

BEFORE THE STATE OF CALIFORNIA  
THE NATURAL RESOURCES AGENCY  
CALIFORNIA ENERGY COMMISSION (CEC)

<b>DOCKET</b>	
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In the Matter of: )  
 ) Docket No. 10-IEP-1E  
Preparation of the 2010 Integrated ) & 10-IEP-1F  
Energy Policy Report Update )

Joint Committee Workshop on ARRA-Funded Clean Technology  
Innovation in California

CALIFORNIA ENERGY COMMISSION  
HEARING ROOM B  
1516 NINTH STREET  
SACRAMENTO, CALIFORNIA

TUESDAY, JULY 13, 2010  
10:00 A.M.

Reported by:  
Peter Petty

 ORIGINAL

Commissioners (and their advisors) Present (WebEx)

Karen Douglas, Chairman and Presiding Member, IEPR  
Committee, Federal Stimulus Program (Ad Hoc) Committee

Jeffrey Byron, Commissioner and Associate Member, IEPR  
Committee

Anthony Eggert, Associate Member, Federal Stimulus Program  
(Ad Hoc) Committee

Lorraine White, Advisor to Commissioner Eggert

Staff Present:

Suzanne Korosec, IEPR Lead  
Pat Perez  
Pedro Gomez  
Mike Gravely  
Jennifer Allen

**Also Present**

Presenters

Pat Perez, Deputy Director, Fuels and Transportation  
Division (CEC)  
Pedro Gomez, Program Manager, Energy Technology Systems  
Integration Program (CEC)  
Jim Parks, Sacramento Municipal Utility District (SMUD)  
Jeffrey Nichols, San Diego Gas & Electric Co. (SDG&E)/  
Sempra Energy  
Marco Di Paolo, Los Angeles Department of Water and Power  
(LADWP)  
Percy Haralson, Southern California Edison Company (SCE)  
Tammie Candelario, Primus Power Corporation  
Jennifer Allen, Fuels and Transportation Division (CEC)  
Ray Hobbs, ETEC/Nissan  
Matt Miyasato, South Coast Air Quality Management District  
(SCAQMD)/Port of LA and LB  
Richard Lowenthal, Coulomb Technologies  
Michael Sinkula, Envia  
Michelle Kirkhoff, San Bernardino Area Governments (SANBAG)

Public

J.P. Sweeney, Central Transit & Development Corp.  
Doug Krieger, CALGreen at Work  
Craig Horne, EnerVault

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1 P R O C E E D I N G S

2 JULY 13, 2010

10:20 A.M.

3 MS. KOROSEC: All right, we are going to go ahead  
4 and get started here. Thank you, Jim, for your patience  
5 while we are dealing with some of the technical  
6 difficulties; this room has only recently been configured to  
7 have all this audiovisual equipment, so we are still working  
8 out some of the bugs. Good morning. I am Suzanne Korosec.  
9 I manage the Energy Commission's Integrated Energy Policy  
10 Report Unit. Welcome to today's workshop on ARRA-Funded  
11 Clean Technology Innovation in California. This workshop is  
12 being held jointly by the Energy Commission's Federal  
13 Stimulus Program (Ad Hoc) Committee and the Integrated  
14 Energy Policy Report Committee.

15 Just a few housekeeping items before we get  
16 started. Restrooms are in the atrium through the glass  
17 doors and to your right. There is a snack room on the  
18 second floor of the Atrium at the top of the stairs under  
19 the white awning, and if there is an emergency and we need  
20 to evacuate the building, please follow the staff outside to  
21 the park that is kitty corner to the building, and wait  
22 there until we are told that it is safe to return.

23 Again, I apologize for the last minute change in  
24 rooms, this meeting was originally scheduled for Hearing  
25 Room A across the way, but a siting hearing there is going

1 an extra day, so we were booted over into this room, so we  
2 will make the best of it today.

3 Today's workshop is being broadcast through our  
4 WebEx conferencing system, and parties should be aware that  
5 the workshop is being recorded. We will make the recording  
6 available on our website within a couple of days of the  
7 workshop and we will also make a written transcript  
8 available without about two weeks of the workshop.

9 We have a number of presentations today and will  
10 have opportunity for Q&A after each presentation and we will  
11 also have an opportunity for more general public comment at  
12 the end of the day. At that point, we will take comments  
13 first from parties who are here in the room, and then we  
14 will turn to the folks on WebEx. For those of you who are  
15 here in the room, we would like you to come up to the center  
16 podium to ask questions or to make comments so that we can  
17 your comments on the transcript through the microphone  
18 there. And it is also helpful if you can give our  
19 transcriber a business card so that we can make sure that  
20 your name and affiliation are correct in the transcript.

21 For those of you joining us through WebEx, you can  
22 use the chat function at any time to let the WebEx  
23 Coordinator know that you would like to ask a question or  
24 make a comment, and we will open the line at the appropriate  
25 time. WebEx speakers will need to speak loudly to be heard

1 since this new system does not amplify our callers as much  
2 as we would prefer. We are also accepting written comments  
3 until the close of business on July 23rd, and the notice for  
4 today's workshop, which is on the table out in the atrium  
5 and also available on our website, explains the process for  
6 submitting those written comments.

