BEFORE THE

CALIFORNIA ENERGY COMMISSION

In the Matter of:) Docket No. 09-ALT-1
)
Alternative and Renewable Fuel and)
Vehicle Technology Program 2010-2011)

FY 2010-2011 INVESTMENT PLAN PUBLIC WORKSHOP

California Public Utilities Commission

505 Van Ness Avenue, Auditorium

San Francisco, California

THURSDAY, MAY 27, 2010

9:00 A.M.

ORIGINAL

APPEARANCES

CEC

Leslie Baroody

Charles Smith

Peter Ward

Public

Richard Schorske

Andy Campbell, California PUC

Ben Ovshinsky, Efficient Drivetrains, Inc.

Adam Lankton [phonetic]

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Jaylan Turkkan

Rea Williamson

I N D E X

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P R O C E E D I N G S

MAY 27, 2010 9:15 a.m.

MS. BAROODY: Well, good morning everybody. It looks like everybody is here after some rain delays. We had some slowdowns on BART today. But we are really glad that you could be with us today. Thank you very much for coming. We also have people listening in on WebEx. And just so you know, we are recording the session today.

I am Leslie Baroody. I am Project Manager of the 2010-2011 Alternative and Renewable Fuel and Vehicle Technology Program Investment Plan. We are glad to be here, again, at the CPUC in San Francisco. We were here last fall for one of and the five industry stakeholder workshops we held on electric drive infrastructure. Now, I just want to thank Matt Crosby for letting us be here at the CPUC and arranging this meeting today.

Well, after I discuss the AB 118 Program, Charles Smith, our Co-Project Manager for the Investment Plan, he will review the status of the AB 118 funds, and that will be followed by Peter Ward, and he is our AB 118 Program Manager. And he will present the 2010-2011 Investment Plan. After our presentations, we will have time for questions, and then after that we will have a public comment period. If you would like to speak during the public comment period, we have some blue cards and if you could fill that out and

hand it to Jonah here.

The Alternative and Renewable Fuel and Vehicle Technology Program was established by Assembly Bill 118 in October of 2007, and later amended by AB 109 in 2008. The purpose of the program is to develop and deploy innovative technologies that transform California's fuels and vehicle types to help attain the State's climate change policies. Since 2003, key policies have been adopted in California to achieve the State's petroleum reduction and climate change goals. Prior to AB 118's adoption, Executive Order S 305 established the goal of petroleum fuel use reduction to 15 percent below 2003 levels by 2020. In 2006, AB 32 was adopted, which established the goal of reducing greenhouse gas emissions in California to 1990 levels by 2020, and 80 percent below 1990 levels by 2050. AB 1007, the Pavley Bill, adopted in September of 2005, required the Energy Commission to develop a plan to increase the use of alternative fuels in California. The resulting State Alternative Fuels Plan set the goal of increasing alternative and renewable fuel use. Finally, Executive Order S 606 established an in-state biofuels production goal of producing in California 20 percent of biofuels used in-State by 2010, 40 percent by 2020, and 75 percent by 2050.

In order to provide a market mechanism to carry out these policy objectives, AB 118 authorizes the Energy

Commission to develop and deploy innovative fuel and vehicle technologies to achieve the State's key climate change and energy policy objectives. The program spans seven and a half years and it has a sunset date of January 1st, 2016. In Fiscal Year '08-'09, $75 million was awarded, and in Fiscal year '09-'10, $101 million was awarded for a total of $176 million. In the current Investment Plan, the 2010-2011, the request is for $108 million. These awards are to be made without adopting or advocating any one preferred fuel or technology. They also cannot be used for projects that are required by state, federal or district rules or regulations.

The program addresses the state's need for workforce training for the emerging green economy and the need for job creation in California. And the Energy Commission must also establish sustainability goals to make sure the program's projects do not adversely impact natural resources. Getting the word out about the program through marketing and public education and outreach is essential to ensure success of the program. Finally, there is an ongoing need for technical assistance, as well as environmental, market and technology analysis to support the development of the Investment Plan.

The Energy Commission is required to develop and adopt an annual Investment Plan which determines the priorities and opportunities for program funds. This plan

must include input from an Advisory Committee throughout its development. The process of developing the Investment Plan involves stakeholder input via workshops, a public docket, and Advisory Committee meetings. For the 2010-2011 Investment Plan, we conducted five public industry workshops for each of the fuel types last fall and have held two Advisory Committee meetings since then. Three public workshops are also required for the Draft Investment Plan and that is followed by a 30-day public review period and public hearing on the final draft report.

As you can see by the schedule, after this third workshop we will have completed all of them, and we will incorporate any changes into the Investment Plan and it will be posted on our website by the end of June. And then we will have a 30-day public review period, at which time the Energy Commission will likely adopt the plan on July 28th.

So that is the overview. Once again, thank you for being here and I would like to introduce Charles Smith.

MR. SMITH: Thank you, Leslie. My name is Charles Smith. I am going to do a quick review of the funding that the Energy Commission has committed to as part of the previous Investment Plan covering Fiscal Years '08-'09 and '09-'10. First of all, we have invested $50 million in a series of agreements to promote workforce development as it pertains to alternative fuels and advanced vehicle

technologies. We had an ARRA cost sharing program that we allocated approximately $36.5 million to, and from that we leveraged about $93.6 million in Federal contributions for state alternative fuel projects. We have closed a number of PONs, three totaling approximately $44.8 million, one for biomethane production for about $21.5 million, one for medium- and heavy-duty vehicles for about $9.5 million, and fuel infrastructure projects for $13.8 million. We have also entered into a master interagency agreement with the State Treasurer's Office for a combined $39.9 million, $14.9 million of which will go toward the new biofuel plants, and another $19 million for manufacturing facilities. Both of those PONs have closed and we will begin scoring those proposals. Upcoming, we have an existing Ethanol Producer's Incentive Program and that will provide funding to ethanol producers if the market value of ethanol hits below a certain level.

In the coming weeks and months, we have plans to put together a medium- and heavy-duty vehicles Center of Excellence solicitation for $6.6 million; we have a hydrogen fueling infrastructure solicitation that should be coming out within the next week or so, and that will be for actually $19 million, and we hope to enter into an interagency agreement with AC Transit for hydrogen fueling for $3 million, propane school bus incentives, $2 million,

it is on the way, it is a sustainability analysis to assist us in our work, it is $2 million. Actually at, I think, just the most recent Energy Commission Business Meeting, the Commissioners approved a $4 million agreement with the Division of Measurement Standards, and that is going to be needed to establish standards for biodiesel and hydrogen fuel. And then, finally, we have a little less than $1.5 million intended for work with the National Renewable Energy Laboratory and UC Irvine street model, to help us guide our investments.

At this point, I would like to turn over the microphone to Peter Ward, who will is going to give a walk-through of the new Investment Plan.

