of thing that is captured with this category, just as a reminder because it’s been a little while since we saw that slide.

Committee comments? Tyson?

MR. ECKERLE: It’s very wise to keep this section going, so we appreciate it.

COMMISSIONER SCOTT: Joel?

MR. ESPINO: I'm just curious if there are any concrete examples you can provide us of how you've used this funding? I guess I'm still having a little bit of trouble figuring out how you would use this funding.

MR. KATO: Well, an example is from last year. Before hydrogen shifted over to the Biofuels, this is where we would explore emerging opportunities. And so, these are things that are kind of on the cusp, they're emerging so to speak. And so, this allows us to kind of invest and do a little extra research up front.

And we've done a lot of -- there's a lot of opportunities that have come across in the past where the Department of Energy, USEPA, they have their kind of solicitation as well, and we help partner with districts who need partnerships. For example, air districts. We want to compete for those funds that are very specific to the regions and this helps to leverage and make them more competitive more Federal funds. And so, this helps leverage more dollars for California and so we've done it in the past.

MR. ESPINO: So, just to clarify, so would this money be available for kind of like in the technical assistance type cost or is this more --

MR. KATO: Well, it could be and that's where the flexibility is encapsulated in this category. So, it could be in that. But it gives us that kind of discretion to help in areas that we can't really predict, and so that's one of the areas.

I guess one other area is we helped with the emerging ops. I think we helped fund the Hydrogen Panel. No, that's different.

COMMISSIONER SCOTT: No, that's a different one, yeah.

MR. KATO: I'm sorry. So, but, yeah, that's pretty much it.

COMMISSIONER SCOTT: Other comments from the Advisory Committee?

Okay, well, we have made it -- oh, wait, hold on. Is there public comment in the room? I do not have any blue cards.

Okay, and I do have a comment coming in from the WebEx, so hold on just a second so I can see who it is. Thank you.

Ed Pike.

MR. PIKE: So, hi. I don't know if I had my hand up from a prior session. Let me fix that, sorry.

COMMISSIONER SCOTT: Oh, okay, so no comment on emerging opportunities? Sounds like not.

Okay. And then we do just typically, at the end, check to see whether or not there's any public comment on the Investment Plan in general. I don't see any here in the room.

Do we have any on the WebEx? Oh, yes, one more comment coming in. Jordan Miller.

MR. MILLER: Hi. Yes, thank you. I'm with the Center for Transportation and the Environment.

And I just wanted to quickly ask, on the Emerging Opportunities Category whether there was any sort of concrete idea of what quarter that would be coming out in and if there was a more solid focus, or if the goal of the funding as really just when? I mean, I guess the name sort of says it. But when opportunities emerge, you use it.

Is there a general umbrella sense of what the funding will be directed for?

MR. ORENBERG: Hi Jordan. So, yeah, the Emerging Opportunities Category, we don't have regular solicitations that use this funding. This funding is really there to fund projects that were not anticipated during the development of the Investment Plan.

So, there's no planned solicitation, yet, for the fiscal year '18-'19 funds.

MR. MILLER: All right, thank you.

COMMISSIONER SCOTT: Thank you. Let me just, last call for public comments on the investment plan?

Okay, seeing none I would just -- oh, I'm sorry, Bonnie. Please go ahead.

MS. HOLMES-GEN: No, I'm sorry. It's just I'm confused if we're on the item, or the plan, or where we're at.

COMMISSIONER SCOTT: Well, we're wrapping up the item, but you're welcome to comment on the item or the plan.

MS. HOLMES-GEN: The plan, okay. I just wanted to say, after this whole day of discussion, that we ought to be really excited about this package of investments and the tremendous work that's been done over the past ten years, and the progress that we've made has been very exciting.

So, I just think this is -- you know, we have an exciting year ahead with this pot of funding, combined withal the GGRF, and the Electrify America, and all the other pots that you've mentioned in here. I think we're going to see some tremendous progress.

And I just wanted to say, one, is it possible for the next meeting to just have a general list of the issues that you've gleaned from this discussion that you've responded to, and any changes that you make in the plan, of our next discussion. Just to kind of call those out.

And a second thing I just wanted to say is that I understand we're not going to be at renewable hydrogen tomorrow. I just think that it's important to talk about these goals, and track progress, and understand where we're at. So, I just wanted to make that clarification.

MR. ORENBERG: And just to clarify, at the next Advisory Committee meeting I will specifically be calling out, in my presentation, which changes we have made to the Investment Plan.

COMMISSIONER SCOTT: John?

MR. SHEARS: Yeah, I just want to thank staff for all the work, but also just want to echo the comments about highlighting more thoroughly in the Investment Plan, you know, how the Energy Commission sees this sort of helping to address the issues that have been raised around disadvantaged communities.

It's also important, you know, for the Legislature to be able to see that. And also, just for public consumption purposes. So, I think overall it just helps out with sort of that sort of immediate sort of first order level of support for the program to be able to openly speak to that. So, I think it's a critical and a selfish basis for the program, but it's also, I think, important to acknowledge and openly recognize that that's an important part of the work of the program.

COMMISSIONER SCOTT: And we have a good story to tell there, so we should get it out there.

Are there any other Committee comments?

Okay, let me just do just a quick set of closing remarks for you all.

A reminder to everyone, we really want to hear from you. Please do put in a set of written comments for us. That deadline is November 17th. And I don't know if we have -- the link is here, up on the screen for you to see.

I want to say a special thanks to our new Members who joined us today, to Matthew Barth, who wasn't able to join us. But to Joel Espino, to Ellen Greenberg, Casey Gallagher, Steve Cliff and Irene Gutierrez. Thank you so much for coming and being part of our Advisory Committee. We're just delighted to have you and your expertise here.

And I want to say thank you to all of our Advisory Committee Members because we're delighted to have you, as well, and all of your expertise, and the constructive feedback, and the great thoughts and ideas that you bring to us every year as we're putting this plan together is invaluable. So, we really do appreciate the time that you take to spend the day with us.

We usually do two days and then to put in your public comments. So, I just appreciate that so much. Thank you for your great thoughts and comments.

I want to say thank you to our FTD team for their presentations today, which was Bill, Brian, Tami, Jane, Jean, Sarah, Andre, Sam and Larry. Thank you, guys all so much. We have a terrific set of people that spend all day, every day, really working hard on these issues.

And then, of course, we couldn't leave without a great thank you to Jacob, who puts together just a fantastic report. It's really well written. It's got a lot of great information in it. He's the lead for us on this Investment Plan and the Advisory Committee, and so we really appreciate the fantastic work that you do every day, as well. So, thank you very much, Jacob.

MR. ORENBERG: Thank you, Commissioner.

(Applause)

COMMISSIONER SCOTT: And with that, we are adjourned. Thank you, everyone.

(Thereupon, the Workshop was adjourned at 4:32 p.m.)

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REPORTER'S CERTIFICATE

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

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Eduwiges Lastra
CER-915

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Barbara Little
Certified Transcriber
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