7 Today's workshop is the third of six public  
8 workshops that we are holding as part of the 2010 Integrated  
9 Energy Policy Report Update, or IEPR Proceeding. The first  
10 workshop covered transparency and accountability, and the  
11 use of ARRA funds for energy projects in California; the  
12 second highlighted the efforts of local, regional and state  
13 government energy efficiency retrofits that are being funded  
14 by ARRA. Next week, we will be holding two workshops, the  
15 first talking about the various clean energy work force and  
16 training activities that are underway throughout California  
17 -- pardon me, I am adjusting my mic, I am told that they  
18 cannot hear us on the WebEx - and the second workshop will  
19 cover the Energy Commission's Clean Energy Manufacturing  
20 Program, which is providing financial support to businesses,  
21 technology developers, and vehicle fleet owners, to  
22 encourage the production of clean energy technologies and  
23 fuels. Finally, on July 29<sup>th</sup>, we will look at how ARRA  
24 funding is helping to increase the energy efficiency of  
25 existing buildings, consistent with the State policy of

1 achieving all cost-effective energy efficiency, and how  
2 those efforts can be a foundation for additional efforts in  
3 the future. More information about each of these workshops  
4 is available on our website with the workshop notices, and  
5 we will also be posting the agendas two days before each  
6 workshop.

7           Just some quick background on the IEPR, itself. The  
8 Energy Commission is required in statute to produce an IEPR  
9 every two years, in odd numbered years, that takes a look at  
10 California's energy markets, including expected energy  
11 supplies and demand, energy production, delivery,  
12 distribution, market trends, and the major energy policies  
13 that are facing the State. We also prepare an update to the  
14 IEPR in the intervening years, that provides a progress  
15 report on IEPR topics and identifies any new developments or  
16 issues may have arisen.

17           This year, with the large influx of Recovery Act  
18 funding into California, the IEPR Committee has decided to  
19 focus the 2010 IEPR update on examining the impacts of that  
20 funding, the benefits, the challenges, and the energy policy  
21 implications of this large investment of Stimulus funding  
22 into California's energy sectors, and how these funds are  
23 going to help us achieve our long term and environmental  
24 goals.

25           Today's workshop is focusing on how the Energy

1 Commission is using its existing program funds to leverage  
2 federal ARRA funds and bring more of those dollars to  
3 California to stimulate our economy and to grow our Clean  
4 Tech sector. We are providing cost share funding through  
5 both our Public Interest Energy Research Program and our  
6 Alternative and Renewable Fuel and Vehicle Technology  
7 Program. Our agenda today will start with an overview of  
8 the energy-related ARRA funds that are coming to California,  
9 followed by presentations on the PIER Program and its  
10 contribution to leveraging ARRA funds, and we will hear  
11 first from Energy Commission staff with an overview of both  
12 the PIER Program, followed by presentations from individual  
13 projects who are receiving cost share funding from PIER.  
14 Now, in the afternoon, we will hear about the Alternative  
15 and Renewable Fuel and Vehicle Technology Program cost share  
16 efforts, again, starting with the presentation by the Energy  
17 Commission staff, followed by presentations from cost share  
18 recipients. And then, we will finish up at the end of the  
19 day with an opportunity for public comment. So, with that,  
20 I will turn it over to the Commissioners for opening  
21 comments.

22 CHAIRMAN DOUGLAS: Good morning everybody. I am  
23 Chairman Douglas, Chair of the Energy Commission and  
24 Presiding Member of the ARRA Committee. I am joined on my  
25 immediate right by Commissioner Byron, the Presiding Member



1 of the R&D Committee and, to his right, Commissioner Eggert,  
2 the Associate Member of the Transportation Committee. To  
3 Commissioner Eggert's right is Lorraine White, Commissioner  
4 Eggert's Advisor.

5 I would like to kick this off by welcoming everybody  
6 to the Energy Commission for this IEPR Workshop. We are  
7 tremendously interested in what the speakers and the members  
8 of the public have to bring to our attention today. Most of  
9 the attention, I would say, of the outside world on the  
10 Energy Commission's work on the Recovery Act has focused on  
11 the funds that we are administering directly. However, we  
12 have been putting a tremendous amount of effort and  
13 attention into not only the funds that we have administered  
14 directly, but also the competitive funding that the  
15 Department of Energy has made available, competitively, and  
16 that the State of California, because of the tremendous  
17 depth of talent in the Clean Energy area, in our public  
18 sector, private sector, and certainly in the universities  
19 throughout the state, that California has great potential to  
20 go after and to bring back to California to the benefit of  
21 the state. For that reason, we have put a significant  
22 amount of the State Research funds forward as potential  
23 match funding in order to strengthen applications of  
24 California Applicants in areas where we felt the state has a  
25 strong competitive opportunity to bring funding back to

1 California, and where the Federal solicitations were in line  
2 with and furthered State objectives. Part of what we are  
3 here today to do is to hear about how that strategy has  
4 worked, what benefits have been brought to California, and  
5 what more remains to be done.

6 I am very pleased, again, to welcome you, and I  
7 would like to ask my fellow Commissioners if they would like  
8 to make some opening statements.