MR. WARD: Good morning, everybody. Thanks for coming. I am Peter Ward, Program Manager with the Alternative and Renewable Fuel and Vehicle Technology Program. Thank you all for coming and being on the phone this morning. I think we are at a very interesting point for our program since much of the initial Investment Plan funding has gone out and we are anticipating going forward with the next Investment Plan. The Investment Plan summary is outlining funding for the next Fiscal Year 2010 and 2011. We have $108 million allocated for that. We are continuing with the methodology that we used in the first Investment Plan, so we would target the most GHG reduction as

consistent with the statute for our program, the purpose of which is to help the state achieve its climate change goals as soon as possible. The landmarks for the GHG reductions are AB 32, the 2020 goal of reducing our GHG emissions to 1990 levels by the year 2020, and the Executive Order from Governor Schwarzenegger for reducing further 80 percent below 1990 levels by the year 2050. That is a generally accepted goal for greenhouse gases and we adhere to it, as well. It is an ambitious goal, it is very difficult, over the last couple of years we have increased our GHG output, and that is the wrong direction, but we are hoping to turn that around and I think this program can go a long way to help that. In the Investment Plan, we are continuing our ongoing analysis of the gaps in Federal and private funding, other public funding, by fuel type, so that we make sure that the funding that we are providing for this program is not redundant to any other sources and can actually have a useful effect as we go forward and making the most use of ARRA funding and not duplicating other efforts already underway. We have a section in our Investment Plan that discussed the market and program development and these are categories that are not directly tied to GHG reductions, but they are very important to our program so that we can address the standards and certification for different fuels, the market entry barriers that exist, and also do quite a

bit of the analysis that is going to be a key component to this program. We need to make sure that we are informing this program of the latest developments and the latest science in regard to greenhouse gases, petroleum reduction, and criteria emission reduction, so these elements of our program are key for us to make sure that we are informed every step of the way and we are making the best decisions for investment of public dollars.

Funding allocation for electric drive – we will go right to the different categories – many of these are continuations, this Investment Plan is more of an update than a dramatic change from the past, but we feel that the categories that we embarked on in the first Investment Plan are very useful, and so we will be continuing many of those. The first is developed and demonstrated advanced on- and non-road medium- and heavy-duty technologies, and that is slated at $14 million, infrastructure-related activities, $3 million, and manufacturing facilities and equipment, $7.5 million. We have been fairly successful in the past for our old state solicitation, and direct contracts to the Federal solicitation for manufacturing facilities, one of the Federal ARRA; unfortunately, California did apply and many good projects, and it would have been a very useful economic development activity, however, the $2 billion made available from the Federal Government, they did not see their way fit

to provide any to California, no dollars to California out of the $2 billion offered. So we, I think, have a great opportunity still in California to using public money, and to the extent that additional Federal Stimulus money is available, we would take full advantage of that, as well. This is key for California to continue its legacy of innovation and development, going way back to aviation, aerospace, and information technology, when it continued that into the green technologies base, or the advanced vehicle component of manufacturing, fuel production as well, and so we think some of these offerings will be great California economic stimulus.

I think Charles went over the funding that we have available, and I believe a solicitation will be released today for $19 million for hydrogen infrastructure. For next year, we have slated $14 million. We will be putting this in the Investment Plan, and closely monitoring the results of the solicitation that is to be released today. We think the $19 million can go a long way to provide the necessary infrastructure as we roll out additional and larger numbers of fuel cell vehicles in California. California is the host state for the light-duty fuel cell vehicle project on a national basis, and so we are happy to host that and we are adding money to that, and we think we have a very aggressive solicitation going out now, and we are hoping that the

Federal Government can come back to the table and provide additional funding for some of the infrastructure that is needed for this national program now hosted in California.

Funding allocations for gasoline substitutes, this is a bit of a change; in the past we have discussed ethanol, primarily, but this could and probably will be much broader in the future. We are still working on ethanol projects, but there may be other types of fuels, there will be drop-in fuels and alternative fuels in the future, and so we thought a broader title for this will be more useful. We will be continuing the expansion of E-85 dispensers and retail outlets for $8.5 million, this is following up to funding that we provided, I believe it was about $5 million for E-85, and leveraged a considerable amount of Federal dollars and private investment for E-85 stations in California from the first Investment Plan. This would be a continuation of that. Gasoline substitutes production, so many of these would be renewably produced, and so we would like to entertain the notion of feasibility and feedstock development and actual production of these fuels in the future, in California, again, another economic development aspect that we think is quite important to get the economy in California and the people back to work in California as we can.

Now, on a similar vein, we have gone away from the

biodiesel, renewable diesel, these are “diesel substitutes,” so we are expanding the title of it to make sure that we encompass every fuel that could potentially be a diesel substitute, and for the production of diesel substitutes, we have slated $5 million for this next Investment Plan. This does hinge greatly on the Federal Tax Credit for biomass-based diesel production, which has stalled in the Congress. It expired on December 31st of last year, and we are hoping that Congress will take this back up and provide that dollar, again, and maybe even on a retroactive basis, and so we stand ready to help in the diesel substitutes production, and hopefully bring some of the production that has gone down in California, to bring that production back up, particularly from waste resources where we think that the GHG and the carbon content of these fuels can be very very low.

We would be continuing our investment in bulk terminal storage and blending facilities, we allocated $4 million in the last Investment Plan to this, and we have selected projects for that, and so we would like to continue that because this is an area that is not really covered by the conventional diesel providers, and this is a segregated type of terminal storage and blending facility that is needed to make sure that the supply of biodiesel or biomass-based diesels can be fairly ubiquitous into the distribution

system.

Funding allocation for natural gas, medium- and heavy-duty vehicles, we have $12 million. We were very successful in attracting Federal money to California for a natural gas heavy-duty and medium-duty, and we would like to continue that effort. Upgrades to existing fueling facilitations, this includes a lot of the investment that has gone in over the last 10-15 years in California, to those stations that now have to re-certify their tankage or they need to upgrade or expand their capacity at these stations. We are proposing $2 million for these upgrades, and I think this is a very important area, as many public agencies and cities and counties and municipalities have suffered from low funding. And to maintain these stations, of good investments in prior years, we would like to see these continue so they can continue to use natural gas as a fuel. This could include the many school bus districts that are operating natural gas school buses in the state, and they are faced with a dilemma as to whether or not to continue to use natural gas because their system of fueling has declined a bit over time, and so we want to help them with that upgrade and to make sure that they continue that investment into natural gas.

Biomethane production plants and quality testing, for $10 million, this is a very successful part of our

program, and in the first Investment Plan, we allocated $10 million, and we have doubled that to $21.5 million, and we have some excellent projects that we are recommending for funding. We are going into business meetings quite soon. Biomethane is one of the lowest, if not the lowest, carbon fuel possible in the alternative fuels space. U.S. EPA has called biomethane a “twofer” if you will, and that is that it captures the fugitive methane emissions from landfills and dairies and other facilities, captures those fugitive emissions of methane which are very potent in the atmosphere, and providing that fuel as a vehicle fuel, which is very low carbon-based from the fact that it is produced from waste resources. We are adding $10 million to that effort, to continue on the good development that we have seen in California. Biomethane is a pathway to many other renewable fuels and renewably derived fuels, including hydrogen and electricity, as well. And to that end, we will provide some of this funding for quality testing. I think that will be key as this gas can enter the pipeline, but it must be tested to assure its quality, to make sure it does not degrade the pipeline or the gas that is already in that pipeline. We are happy to help with that, so long as that gas ends up for a transportation use and not for generation or any other use that is not related to transportation, as our program is centered on the transportation space.