9 COMMISSIONER BYRON: Thank you, Madam Chair, good  
10 morning. Jeff Byron, and I would like to just say a couple  
11 of things. You know, probably you all read the same things  
12 I do in the newspaper, Government is not necessarily known  
13 for creating jobs; in fact, there are a lot of folks who  
14 kind of figure that, in the long run, since the primary  
15 source of revenue for Government is taxation, that it  
16 actually reduces jobs. And there are many who believe that  
17 the Stimulus package is not working, those folks are getting  
18 plenty of voice, and that we may not really know for another  
19 two or three years if, indeed, the Stimulus package that we  
20 are working with here today is going to be effective. But  
21 let me just mention a few things. I am not an Economist, I  
22 am not an Ideologue, and we will know in a few years,  
23 indeed, whether or not this is all going to work. But  
24 today, what we are really interested in is making sure that  
25 we maximize what we have, what we are working with, and what

1 we have been given. There is an enormous pool of funds  
2 available and California has been endeavoring to get as much  
3 of that into the state as we can and to apply it  
4 effectively. These are not just any funds, these are  
5 earmarked by the Department of Energy to save consumers  
6 money while creating jobs. And the most important point I  
7 want to make is that we are accelerating programs and  
8 policies in California that we already know work. We are  
9 accelerating research programs and demonstration projects  
10 that have proven to save consumers money and create new  
11 technologies. I was reminded about a report that just came  
12 out last month by the American Innovation Council, which is  
13 a small group of some of the United States' more successful  
14 CEOs, in any case, that tries to make the case that the  
15 Department of Energy, the Government needs to spend at least  
16 \$15 billion a year on energy research, and this is coming  
17 from the private sector, this is coming from the venture  
18 capitalists. We are doing that to some extent with these  
19 funds here today. So, I am very interested in learning how  
20 the Public Interest Energy Research and the Alternative and  
21 Renewable Fuel and Vehicle Technology Program funds have  
22 been used to leverage these American Recovery and  
23 Reinvestment Act Funds in the state, to hear from the  
24 participants and the recipients of those funds. I want to  
25 hear the good news, but I also want to hear what we could do

1 better, and what we may have done wrong. Commissioner  
2 Eggert.

3 COMMISSIONER EGGERT: Thank you, Commissioner, and  
4 thank you, Madam Chair. It is a great pleasure to be here  
5 today. I am looking forward an informational packed  
6 workshop to discuss these issues. I wanted also to just  
7 make a couple of quick points before going into the meat of  
8 this. I think we do have some good news in California.  
9 Clean energy and energy efficiency technology as industries  
10 are kind of one of the shining lights of our struggling  
11 economy here in the state, it is one of the few areas that  
12 is actually adding jobs and attracting new companies and new  
13 measures into the state. And we are, as a state, seeing  
14 some of the most significant private capital, including  
15 venture capital, coming in to support these clean energy  
16 technologies. And I just wanted to pick up on a theme; you  
17 had mentioned the fact that, you know, government is not  
18 always known, necessarily, for being the most effective job  
19 creator, and I think we do have to kind of recognize our  
20 role and our ability to influence these markets. It really  
21 does rely on our ability to form effective partnerships, not  
22 just with federal government, regional, and local  
23 governments, which we will hear about a lot today, but also,  
24 of course, the private industry and the private investors,  
25 because our success will be based on our ability to leverage

1 all of those resources to create successful commercial  
2 enterprises, and transform these industries into sort of the  
3 new energy economy that I think is going to help drive our  
4 state economy. You are seeing a lot of really great  
5 examples of the technologies that we have been supporting  
6 through the PIER Program, the R&D Program now being brought  
7 into the marketplace, and I think that is really exciting to  
8 see some of those incubations actually bearing fruit. I  
9 think, also, just to get a sense of the scale of some of  
10 these markets, we will be hearing a lot about the AB 118  
11 program that supports our investments in clean vehicle  
12 technologies and low carbon fuels, that is about \$100  
13 million a year, which sounds like a lot, but when you  
14 compare it to what we spend on fuel on a daily basis, we  
15 spend over \$150 million per day on gasoline and diesel fuel  
16 just in California. So, again, our ability to transform  
17 that marketplace is really going to be dependent upon our  
18 ability to make very strategic and leveraged investments in  
19 that space, and I look forward to hearing more of that  
20 today.

21 Finally, I would just like to say that, as a general  
22 rule, I am very interested in hearing, including from some  
23 of the folks that will be presenting from the private  
24 sector, is how do we facilitate this transition as we are  
25 moving from these state funded programs, you know, are the

1 investments that we are making the most strategic, are they  
2 done in such a way that they fill the gaps, that are not  
3 filled by the private sector, and how do we transition to  
4 that sustainable commercial market? So, with that, I will  
5 turn it back over to Suzanne and look forward to the  
6 discussion.

7 MS. KOROSSEC: We will go ahead and we will start  
8 with our first speaker, who is Pat Perez, who will be  
9 talking about the Economic Recovery Program here at the  
10 Commission.

11 MR. PEREZ: All right, good morning, Commissioners  
12 and Advisors, and welcome to those listening in today.  
13 Today, I would like to talk a little bit about the American  
14 Recovery and Reinvestment Act Competitive Funding Programs,  
15 and talk about the broad range of clean energy projects that  
16 will, over the next few years, bring us long term benefits.  
17 I would also like to acknowledge up front that the Energy  
18 Commission has been actively involved in going after these  
19 competitive solicitations, working with many of our  
20 partners, whether they be utilities, local government, and  
21 the private sector. And there have been literally over 100  
22 U.S. Department of Energy solicitations, of which the Energy  
23 Commission has been tracking and reporting on. And Vanessa  
24 Kritwell, in the very back corner of the room, has been  
25 instrumental in keeping track of the many many multiple

1 solicitations and awards that we have been following and  
2 pursuing, so I want to acknowledge her for the tremendous  
3 work that she has done, as well as the entire Recovery Act  
4 team here at the Energy Commission.