The funding allocation for propane, last year we had $2 million primarily for school buses, propane school buses that certify by U.S. EPA and the California Air Resources Board. We are continuing that, and adding an additional $1 million, and including light- and medium-duty vehicles into that, as well. There are several companies that are interested in providing these types of vehicles for pick-up trucks and shuttle fleets, as well as the propane school buses that have been certified and approved in California.

This is an area that I am very very interested in as we go forward, this may be entitled “those way cool things that we have not discovered yet,” our funding for innovative technologies, and that is the optimized, the alternative renewable fuels, control systems, and vehicle fuel integration systems. This can be constantly improved. One example, the use of alternative fuels can be greatly enhanced by adding hybridization into those vehicles, as well. Hybridization works for gasoline and diesel vehicles, but it works for alternative fuel vehicles, as well. Advanced internal combustion engines resulting in at least a 40 percent efficiency improvement, light weighting materials, improved energy storage, battery recycling and reuse, electronic and electrified components, idle management technology and aerodynamic retrofits that

decrease fuel consumption. And this is proposed at a total of $3 million.

Funding allocation for Market and Program Development, as I mentioned, this is a key component to our program. We want to make sure this program is informed in the best possible way. Program marketing and public education and outreach at $2.5 million, sustainability studies, and sustainability is a key component to our program, we want to make sure that the systems, fuels and vehicles that we offer assistance for are the most sustainable going forward. That means much, much, much more sustainable than the past systems that we have seen. Toward that end, there is an awful lot of work that has been going on in sustainability and we want to add to that and keep abreast of that to the fullest extent possible, bringing in sustainably derived feedstock, best management practices, and for all the facilities that are established in California, setting a higher sustainability standard for those.

Technical Assistance and Environmental Market and Technology Analyses will be key. This is the component that we will use to make sure that we stay abreast of all the developments in the environmental market and technology analyses, that is, fuel market assessments and technology evaluations, to make sure that our investments are necessary

and sufficient, to make sure that they can advance those technologies and fuels to the marketplace.

That concludes my presentation of the draft Investment Plan. I think Leslie pointed out our schedule, we would love to hear from you. There are a couple of ways to do that. One is by sitting here with us, another is by being on the phone or on our WebEx with us today, and thank you again for that, another way is to submit your comments formally to our docket, which is open for this Investment Plan. In reality, we never really close our docket, our docket is always open as we want to hear from the public at any time about any of the issues that we are proposing in this program. We are wide open to that and I hope that you will take the opportunity to correspond with us in that way, or be present at the meetings and, again, thank you for coming today.

MS. BAROODY: Thank you, Peter. Well, we have time now for any questions from you. We will take any questions from this audience here, and any on the WebEx, so feel free to come up to the mic if you have questions.

MR. CAMPBELL: Andy Campbell with the California PUC. I have a question about the schedule. I wonder if you could provide kind of rough outlines or beyond what you showed here after the adoption of the plans, or what do you hope in terms of issuing proposing funding notices and you

making selections and actually providing funding?

MS. BAROODY: Well, once the plan is adopted at the end of July, we will begin a solicitation process and that could take a month or two, depending on how things roll out. So the whole process could be several months into the fall. Anything to add, Peter?

MR. WARD: I think that is about right. We are hoping that this next round of solicitations will be much quicker, we have some experience on the first solicitations that have been a great help to us, and we will not be involved in the Federal solicitation process under ARRA, which our funding initially was contingent upon them approving projects, and they had a delayed evaluation process, we think, that we can get up and operate a little more quickly than we have in the past, and we are hoping that will be the case coming this fall.

MR. CAMPBELL: All right, thank you.

MS. BAROODY: Thank you.

MR. OVSHINSKY: Ben Ovshinsky from Efficient Drivetrains. Peter, I think, a whole bunch of questions. On the funding allocations for innovative technologies, those bullets, is that the limits of the specific categories? The general question is, for example, where would continuously variable transmission development that fits hybrid EVs, plug-in hybrids, etc., would that fit into

this? That is the general question. Specifically, what do you guys have in mind for controls in that first bullet, and electronic and electrifying components, what do you guys anticipate? What is your thinking on that? And idle management technology, what are you thinking about that? You know, what you are looking for, I guess. That is one set of questions on one slide.

MR. WARD: Well, I know that you read the Investment Plan –

MR. OVSHINSKY: Last year.

MR. WARD: Oh, last year's Investment Plan, this is a little bit – this Investment Plan is more expansive than last year's was, I think. And we have identified some specific areas in the Investment Plan and they probably address most of your questions.

MR. OVSHINSKY: Okay.

MR. WARD: We would like to have alternative fuels incorporated whenever possible, electric drive train, obviously, is one of those. The improved efficiency, and if we are improving efficiency through continuously variable transmissions and other mechanisms, then that helps not only conventional, but alternative fuel use, as well. So I think we are generally open to most of these things that you are suggesting.

MR. OVSHINSKY: Great.

MR. WARD: But we can talk further, as well.

MR. OVSHINSKY: Right and I will read it on BART back. Which segues to the next question, because of BART coming, I was late, there was a 30-minute delay at Oakland.

MR. WARD: That is what I heard.

MR. OVSHINSKY: Yeah, but it got here. So the question is, on the medium- and heavy-duty vehicles Center of Excellence, I walked in right at the moment when he was mentioning that, but was there any description further about the purpose of that and what you are looking to fund in that? Or is that also – I presume it must also be in the document?

MR. WARD: It is in the document, but this is what I was describing as California starting to maybe take a leadership role in this area and bring back the legacy of innovation and development that we have had. And this is designed to do just that. We will be releasing a solicitation fairly soon for that one, as well.

MR. OVSHINSKY: And just a side bar question, has CalSTART been involved in helping form that consent?

MR. WARD: CalSTART has been awarded the Center of Excellence under a PIER Program, I think, just within the last two months.

MR. OVSHINSKY: So they will establish that center?

MR. WARD: No, they will establish the one for PIER, ours is going to be open to solicitation, and we have not gone after that solicitation yet, so I do not know who will form that one.

MR. OVSHINSKY: I am going to have to talk to both you and Ray to find out – presumably this is all coordinated, these two centers.

MR. WARD: Theirs is – because that is a PIER and, as I mentioned, for those who do not know the PIER program, it is the Public Interest Energy Research Program, their view is by research, R&D and pre-commercial demonstration, and in ours, we can do research and development, but we can also go all the way through to commercialization, so while there may be a little apparent overlap, we do try and coordinate as best as we can. I think their Center of Excellence is looking at, I guess, the left side of that continuum, and it will be the early or applied research and development, that is a different set of excellence concepts than we have here.

MR. OVSHINSKY: One last question. On the funding allocation for market and program development, technical assistance and environmental market technology analysis, the $6 million, is that going to you guys to upgrade your understanding? Or is that going to be contracted out? Who do you imagine will be the recipients of that?

MR. WARD: It could be – we have technical support contracts, we have other agreements that we will be going forward with. I think Charles mentioned a couple of those. We are working with University of California Irvine on their street model, which they established for hydrogen in the Southern California area. We asked that they expand that to all alternative fuels and in all parts of the state, that is one thing that is out of the past with the former Investment Plan. In addition to that, we will be striking an agreement with the National Renewable Energy Laboratory so that they help, as we gather and inform the program, as well. Those are in the past, this would be a continuation of those types of agreements, we have not set that yet, but we want to make sure that this is a component that is robust and that we are well informed every step of the way, and every year on the path of this program.

MR. OVSHINSKY: Okay, thank you very much.

MR. WARD: Thanks, Ben.

MS. BAROODY: Thank you. Anybody else? Any other questions? If not, on the phone? I think you are unmuted if you want to speak up, or will be unmuted shortly. Okay, you are unmuted. If you have a question, please state your name and go ahead. Mark – is it Mark Gillon [phonetic]? No? Nobody? Okay, I guess we do not have any further questions. Richard?

MR. SCHORSKE: Hi, Richard Schorske with the Electric Vehicle Communities Alliance and the Bay Area EV Corridor Project. I know that in the Investment Plan in previous years, we have also had a distribution among the fuels that was significantly weighted toward hydrogen and other technologies than electric drive, or other fuel types, and I just wondered what has been the conversation among the staff about the ramp up of electric drive relative to other all fuel vehicles, particularly given that the 2011 is sort of our target year for really significant deployment of EVs into the market?

MR. WARD: We have noticed your progress. And I want to say that I think that the regional efforts that have been underway for many years in EVs has been very very obvious to us at this point. We are embarking on an area that will be a very rapid growth area as we estimate it, and our estimates are based on much of the work that you folks have done. In these regional areas, there has been a substantial amount of planning and coordination, and I noted in the proposal that we are recommending for funding in the Bay Area, and there are a host of involved agencies, companies, and public and private, all in great interest to making sure that we have a well-coordinated roll-out of EV charging stations across the state. We would like to join that effort as – and try to perhaps be the center post for

many of these regional studies and come up with a continuum of our work on the evaluation of electric drive potential in California. We think it is great. We are seeing many announcements from the OEMs and the small vehicle manufacturers that we have to pay close attention to. In the funding that we provided, we provided some for you folks, but we also are proposing to provide two Clipper Three funding that would update many of the investments we have seen in EV charging over the past, well, 15 years ago. We want to make sure those are upgraded into the newest equipment, making sure that people, as they anticipate purchasing an EV, that they get over their range anxiety, which has been expressed to us many times. I think once we do that, we do want to make sure that we can evaluate and foster the development of home charging to a large degree. This has always been our focus at the Energy Commission. We want to make sure that individual EV buyers and users can charge at home, we think that is good for them, we think that is excellent for the state because most of that charging will occur off-peak. Energy Commission has the responsibility for siting power plants in the state, so we are very cognizant of this issue. That having been said, because we do site our plants, and we understand that there are many many more peakers being proposed, we do think it is important to focus like a laser beam on those off-peak

charging opportunities. Additionally, I think our roll-out of EV infrastructure is sound because we want to make sure that people overcome their range anxiety and foster a market development that takes up the vehicles that will be offered by the manufacturers here very soon. So we want to catch up with your efforts on a regional basis, but we want to use the resources that we can bring to it, as well, to provide a robust and continually updated state plan for EV infrastructure and charging.

MR. SCHORSKE: May I follow-up on a couple items?

MR. WARD: Sure.

MR. SCHORSKE: Just, you know, as you are well aware, there was a somewhat idiosyncratic distribution of funds from the Federal side with respect to San Diego, having roughly $20 million for infrastructure, and other cities getting none from the DOE solicitation last summer. But, as you look at what is really required for, you know, 2011 to 2012, in terms of a reasonable balance of charters to vehicles in the major metro areas, probably $20 million is about right for a city the size of San Diego, or a region the size of San Diego, and you kind of do some basic math, and it seems like a consistent proportionate investment in California EV SE infrastructure over a couple year period would probably be certainly a bit in excess of $100 million. And what we have on the state side is, you know, over two-

year six. Now, here in the Bay Area, we have been extraordinarily fortunate that the Metropolitan Transportation Commission has a solicitation out now, we do not know what the results will be because EV is not the only fuel option and associated broad GHG reduction initiative in the transportation domain. But we have put together something to backfill the incremental difference between what was awarded and what we have requested from your last solicitation, where we were awarded $500 K out of a $1.9 million request. And then, in addition, to bring it up to about 500 charters, Level 2 and a dozen or so Level 3, it is going to require another $6-7 million, which would be great to get from the region, but we do not know what the outcome will be. But, again, taking a look at that being a very basic infrastructure for $7 million pop region, and perhaps some tens of thousands of vehicles over the next couple years, it just strikes me that we have, you know, $22 million on the hydrogen side for, you know, I know there are buses and some important uses in that domain, but for really a tiny handful of fundamentally demonstration R&D type vehicles, and I have computed in the past that the subsidy per vehicle on the hydrogen side, as you know, is probably $7-$10.00 per vehicle, per station, vs. it is well under $1.00, it is in the $.10 to $.20 range per vehicle, per station for the EV. So it just is a striking imbalance when

you look at the GHG reduction impact and the fundamental efficiencies of electric, of EVs vs. hydrogen. You know, it does raise questions about how seriously the program is focused on sustainability metrics that were considered by statute to be at the core of the program. So I am just saying, you know, there has been some comment about that in the past, I know, in the briefings, but we do not see any change in the allocations, and now we are a couple years down the road.

MR. WARD: Well, let me just say, in the past year, I know I have been involved in the hydrogen space of this and what we are trying to do is make sure the allocation that we have for hydrogen meets the needs for the next two to three years, and that is our hope. We had hoped to provide the same metrics and a deeper view into the EV infrastructure, we have done this in the past a bit, and we hope to continue our efforts. We want to join with all the regional areas to make sure that we have it right. We want to make sure that our funding is necessary, we all agree that it is, but we want to make sure that it is sufficient, as well, for that, and I think you can help us by providing some additional comments to our docket. I would recommend your comments are well taken here today, I would like to see if you could bring those to our docket, as well, and we do consider those in the final approval of the Investment Plan,

as well. We are open to that. We want to be partners with all of those regions, and I think you folks are the boots on the ground that we want to catch up with a bit.

MR. SCHORSKE: Okay, well, thank you very much. I will provide comments to the docket. I was just with Leslie before this meeting talking a bit about also the situation in the Central Valley where they have not had the development of a kind of locally driven EV coalition, and did not look forward to a program, and I think one of the issues is that it has been so competitive and will remain so competitive that, you know, just a few regions, namely L.A., San Francisco Bay Area, and San Diego from the previous, are getting the lion's share of the funding, and we have yet this very important high pollution region in the San Joaquin Valley that has not organized. And my own feeling is, you now, until we see another $2-4 million added to the pot in the statewide pool for EV infrastructure, it is hard to understand how you are going to build out and include the Valley and other areas in the Central Coast, other areas that may not have gotten a proportionate investment.

MR. WARD: I think that is an invitation for you folks to expand your realm of organization in the community development for the Central Valley. I would love to see that same type of organization fostered there, as well. You make good points. That is a high unemployment area, it is a

very difficult and impacted air quality area, and it is a very low economic development, as well. So that is an area we would like to see further developed and we think it is viable. To our thinking, unfortunately, we cannot respond to a solicitation when no one provides a document from that area, but we hope to expand the location. If we believe it is necessary, we want to make sure it is sufficient to meet the needs, and your comments on the scale of project roll-outs and EV infrastructure roll-out would be very useful to us.