5           Today, what I would like to do is cover four items:  
6 give you a general overview of the DOE funding  
7 opportunities, also share with you the energy money that is  
8 coming in from these competitive awards to California,  
9 highlight for you a few of the larger competitive and  
10 noteworthy awards, and then, finally, close on the world of  
11 leveraging and cost sharing with respect to ARRA.

12           Certainly, it has been an exciting time here at the  
13 Energy Commission and throughout California with the  
14 Recovery Act, and it is all about creating a cleaner energy  
15 supply future for all of us. This figure displays what  
16 Congress allocated through the U.S. Department of Energy for  
17 a variety of energy programs. This is over \$30 billion,  
18 which represents, from my perspective, a significant down  
19 payment on the country's both energy and environmental  
20 future. This money, of course, is targeted for businesses,  
21 universities, national labs, non-profits, state and local  
22 government, and Indian tribes, so this essentially gives you  
23 a graphic depiction of where the allocations were made.

24           This slide provides you with some examples of the  
25 many competitive solicitations that DOE conducted, as well

1 as the funding awards that were provided in the over 100  
2 solicitations that were conducted over the past year and a  
3 half. Many of these programs that are outlined here on this  
4 slide contained multiple funding solicitations, but this  
5 just gives you a sampling of some of the areas with respect  
6 to energy efficiency, renewable energy, upgrades to the  
7 electrical grid, transportation energy programs, carbon  
8 capture and storage, as well as science and innovation, an  
9 area that I will be speaking about here in a few minutes  
10 where California did very well in terms of competing.

11 Governor Schwarzenegger, early on responded to the  
12 Recovery Act by directing state agencies and departments to  
13 go after these competitive solicitations in an aggressive  
14 manner, so that we could capture a significant share of what  
15 was available from the American Recovery Act. This table  
16 here is a combination of what I call a formula grant and  
17 competitive funding awards that have been made to date, as  
18 of a couple weeks ago. Just within California, alone, \$2.3  
19 billion has been awarded to the State, and that represents  
20 roughly 501 projects in California. And then, if you look  
21 at the tax credits and other grants that came out of the  
22 Recovery Act, there is another 257 projects that will  
23 benefit from this federal funding over the next couple of  
24 years. The section that is in green there reflects the  
25 split from the previous pie chart; as you can see, roughly



1 of the money coming to California, a lion's share has been  
2 in the energy efficiency and renewable energy programs, that  
3 is roughly half of the money that California has received  
4 has been in that area. Overall, California has received  
5 about 8 percent of the national share, so we would have  
6 liked to have done better, but because of other competing  
7 needs throughout the country, in some areas we did much  
8 better than others. Because of California's incredible  
9 academic institutions and national laboratories out here in  
10 California that have focused on Science, you can see that we  
11 have done very well when it comes to Science, as well as the  
12 fossil energy, which is carbon capture and sequestration,  
13 and as well as advanced research projects.

14 CHAIRMAN DOUGLAS: Pat, quick question on that.

15 MR. PEREZ: Yes.

16 CHAIRMAN DOUGLAS: Does that 8 percent also include  
17 funds such as, for example, nuclear funding, which we got  
18 none of because we really have very little that would have  
19 been applicable, correct?

20 MR. PEREZ: That is accurate. One of the reasons  
21 why we did so poorly there is much of the - the eastern part  
22 of the country where a lot of the nuclear waste disposal  
23 issues have arisen over the last five or 10 years, that is  
24 where the federal government decided to focus the clean-up  
25 efforts, on those projects that have the greatest need. And

1 that is why we did so poorly in that category.

2 COMMISSIONER EGGERT: One other clarification. I  
3 think it is in a later slide, you talked about an additional  
4 \$22 million of ARPA projects in Slide A, is that not  
5 reflected in this first lighting category? These were just  
6 announced within the last -

7 MR. PEREZ: Yes, these were added. Slide A is  
8 updated to reflect yesterday's announcement. This slide has  
9 not been updated to reflect yesterday's announcement. So,  
10 again, here is the breakdown as of mid-June in terms of the  
11 funding that is coming to California, so you can see a  
12 significant share, again, is in the energy efficiency and  
13 renewable energy front, and also electricity delivery and  
14 energy reliability is also a significant component. Again,  
15 most of the money that is captured and reflected in this pie  
16 chart is a result of competitive solicitations, and really  
17 designed - this funding, anyway - is designed to fund  
18 initiatives that will provide longer term benefits.

19 COMMISSIONER BYRON: Pat, sorry for the  
20 interruption, does the Smart Grid funding appear in the  
21 electricity delivery?

22 MR. PEREZ: Yes, it does.

23 COMMISSIONER BYRON: Okay, thank you.

24 MR. PEREZ: What I thought I would do for the next  
25 couple minutes is just highlight some key large projects in

1 California where we have received awards from DOE, including  
2 BrightSource Energy, a \$1.4 billion loan guarantee, which  
3 will support construction of a large utility scale  
4 concentrated solar power plant down in the Mojave Desert, as  
5 well as the attention that Tesla Motors has been getting for  
6 their \$465 million loan for the manufacturing facility in  
7 Fremont, and then also Sacramento Municipal Utility  
8 District, who is here today, will be talking a little bit  
9 more about the details of their awards, which is the \$127.5  
10 million Smart Grid system that we are all very excited  
11 about, and certainly through the Energy Commission's Public  
12 Interest Energy Research Program, we are going to be  
13 providing about \$1 million in cost share, pending  
14 finalization of the DOE grant agreement. So, you will be  
15 hearing more about the specifics of these projects, as well  
16 as the AB 118 projects from other speakers.

17 COMMISSIONER BYRON: Mr. Perez, are you excited  
18 about the SMUD project because you live here in Sacramento?

19 MR. PEREZ: I do not want to pose any conflicts of  
20 interest, but certainly, yeah, that is very exciting, is  
21 being one of SMUD's customers. A couple other exciting  
22 projects in California is the hydrogen energy project down  
23 in Bakersfield, it is a \$308 million project, and then also  
24 a number of small businesses throughout California were  
25 awarded additional funding for innovation research

1 development and deployment of clean energy technologies with  
2 respect to renewable energy. There are also 11 other  
3 California entities who were awarded \$22 million in the  
4 advanced research projects, agencies solicitation - many of  
5 you may have seen those awards posted yesterday by DOE - and  
6 we did extremely well in that solicitation, nearly a quarter  
7 of the total awards came to California, and I think that  
8 speaks volumes about the cooperative relationships and  
9 partnerships that were developed for these competitive  
10 solicitations, which benefitted from input from academic  
11 institutions, the private sector, and government, as they  
12 brought their various expertise together to develop very  
13 strong applications that provided cost share funds that  
14 helped us achieve these awards. And, again, you will be  
15 hearing more about these awards following my presentation  
16 and later this afternoon.

17 I also wanted to call to your attention one example  
18 of the Energy Commission using the State Energy Program  
19 formula grant to develop an innovative, competitive program  
20 to support the private sector. This is also known as the  
21 Clean Energy Business Financing Program that we are very  
22 excited about, specifically targeted for the private sector,  
23 encouraging the production and manufacture of energy  
24 efficiency components, as well as renewable energy. We will  
25 be posting proposed awards later this week, and we are very

1 excited about that. And following the posting of the  
2 awards, and further discussion, hopefully we will be  
3 approving the loan awards sometime in August, so that we can  
4 get these manufacturing facilities running quickly to  
5 provide much needed jobs.

6           Finally, as I mentioned, the value and the  
7 importance of pulling resources across multiple communities,  
8 government, the private sector, and other entities has been  
9 critical and crucial for attracting and securing these  
10 federal awards from DOE. The leveraging of these funding  
11 sources allows us to cover more projects in the state, but  
12 also provide greater benefits because we are tapping into  
13 different expertise and strengths of different government  
14 and private sector entities. The Energy Commission is  
15 leveraging more than \$800 million in federal and other  
16 public-private sector funding through these awards, and I  
17 will say, the other thing that the Commissioners have done,  
18 as well as the Governor, that has been in my mind very  
19 effective is providing support letters for entities that are  
20 competing in these competitive solicitations. The Energy  
21 Commission, alone, provided over 120 letters of support in  
22 these applications that went to DOE, as well as providing  
23 much needed critical cost share funding to strengthen the  
24 proposals because one of the things that was contained in  
25 many of these solicitations were matching share requirements

1 of either 20-50 percent, just to apply for this funding, so  
2 it was instrumental and very effective in securing support.  
3 The other benefit that came out of this whole Recovery Act  
4 and our ability to work with others is it forced government,  
5 as well as the private sector and others out of their  
6 particular silos because, in putting together these  
7 applications, we had to work together and learn from others'  
8 expertise. I think one of the tremendous untold stories of  
9 the Recovery Act is that we have new partnerships that have  
10 been formed, and parties working together that had never  
11 worked together in the past with respect to governments in  
12 Northern California, working with Southern California, the  
13 private sector working with regional entities in the San  
14 Joaquin Valley, that would have never existed without these  
15 funding opportunities. And certainly the Energy  
16 Commission's work with the Employment Development Department  
17 and other entities that are managing the Clean Energy Work  
18 Force Training Funds have forged long term partnerships that  
19 I think will be around for many many years, and hopefully  
20 decades.

21           The next table provides the cost share awards that  
22 the Energy Commission is providing under the Alternative  
23 Renewable Fuel and Vehicle Technology Program, also referred  
24 to as AB 118, and this just provides you a nice cross  
25 section of the \$36.5 million that the Energy Commission is

1 providing to various utilities and private companies and  
2 local governments to leverage and bring more funding to  
3 California for a variety of transportation energy-related  
4 programs and projects. You are going to be hearing details  
5 on each one of these projects later today, but these  
6 activities will certainly create jobs and position  
7 California to play a major role in shaping California's  
8 emerging and new energy future, so we are very excited about  
9 these opportunities. With that, I think I will close and  
10 certainly be pleased to respond to any questions. I do have  
11 another commitment over at Business, Transportation, and  
12 Housing with the Financial Development Corporations to talk  
13 about the Clean Energy Business Financing Program here, in  
14 about 45 minutes, so I will stick around if there are any  
15 questions.

16 COMMISSIONER BYRON: Mr. Perez, are you providing  
17 this presentation in your new capacity as Director of the  
18 Transportation Division? Or in your old capacity of running  
19 the ARRA Program here at the Commission?

20 MR. PEREZ: Well, I thought I was going to escape  
21 the ARRA Program in my new capacity, but I have not. The  
22 program has followed me. And, certainly, with AB 118  
23 program and the cost share funds, so I guess I am  
24 representing my new position as Deputy Director for Fuels  
25 and Transportation Division.