MR. SCHORSKE: Thank you very much.

MR. WARD: Thank you.

MS. BAROODY: Thank you. Any other questions? Come on down.

MR. LANKTON: My name is Adam Lankton [phonetic]. I am with the Energy Division here at CPUC. I just had two quick questions about EV infrastructure. In terms of the number of publicly accessible chargers that you think are necessary, I wanted to see what your thoughts are on the number of chargers that would be necessary per electric vehicle, that is the number of publicly accessible chargers, if you had a sense of what that number needed to be in the short term and perhaps the long term. And my second question concerns Level 3 chargers, and currently there is no standards for the couplers for Level 3 chargers, and

there is not a standard for the level of voltage or amps that those chargers should operate at. And so I wanted to get your thoughts on how we proceed with Level 3 chargers, development on those chargers, in the absence of standards.

MR. WARD: I probably – I would love to talk to you more about this. You have specific things in mind, apparently, and I really am not sure I have got the right number for roll-out for public chargers on a per vehicle basis. I think that the folks that are involved in the regional consortiums are probably in a very good spot to know that number better. We do want to focus on home charging, it would be great if every EV had one home charger available to it, I know that is not possible in all situations. But the relief of having publicly available opportunity charging is one that can enhance that. But in a perfect world, I think ETV would have a home charger for it. I think that makes the ultimate sense because it would be decidedly charging off-peak, and that is really what we need to focus on, is off-peak. So if you can provide any additional information that you – it seems like you are very versed in this subject, I would like to hear from you directly on this if you would not mind providing into our docket, we will pay close attention to it, even our planning efforts. We are hoping to have this agreement that we are striking with the National Renewable Energy Lab will focus

this as a prime and rapidly developing area, one that they can help us with as we continue planning for the roll-out of these stations, as well. So I would like to hear from you and all other parties in this regard because this is a quickly changing area as the OEMs are providing vehicles in apparently large numbers in the out years here. So would love to hear from you.

MR. LANKTON [phonetic]: And any thoughts on the Level 3 chargers?

MR. WARD: I do not have any particular thoughts. I would like to hear from you on that issue so we can frame it properly, making sure that we address it in the most realistic way.

MR. LANKTON: All right. Thank you.

MR. WARD: Thank you.

MR. OVSHINKY: Ben Ovshinky again from Efficient Drivetrains. If I can presume to speak for him, which I cannot, one of the thrusts of the Level 3 charger questions is what happens when the Level 3 chargers are kind of randomly or higgly piggly on the retailer or consumer side, or whatever, installed without planning or coordination with the utility. It is my understanding that a few of those can knock out a substation.

MR. WARD: You definitely want to avoid that, that is why, in all of our discussions, we will be including all

the regional areas, the OEMs, and the utilities, in all of our discussions. They need to be present at the table, as well. Thank you, Ben.

MS. BAROODY: Okay, is there anybody on the WebEx?

MR. MARGOLIS: I will be unmuting people online one more time. Everybody, you are unmuted, if you have a comment.

MS. BAROODY: Okay, no questions. Any further questions here? If not, we will move on to the public comment phase and so, if you have a public comment and you would like to come down and either do a PowerPoint presentation, or read a statement, Jonah, you have a list of blue cards, I believe. One? Okay. If you would like to come up, did you want to make a presentation? Go ahead.

MR. PETTIS: Good morning. My name is Len Pettis. I am Chief of Plant Energy and Utilities at the California State University. And here with me today, and first of all, I want to thank the Commission staff, Leslie, Charles and Peter, I appreciate the opportunity to be here with you this morning. For those folks here in the lecture hall, and those folks online, on behalf of the California State University, thanks for the opportunity to make this presentation today. Here with me today are Dr. Guna Saladuray, Dr. Rea Williamson, Associate Vice President of Research at California State East Bay, and Dr. Jaylan

Turkkan, Associate Vice President of Research and Sponsored Programs at San Francisco State University. Staff, I know that you are aware that we already did make a presentation at Long Beach, and so I will make my overall comments brief regarding the California State University System, and then introduce my colleagues to talk specifically about the important research in research programs and workforce development curriculum that they are developing, that hopefully staff will recognize as a supporter for this program.

Our goals here today are to present what we are doing, and it is coincidental that the recent Economic Impact Report was just released, and Chancellor Reid [phonetic] presented to the Legislature just last week, acknowledging CSU's contribution to the workforce and applied research programs across the State of California. So we would like to highlight those programs and we would also like to propose, again, and reemphasize our desire to encourage the Commission staff to increase or strengthen the focus on workforce development and applied research, and ask possibly for a future seat on the Advisory Board. Currently, we have current and future degreed certificate programs at the Bachelors and Masters level. So in looking at the CSU, for those folks that do not know, we are the largest and most diverse public university system in the

United States, serving 430,000 students and 80,000 graduates, graduating a more diverse population than anywhere else that we currently know of, and we are very proud of that. With respect to some system-wide policy and some things that are going on, as you know, we are very much keyed into protecting our environment and having involvement with student, faculty, and our administrative staff on all of our campuses, and as noted here, in 2009, we received recognition from the Environmental Protection Agency as being in the top 20 as an entity that purchases green power from the Grid. We also have a sustainable sign program where 33 of our new facilities and/or major renovations on 16 campuses are LEED accredited, LEED certified. Many of those, I believe 16 of those buildings, are LEED Silver or higher. We also would make note that two of our campuses are currently now in the Hydrogen Highway System in California, one in Southern California, and that is California State University of Los Angeles, and Humboldt State University in the northern part of the state. And finally, in general, in the educational program our commitment to sustainability, of course, we need to mention, and again thank the Commission for the support to Sacramento State for the Smart Grid Program, and we are hopeful that that funding and the support funding that is required to make use of the ARRA funds will, in fact, come to fruition

and we will have a Smart Grid Demonstration Center that we can all be proud of and learn many great things from. Environmental Research and Clean Technology Centers exist also in many of our campuses across the states, some examples, as you know, Peter, at your former alma mater, Chico, is a leader in Clean and Innovative Technology Center, as well as many other campuses in the system. The Green Campus Program, in recognition of the Alliance to Save Energy, has been a significant compliment, and I think we again encourage the Commission to invite those students to help participate in your outreach program, they have done some fantastic things, some very innovative things, and creative things in creating apps on iPhones and Smart Phones, and many other programs that really have warmed the hearts of all of us in the system about how innovative they have been without spending a whole lot of money, and they have been very effective with their communication, so we appreciate that.

And so, now if I could, I would like to turn it over to one of my esteemed colleagues, Dr. Guna Saladuray, and he is going to talk more about the institutional requirements that we offer at CSU.

MR. WARD: Len, that is an excellent idea of using students. I think we would like to take hold of that opportunity, that would be great.