1           COMMISSIONER BYRON: All right. Thanks for being  
2 here. A very good presentation.

3           MS. KOROSSEC: Do we have any questions from the  
4 audience? Lynette, do we have anything on WebEx? All  
5 right.

6           COMMISSIONER EGGERT: I have a quick follow-up.  
7 Just with respect to the breakdown, actually on slide 10, do  
8 we have - this looks like the aggregate for the - this is  
9 PIER and the AB 118, this is combined? Do we have the  
10 breakdown within the public and private to what extent which  
11 portion of that is public vs. which portion is private?

12          MR. PEREZ: We may be able to get that for you, what  
13 the breakdown is on that. I do not have it with me. So I  
14 can get back to you on that.

15          CHAIRMAN DOUGLAS: Thank you, Pat. I would also  
16 just like to ask, and obviously you will do this, but that  
17 we keep the IEPR Docket fully up-to-date as new awards come  
18 out, so that when we put out the draft and later finalize  
19 the IEPR, we are able to reflect and have in one document  
20 for the public to see the most up-to-date status of these  
21 awards.

22          MR. PEREZ: Will do.

23          COMMISSIONER BYRON: In fact, you just reminded me,  
24 Madam Chairman, Pat, maybe you said this, but do we have a  
25 sense of how much ARRA funds are still outstanding, that is,



1 to be awarded?

2 MR. PEREZ: I believe it is less than six  
3 solicitations and it is under \$100 million nationally, I  
4 believe, and it is my understanding that the Feds will have  
5 to announce those awards probably in August. They certainly  
6 have to do it before the end of the fiscal year, which is at  
7 the end of September, but their goal was to get all the  
8 awards out in July, but I have a feeling some of them may  
9 spill over into August. But most of the money is gone.

10 COMMISSIONER BYRON: So you said about \$100 million?

11 MR. PEREZ: Yeah.

12 COMMISSOINER BYRON: Nationally, and does that  
13 include these energy hubs, as well, that I believe are still  
14 pending?

15 MR. PEREZ: I am not sure. I can get you the list  
16 of the outstanding solicitations. We have a running table  
17 which we can provide to the committee and perhaps provide it  
18 to you later this afternoon.

19 CHAIRMAN DOUGLAS: Good.

20 COMMSSIONER BYRON: Okay, because there is at least  
21 one of those that I think we are very interested in, that is  
22 why I asked.

23 MR. PEREZ: Okay.

24 COMMISSIONER EGGERT: I think, yeah, there are two,  
25 the fuels to sunlight in the buildings hub that we have a

1 number of proposals, and I believe those are actually funded  
2 outside of the ARRA budget, but actually I thought your  
3 question was with respect to California's incumbents of the  
4 ARRA dollars, and maybe just give a quick update of that, I  
5 do not know if it showed up in the presentation here or not.

6 MR. PEREZ: On which -

7 COMMISSIONER EGGERT: On the total ARRA received  
8 from the state.

9 CHAIRMAN DOUGLAS: That we are administering?

10 COMMISSIONER EGGERT: Yeah.

11 MR. PEREZ: Yeah, I do not have the actual figure.  
12 You are referring to the \$2.3 billion that has come to  
13 California and how much of that is encumbered? Because  
14 those are actual awards.

15 COMMISSIONER EGGERT: Okay, actually, I realized -

16 MR. PEREZ: Yeah. And I do not have in terms of  
17 what has been encumbered by the individual entities for all  
18 those competitive awards yet, but that is essentially what  
19 has been awarded.

20 COMMISSIONER BYRON: Right.

21 CHAIRMAN DOUGLAS: So, Pat, I would like to just  
22 take this opportunity to thank you and acknowledge you for  
23 your work, broadly on ARRA, but also specifically on these  
24 competitive programs, because that was a big part of your  
25 job description, even though that was not always first and

1   foremost what we were asked about. I would also like to  
2   thank Vanessa back in the corner, for her detailed work in  
3   creating and keeping all these charts. And as we go through  
4   the day, we will hear from Program staff who also turned  
5   their lives upside down to take advantage or help California  
6   take advantage of these funds. But we really do appreciate  
7   it.

8           MR. PEREZ: Thank you for the kind comments,  
9   Chairman Douglas and Commissioners.

10          COMMISSIONER BYRON: Pat does not need a microphone.

11          MS. KOROSEC: Unfortunately, we do for the WebEx,  
12   for the folks out in the ether there. All right, next we  
13   will be hearing from Pedro Gomez with our PIER Program.

14          MR. GOMEZ: Good morning, Commissioners, Advisors,  
15   folks in the room, and folks online. My name is Pedro Gomez  
16   and I am the Program Manager for the Energy Technology  
17   Systems Integration Program. I would like to start by  
18   giving you a brief overview of PIER and when it started. In  
19   1997, we were established through AB 1890. We are a program  
20   that receives \$86 million annually. We have over \$400  
21   million in active projects currently. Our projects are  
22   focused on a strong emphasis on the partnerships. We  
23   partner with federal and state agencies, national  
24   laboratories, universities, and private researchers. So we  
25   say that research powers our future. We fund research to

1 meet our energy policy goals. Our research projects in one  
2 way or another tap into our research goals, in particular,  
3 greenhouse gas emission reduction, renewables portfolio  
4 standards accomplishments, 32 percent generation coming from  
5 renewable sources by 2020, zero net energy Smart  
6 Communities, a variety of alternative fuels, in particular,  
7 Electric Fuel Vehicles, we look to enable ratepayer  
8 participation to reduce their cost, and finally, we focus on  
9 creating jobs in the clean energy economy.

10           So over the last 10 years, PIER has been focused in  
11 the Smart Grid area, specifically, long before Smart Grid  
12 was coined "Smart Grid." We were doing work in areas of  
13 synchrophasors, energy storage, renewable integration,  
14 demand response, print security, electric vehicle  
15 integration to the grid, and other Smart Grid areas. I  
16 wanted to point these out to you because you will see  
17 further on in this presentation that much of the work that  
18 the Department of Energy has awarded through the ARRA  
19 Program focuses in on much of the technology that PIER had a  
20 hand in pioneering, specifically synchrophasor measurement,  
21 which is a diagnostic tool for the electric grid system. We  
22 have a number of storage technologies that we assisted in  
23 developing, getting started, and in fact, a couple of those  
24 have gone on to get venture capital and actually won awards,  
25 so we are grateful that this happened.

1           Okay, so I have told you about PIER, briefly, and so  
2 along comes the American Recovery and Reinvestment Act. And  
3 I want to focus specifically on the Smart Grid funding  
4 opportunity announcements, which were FOA 36, focused on  
5 Smart Grid demonstrations and FOA 58, which was Smart Grid  
6 Investment Program. DOE put out \$4.5 million to address  
7 areas specifically, again, demand response, grid security  
8 and storage, renewable integration, distribution automation,  
9 synchrophasor deployment, and plug-in hybrid electric  
10 vehicles. Again, I want to point back to the previous  
11 slide, some of this work that we were doing over the last 10  
12 years is exactly what they are doing now at the national  
13 level. This is why we believe California is a leader in  
14 Smart Grid, not just development, but deployment.

15           So, we saw this as a great opportunity to help  
16 California-based projects win DOE awards through the  
17 Stimulus Program. We wanted to focus in on awarding  
18 projects in California that supported California's energy  
19 policies, provided ratepayer benefits, developed a clean  
20 energy work force, and expanded California's Clean Tech  
21 business globally. We put out a solicitation inviting those  
22 California-based projects to apply for Energy Commission co-  
23 funding. If they met the requirements through the  
24 solicitation, we initially would provide them a letter of  
25 support that they would include with their application to

1 the Department of Energy through our communication with the  
2 Department of Energy and folks throughout the state, we were  
3 led to believe that projects in California that received  
4 support from the Energy Commission would enhance and elevate  
5 their projects in the eyes of the Federal Government, so we  
6 wanted to do that. If those projects went on to win an  
7 award from the Department of Energy, we are providing co-  
8 funding, indeed, to the tune of about \$1 million or 10  
9 percent, whichever is less. Additionally, in some projects,  
10 because of our history in doing research and developing  
11 projects, we have provided some technical insights and  
12 provided some feedbacks to enhance and improve California-  
13 based project applications to the DOE.

14           So you may ask, why did we support ARRA projects?  
15 Well, in the previous slide, I gave you some reasons why.  
16 But, selfishly, we felt this was a great opportunity to  
17 accelerate Smart Grid implementation in California. As an  
18 example, PIER spends anywhere from \$10-14 million in Smart  
19 Grid research annually; we saw this as an opportunity, with  
20 federal funds coming into the state, to exponentially move  
21 Smart Grid from where we are today, at a much faster rate.  
22 So we are looking at modernizing the electric grid, and we  
23 wanted to participate in these projects for a variety of  
24 reasons, in particular, we wanted to be in these projects  
25 from the very beginning through their conclusion, we wanted

1 to identify what the issues are as they developed and  
2 deployed the technology, we want to take those lessons  
3 learned, and we want to share them with other California-  
4 based projects, along with the general public. We wanted to  
5 identify the research gaps as these projects unfold, and  
6 then take our regular PIER funding and fund additional  
7 research to overcome those challenges. We looked to  
8 identify the needs for and help in the coordination of  
9 standards development. As an example, the Demand Response  
10 Research Center, which is a center that we initiated,  
11 started, the work that they have done in opening automated  
12 demand response is now being used at the national level to  
13 develop national communication protocols and standards. We  
14 felt that our projects formed the foundation for  
15 California's clean energy economy, and we feel that PIER  
16 supported projects will help meet the state's energy and  
17 environmental policy objectives.

18           So, the numbers. PIER put aside about \$30-35  
19 million to support California-based projects. To date, we  
20 have allocated \$22 million, about 24-25 projects. For those  
21 \$22 million, DOE has awarded or is in the process of  
22 awarding almost \$400 million to California-based projects.  
23 Because these projects are 1:1, so if you apply for a  
24 dollar, you needed to show up with a dollar, the third-party  
25 contributors to these projects are bringing in almost \$785

1 million, the total Smart Grid projects in California is  
2 somewhere near \$1.2 billion to date. So, going back to what  
3 we normally spend on an annual basis, \$10-14 million a year,  
4 we are going to see \$1.2 billion in Smart Grid over the next  
5 two or three years, so you can see why we are excited about  
6 the potential of this funding coming into California. With  
7 that said, I would like to open it up to any questions you  
8 may have.