DR. SALADURAY: Thank you, Len. Good morning, everyone. My name is Guna Saladuray. I am the Associate Dean for Research at the College of Engineering at San Jose State University. For now, I am representing the entire system because we are all part of the CSU System, and very proud to be part of that excellent system. The CSU System is probably the State's largest provider of professionals, educated in the Bachelors and Masters Degree levels, it is half of all Bachelor's Degrees awarded in the State of California, and also about a third of the Masters Degrees awarded in the State of California are really from the CSU system. In terms of disciplines, specific areas, probably some of the disciplines that are most related to the topic that we are discussing here, 45 percent of all engineering graduates in the State of California come from the CSU system; similarly, about 54 percent, more than half, in the area of Business, and in Agriculture 62 percent of all BS and MS level graduates in the state are produced actually by the CSU system. And we are also very proud of the fact that we make higher education accessible to a large variety and cross section of the population. Many of our students are coming from families where nobody ever went to college, and they are the first college-goers in their entire families and extended families, as well. This has provided significant upward mobility to a large cross-section of the

population, but perhaps more important than that is that it has made talent available far more than it would be otherwise because we have talented people at all levels of the socioeconomic ladder, and what the CSU system does is that it provides them with the opportunity to produce as much as possible for the benefit of the rest of the state. At this point, I would like to invite another esteemed colleague of mine, Dr. Jaylan Turkkan, from San Francisco State University campus, to continue with the presentation.

DR. TURKKAN: Thank you. Hi everyone, I am Jaylan Turkkan, Associate Vice President for Research at San Francisco State. Thank you for inviting us to speak today about our Basic Research, Applied Research, and all the educational programs that we have, that speak directly towards biotechnology related to biofuels production. Keeping my hat on as on the CSU System side, we have a number of what we call Affinity Groups, and these are interdisciplinary groups of faculty and students around particular thematic areas. And for the past 20 years, one of our strongest Affinity Groups has been the CSUPERB Program, which is the Program for Education and Research in Biotech. As you might imagine, a lot of our focus has been towards the pharma industry, but they have also recently turned their attention towards biofuels, in particular, and have formed a partnership for next generation biofuels

production process where they actually take students, graduate and undergraduates, and place them in actual bioproduction/biofuel production settings, so that they learn hands-on and have direct industry experience in these kinds of contexts. This is at least 45 faculty across 14 CSU campuses. Some example projects you can read between Sonoma and Santa Rosa, to build these two digesters, as you can see in the picture, transforming harvested biomass into biomethane rich biogas. Another example is, at Chico, where they have actually worked with local Ag Cooperatives to get surplus biomass, some almond and wine biomass, to optimize preparation of biofuels. Again, local sources on a local scale to provide renewable fuel for transportation and farm equipment. Right now, they are working on 15-20 students a year, and this is a valuable program, but it is, as you can see, extremely small-scale, so they are tasking about trying to get funding to upscale this thing to at least 300 students across the state.

Now, putting on my hat for San Francisco State University, in particular, we have a number of basic research projects in Applied projects, and one of them that we have our fingers crossed, we are about to hear about funding from the DOE on a joint venture between Royal Dutch Shale and HR BioPetroleum. Bill Coughlan at our Marine Laboratory Fuels Station out near Romberg Tiburon Center out

in Marin County has been looking at algal biomass production to optimize phytoplankton lipid productivity as a function of different environmental factors. So, I know you all know this, but our Internet audience might like to be reminded why this kind of algal production is important. For example, they are the fastest growing plants in the world, they do not compete for food and water supplies, there is no land required, mainly you need saltwater and an added benefit is that phytoplankton consumes carbon dioxide, which is a major greenhouse gas, through photosynthesis. So, again, we are waiting to hear about this very exciting consortium between the university and these commercial enterprises funded by the U.S. DOE.

We also, in our School of Engineering, Professor Ed Chang is looking at – so that is on the biofuel production side, we are also interested in how do biofuels actually work in combustion engines. So Professor Ed Chang in the Engineering School has been working with Sandia Labs to look at combustion and fuel efficiency of biofuels in a sort of novel optical engine -- I think I need to move this forward -- a novel optical engine where they have these coarse windows that allow visualization of ignition processes and luminosity rising from soot incandescence, and which indicates how much soot is formed during the combustion process, so you can imagine that, at some point,

using all these different parameters, and balancing all these variables, you get optimal fuel efficiency with the lowest amount of particulate production from these engines. So that work is also funded by the Department of Energy, accruing to San Francisco State University.

And then, finally, putting an educational hat on, we have an Industrial Assessment Center in our School of Engineering where students go forth every year into actual commercial settings and do energy assessments and pretty much come out at the end of it becoming energy engineers, but the important thing about this is that, while right now it not specifically focused on biofuel production plants and the like, it can be easily upscaled, sidescaled, to integrate that into any kind of biofuels initiative. Okay, so I am going to turn myself over now to my esteemed colleague, Dr. Rea Williamson, who is the Associate Vice President for Research at CSU East Bay.

DR. WILLIAMSON: Thank you. Thank you, Jaylan, and thank all of you for having us here. At CSU East Bay, under the guidance of our recently hired – we have been there two years now – but President Mo Qayoumi, we have undertaken an initiative to really focus on Science, Engineering, Technology, and Mathematics, and one of our approaches is to really look at the collaborations that we think we can establish with the laboratories that are in

close proximity to our campus, other world class research institutions, so U.C. Berkeley, the Lawrence Berkeley National Lab, Lawrence Livermore, Sandia, USDA Western Research Institute, the list goes on, so our faculty, a number of our faculty, are being bought out 100 percent time to work in these laboratories, we have graduate students working in the labs on a variety of cutting edge research topics, including biofuels, solar technologies, fuel cells, and environmental remediation topics. Another approach that we have taken is to really collaborate with the industries and the cities and communities along the East Bay Corridor, so we are a member of the East Bay Green Corridor Partnership, which brings from the City of Richmond, all the way down the Bay, past Hayward, and incorporates all of the cities, it actually was initiated down at the Office of Mayor Tom Bates in Berkeley, and it includes a number of the Universities and Labs and Cities, but also the start-up companies and industries in what is a concentrated area for Biotech and Clean Tech companies in the East Bay. One of the initiatives of the Corridor is to expand the supply of biofuels, so actually it should be on that screen, sorry, and so some of those goals for expanding biofuels are to support biofuel research, technology transfer, that is a big issue that goes on between research and universities, and industry, support the development of biofuel stations such

as the Chevron Station that is located in Concord -- CSU East Bay, I should have mentioned, also has a campus in Concord – to support the development of biorefinery projects for manufacturing biodiesel and developing training programs for handling and manufacturing biodiesel, because, of course, if you are going to build the facilities and create capacity, you need to also have the engineering and science trained people, the researchers, and the workforce developed.

Our campus has also been identified as one of two locations for a PG&E sponsored fuel cell, and that is a project that still, as you all know, still is in the process. But when completed, the waste heat from the fuel cell will be used to heat the swimming pool and the Art building, there will be a kiosk and a center for training and teaching, and we have a team of faculty who have already developed a work plan for developing the curriculum around fuel cell and other alternative technologies, so it is a very exciting world out there, and I am really delighted that CSU East Bay and the CSU as a whole are a part of it. So now I am going to, once more, invite my esteemed colleague, Guna Saladuray, to come back up and finish up for us. Thank you.

MS. BAROODY: Thank you.

DR. SALADURAY: Thank you, Rea. I would like to

spend a couple of minutes introducing the San Jose State University Campus and what we have been doing in the area of the technology that we are talking about. We have a total of on the order of $70 million a year in externally funded research grants, which has grown significantly over the last seven or eight years. We are also located in the heart of Silicon Valley, which is extremely exciting, and many of us faculty have ongoing collaborative relationships with Silicon Valley companies in technology development and technology testing, as well. On campus, sustainability has been a priority and has been a directive from our President, John Whitmore, and the emphasis he places on sustainability is reflected by the fact that we have a faculty member who has been appointed as the Sustainability Officer for the entire campus, reporting directly to the President.

Talking about just the College of Engineering in the last three to four years, we have been very active in curriculum development at the Bachelors and Masters levels, focusing on a variety of topics that relate to not only vehicles, but renewable energy, as well. And I have just provided a list here. We also have an MS Degree program in Green Engineering and Clean Technology that we just started about six to eight months ago, and it will be rolling off the blocks in the fall of 2010, which is within the next few months. In the area of research, we have a Center for Green

Electronics and the main purpose of this center is to motivate energy efficiency among laptop users and manufacturers of wire real time feedback, so that as people are using their laptops, and actually other consumer electronics, as well, they will have a very good idea of the energy consumption. And we feel that what we are trying to do is we are trying to include social psychological cognitive behavior into energy consumption patterns because this way we need to start making changes within the human mind, as well. So we are working with social psychologists and psychologists, as well.

We have a faculty member who is working on improved extraction of fuels from biomass, particularly as Jaylan mentioned earlier, and a couple of patterns have already gone on this new and improved technology and we expect to see fruition of this. We have had a fairly robust program within the College of Engineering on sustainable urban transportation, one of which, the ZEM vehicle, is actually a hybrid human battery solar powered vehicle, and the technology here is really development in the electronics that is related to the switching over from one source of energy to the other, with them actually being constantly recharged either by the human effort and/or solar. Along with this is a significantly improved Regenerating Braking System that we have just completed the development of, and

it is currently undergoing testing. We expect that the efficiency of the RBS will be improved by about 30-40 percent over current generation RBS systems, which have mostly been used for about 13-14 years throughout the world. And we thought, you know, to get student participation and interest, it would be good to incorporate this into a go-cart so that they can zip around all over the campus.

So, again, on behalf of my colleagues here and the entire CSU system, we would like to thank you very much for giving us this opportunity to speak with all of you about our capabilities in alternate fuels and vehicle technology. We have great strengths in applied research, as well as our education programs at the Bachelors and Masters Degree levels, where we educate the professionals who are essential for sustenance of the manufacturing, development, and research for a robust economy in California. And we also have excellent relationships and continue our outreach with the K through 12 system, our partnership with community colleges, and the University of California system. Our facilities and infrastructure are always available as living laboratories, so that best practices in alternate fuels and vehicles technology can be developed and in support of the California Energy Commission's Investment Plan, as well. As we all move forward together, we look forward very much to being partners with the California Energy Commission. Thank

you very much.

MR. WARD: Thank you all for coming today. We appreciate your presentations very much. It is very helpful to see how our next generation is going to take up what we have started here and move forward with it probably more quick than we did. So thanks again.

MS. BAROODY: Thank you very much. Very good. Any other presentations or comments? I think we have another one here.

MR. SMITH: For those of you on WebEx, we are uploading another presentation at the moment.

MR. SCHORSKE – Members of the staff, thank you for the opportunity to present today. Again, I am Richard Schorske with the Electric Vehicle Communities Alliance and I am also representing an initiative that has been co-sponsored by my organization, Clean Fuel Connection, EPRY, and General Motors, called “Ready Set Charge California,” and I just want to acknowledge that my colleague on this effort, Egan Joffe, has presented on this, I believe in Sacramento, on at least a couple of occasions. So I know you are generally familiar with the effort, but I want to just highlight a couple of areas that we are particularly focused on, as targets of opportunity in the coming year with respect to addressing how do we accelerate and simplify the installation of home chargers for all the stakeholders

involved, especially the consumers, of course, and how do we bend the cost curve, if you will, on installation of public chargers as we go forward into new construction and major remodels of both commercial and residential building.

As you know, well, I will just get into the presentation and talk a little bit about each of those two areas. First of all, as you know, there is a large scale deployment of plug-in electric vehicles anticipated beginning late this year. There is about 100,000 Nissan Leaf hand raisers that have said they are interested in buying, and that is being converted already into several thousand folks that have put down deposits. If a quarter of those people are Californians, roughly, or more, which is likely, we could easily have a five-digit deployment of these in California in a year or so, and that is just on the EV side and, of course, the Chevy Volt is coming, as well. But the EVs are most critical with respect to publicly accessible charging, as well as residential charging, and we really wanted to do something that would prepare the market to accelerate the deployment of residential charging with respect to reducing the current time to install, from a customer saying, “I need a charger” to getting that installed. And a lot of this has to do with communication between all the parties involved, the utilities, the auto dealer, the EV SCE installer, and the consumer. And the

permit person, or the building official that is responsible to sign-off typically to inspect and to sign-off sometimes in two steps with the charger installation. This is not a category of funding that has been identified in a very specific way up until now, insofar as it really represents kind of a planning and streamlining function that is inherently interstitial among all the stakeholders, and I wanted to just highlight the importance of it for consumers because a 30-45 day delay in getting a charger installed is really a non-starter for someone who buys a EV and needs their charger in order to drive. So, of course, the car dealers are very cognizant of those and are working closely with infrastructure providers, but fundamentally it is going to take, in many cases, some independent entity to bring folks together, to make sure those hand-off points are done in as condensed a way as possible, and to address the issue that some buyers may not participate in a manufacturer provided installation program, or otherwise encounter difficulties that could be addressed through some kind of a vendor mutual solution provider, if you will.

So specifically, “Ready Set Charge California” is convening auto and EV SCE provisional equipment manufacturers, utilities, regional and local governments, and EV organizations, to develop some statewide solutions to the EV infrastructure challenge, with an initial focus on

installation process streamlining and consumer awareness, more generally, of the installation issues and solutions. What we are looking to do is to develop an information checklist that is common to all of the parties involved. EPRY has taken a lead with PG&E in providing a basic manual to practice, it is rather voluminous and complex, we are looking to bring it down into a manageable byte sized set of documents, and some of that work is already ongoing with Clean Fuel Connection and others, and we are looking forward to working with the CEC in defining some appropriate elements for that kind of information on a statewide basis, as well as for resources to make sure that this happens expeditiously, and in time for the broad market introductions.

Another aspect of this has to do with getting information to consumers before they are purchased, with respect to the challenges that they might face and the solutions that are available on the EV SCE side. This is particularly appropriate for multi-unit developments where people are in apartments or condos, but they really do not know how they are going to get something in there, and there is not necessarily an entity defined that ought to take the lead on that, an individual car dealer is not going to take responsibility for walking through all the issues that pertain to how to deal with a Homeowners Association at an

apartment complex, a public housing complex, and so forth. These are very very labor intensive and challenging situations. It is all brand new stuff. Everybody's parking space is a big emotional attachment. And we are only just beginning to find out how complicated this is. Some utilities, notably San Diego Gas & Electric, and Edison, and others, are really taking the lead and devoting a lot of research to this, and many others are not, and some are small public utilities, others are just not sure what their role is yet, or do not see a business case for getting involved in that kind of complexity, and we are really concerned that the many many dwellers of apartments, condos, and rental housing simply will not know what to do, and neither will the car dealers in some cases.

MR. MARGOLIS: I apologize to everybody. [WebEx]

MR. SCHORSKE: And so what we are trying to do is define within each region a group that can, in fact, address these issues on a multi-unit side, and if there is not a clear set of stakeholders who have come together to bring those stakeholders together and make sure that there is a defined effort in a multi-unit space, to be able to go after that. It could be – I have not actually done the analysis, but I would presume it is at least 25 percent of the State is in either rental housing or multi-unit housing, and for them, the issues around home charging are totally unclear.

So this is a critical area, again, for an independent vendor neutral entity to come in and organize an approach that is going to be workable in the long run.

Another issue that we have coming up is this EV ready building policies, and many of the jurisdictions in California have already done a lot of work to come up to Title 24, Title 25 of the Building Code, the State Building Commission efforts, and to address things like photovoltaics, and a number of issues that pertain to that. Well, we really have another wave of issues that pertain to the EV infrastructure that would benefit greatly from some statewide coordination and education and intrajurisdictional, as well as interjurisdictional work. Specifically, as you all know well, the cost factor in individual installation in a publicly accessible situation can vary from a couple thousand dollars to $10,000 to $15,000, depending typically on how much trenching is involved, on how close the charger is to an electrical panel, and just some basic construction-type issues with that. When you build from scratch with an EV-friendly Building Code, there is a provision, as there has been in PV for some Building Codes, there could be a provision for stub-outs for EV stations, charger units, and built on the residential and commercial side. And likewise, in the Public Works domain, if a street is torn up for any reason,

installing conduit at the time that it is torn up is greatly cheaper than having to specially tear up for installing conduit, and so the cost factor is just enormous, five to 10 times difference between doing it once, at the time of the major construction project, whether new or remodeled, vs. going in especially just to do EV infrastructure. If you were to cost this out over a period of years, it would be, I am sure, tens of millions or hundreds of millions of dollars, the difference. So we see the effort to promote EV-friendly Building Codes and EV-friendly Public Works Guidelines as an enormous return on investment for the State. It is not terribly costly, but it does involve some significant work. Unfortunately, as you know, Building Codes, every city has their own, there is no way to impose – you can suggest some state guidelines, there are some efforts going on now that are very important at the State level to propose model Green Building Guidelines that are EV aware, but actually driving those to adoption in local jurisdictions requires action by City Councils and Planning and Building Departments, one by one. So having regional liaisons or regional project managers for this effort is just critical, it is not going to happen without that. It is a matter of some small number, or single digit number of FTEs around the state, presumably based in – they could be based in a number of type of institutions, whether utilities

or regional consortia, or COGs, or MPOs, transit authorities, there are a variety of entities that may step forward to host these kinds of EV friendly policy and project managers, if you will. But organizing that effort, defining it, getting it moving, all extremely critical, and huge ROI for the State. So we would hope that the Commission would look kindly on resourcing that kind of effort in a timely way because I think the benefits here are huge.

And finally, developing a jointly funded public-private vendor neutral “Go EV” campaign, I think, is just kind of an obvious thing. We are very pleased to see two and a half million or so in that plan to begin that effort. We are spending a lot on “Flex Your Power,” which is great, and I understand it has had great results, there are spare the air days here in the Bay Area, Air Quality Management District, and I suspect other AQMDs, these are all possible co-bargaining opportunities with the huge GHG benefit, the EV has seen as an investment in clean air, also the “Breath California” and related efforts all have some resources that are devoted to this effort, and we would like to see some of those stakeholders brought together to plan how we can synergize, including with the auto companies, of course. I think “Go EV” is a concept that would be embraced by multiple auto makers, as an effort that raises the level for

all the layers.

I would just mention who has already come to the table for "Ready Set Charge California," and this is still an ongoing formative effort, and more partners will be joining, we have had a tremendous response from a number of jurisdictions, notably in the L.A. area, the San Francisco Area, Sacramento area, among utilities, the major utilities have all been at the table to provide their input and endorse this effort, it includes PG&E, SCE, SDG&E, LADWP, and SMUD. As I mentioned, on the OEM side, GM, Nissan, BMW, e-Tec, Coulomb, have all participated in this effort. And among EV consortia and NGOs, we have had Bay Area EV Corridor Project, Center for Sustainable Energy, Cal ETC, and others. And we look forward to adding additional partners as we go forward. But I think there has been general agreement already that close coordination stakeholders on a statewide basis is very appropriate, and we had hoped to have CEC staff sort of at the table for these, but I understand that because a number of partners had pending awards or grants into you, that was problematic, but we would like to somehow get over that hurdle and have this really be a fully collaborative effort in terms of strategies, measures, and so forth, and not just a grant submission, if you will. We see this as a means for a coordinated effort to address these installation and

infrastructure related challenges. So we would like to do it with staff, kind of at the ground floor. I think that is enough for the moment. I really appreciate – we have gotten positive feedback from staff and Commissioners, and we would just like to more fully integrate with you as we go forward, and hopefully help to get some access to resources for some of these hallowed efforts in the regions around the state. Thank you very much.

MS. BAROODY: Thank you.

MR. WARD: Thank you, Richard. We will take you up on that, I think.

MS. BAROODY: Well, are there any further comments?

MR. MARGOLIS: Shall I unmute them one more time?

MS. BAROODY: Yeah, let's go to the WebEx.

MR. MARGOLIS: WebEx is unmuted. Does anyone have any additional statements?

MS. BAROODY: No, I do not think so. Okay, well, if there are no further comments, I think we are done for the day.

MR. WARD: We would like to thank you all for coming and for all those that are on the phone, as well. We appreciate your input. And we will be convening these workshops again, or maybe one more public meeting before we adopt our Investment Plan, but I would really like to

encourage you to use our docket and to correspond with us at every opportunity. We need to hear from you. We understand that need and we take it seriously. Thank you again for all taking the time today to come and join us and we look forward to the next opportunity. Thank you.

(Whereupon, at 10:50 a.m., the workshop was adjourned.)

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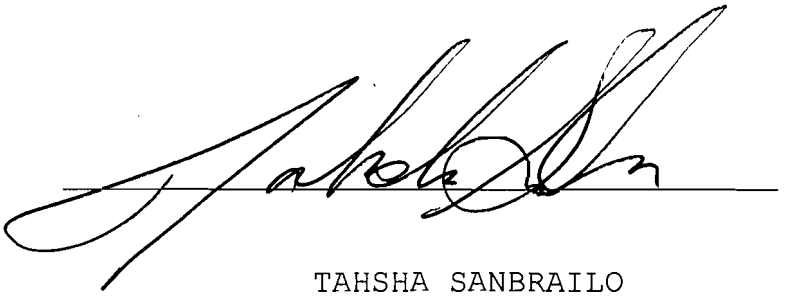
REPORTER'S CERTIFICATE

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 notary public and certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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

IN WITNESS WHEREOF,

I have hereunto set my hand this 1st day of June, 2010.



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