9 COMMISSIONER BYRON: Really more a comment, Mr.  
10 Gomez.

11 MR. GOMEZ: Yes, sir.

12 COMMISSIONER BYRON: You know, chairing R&D and  
13 having the opportunity to chair the Transmission Research  
14 Advisory Committee with you and Mike Gravely, I have had  
15 opportunity to see all of these activities up close, and I  
16 am very interested in hearing from the participants in these  
17 projects, but I think really more, just a comment, for the  
18 public present and my fellow Commissioners, who probably  
19 know all this stuff already, but these ARRA funds when they  
20 came in, when we first heard about them, were really  
21 unplanned and new. We really did not know how we were going  
22 to deal with these - they were competitive, the amounts were  
23 unknown, and, of course, we wanted to maximize our take. We  
24 wanted to get as much of these funds and projects as we  
25 could in California, and so it took a lot of collaboration.



1 I mean, the state really was in a facilitating role here  
2 because, as we will hear later, these were proposals that  
3 were made mostly on a competitive nature. So, you know, I  
4 went to Washington, D.C. with Commissioner Chong early on  
5 and we met with DOE and OMB, and we met with Legislative  
6 staff trying to make a case for "California is where you  
7 want to award these projects," but it is the private sector  
8 and the utilities that came forward with the innovative  
9 proposals, and the staff had to figure out how to leverage  
10 and maximize our research funds to help the competitiveness  
11 of these proposals, leverage our funds as best we could, and  
12 to do this fairly and quickly. And I think the staff did a  
13 very good job. We wanted more, of course. But I think - I  
14 applaud the staff's efforts for being quick here and  
15 creative. And we took on a lot of liability that we did not  
16 anticipate in terms of committing the R&D funds going  
17 forward, but I think it was a good gamble, a good venture,  
18 and I am very hopeful that this will all pay off. We will  
19 hear from some of the folks later on here as to how  
20 effective our approach was, but before we do, I would like  
21 to give you my thanks for the way you and the staff moved so  
22 quickly on this.

23 MR. GOMEZ: Thank you. If I may just add for a  
24 moment, a lot more that we have done in this market area,  
25 prior research and the thoughts about how to support these

1 projects for ARRA, I think, come from Mike Gravely, and he  
2 has been kind of the vision for us, and he has given us the  
3 leadership and given us some flexibility to go out and do  
4 the best that we can, and from my staff, that you know, we  
5 have been working under slower conditions, but we have been  
6 working long long hours, and so, you know, I thank them, and  
7 I also want to thank the folks who actually applied for  
8 support, the California-based projects, to folks that I have  
9 interacted with and worked with, as they developed their  
10 applications, it has been tremendous, it has been a great  
11 opportunity.

12 COMMISSIONER BYRON: Good, I concur. Mr. Gravely  
13 did an excellent job, as did all of the staff.

14 COMMISSIONER EGGERT: Yeah, just a quick comment, as  
15 well. And I think you are right, I mean, the fact that all  
16 of this came in at the same time -- we also had furloughs --  
17 is a testament to the hard work that the staff did in  
18 maximizing the opportunity that was presented. I was very  
19 encouraged to hear you mention the Demand Response Research  
20 Center. You know, I think the fact that we have been  
21 contributing to developing some of the institutional and  
22 technical capacity over multiple years, I think, has  
23 benefitted us in being able to compete for these projects  
24 because we have kind of our go-to experts that we can draw  
25 upon, and I think that is just one example within PIER, and

1   there is also the California Lighting Technical Center,  
2   which I know has provided a lot of technical expertise to a  
3   lot of the projects that are being pursued with respect to  
4   lighting technology deployment, there is the Plug-In  
5   Electric Vehicle Research Center, which is also  
6   participating in evaluation of one of our cost shares, and  
7   AB 118 programs that we will be hearing about, the ETEC  
8   project, so I just wanted to commend the group, the PIER  
9   team, for having the foresight to establish some of these  
10   efforts, so that we do have that capacity here in the state  
11   to be able to pursue these opportunities.

12           CHAIRMAN DOUGLAS:  And Pedro, briefly, I would also  
13   thank you and the other members of the PIER staff who worked  
14   with you, and for putting in the hours and making this  
15   happen because this has been tremendously important for the  
16   state.  And I just have a couple questions, and these are  
17   not questions that we asked you to address, specifically  
18   today, so you are excused if you take a pass, I want to  
19   invite you to take a shot at them if you would like and -

20           MR. GOMEZ:  I have got resources in the audience.

21           CHAIRMAN DOUGLAS:  Well, that is good, I would like  
22   to invite members of the public and the speakers who are  
23   coming up later to also speak to them if they would like.  
24   But, I am interested broadly in where ARRA has moved us  
25   forward in our PIER agenda, and I will be asking the 118

1 staff the same question, where has it moved us forward  
2 exponentially? And in those areas where you see that it has  
3 moved us forward exponentially, what are some of the  
4 challenges that come with jumping forward exponentially in a  
5 way that was unplanned, and how do you see us working with  
6 the award recipients over time to address the challenges  
7 that are likely to arise? And finally, where has this focus  
8 on this tremendous ARRA opportunity led us to, by virtue of  
9 focusing on these opportunities, maybe invest less staff  
10 time and effort in other areas that are important parts of  
11 our broader agenda, that we may need to take a step back and  
12 refocus on once the ARRA challenge is not necessarily behind  
13 us because it will not be for many many years, but has at  
14 least moved on to the next stage? I guess I just wanted to  
15 put that out there as questions that I am looking at now,  
16 and invite you to take a shot at any one of those that you  
17 would like, and I also invite members of the public who have  
18 opinions on these issues to weigh in.

19 MR. GOMEZ: Okay, so maybe I will throw this out.  
20 Lots of the projects, a number of the projects, call for  
21 implementing Demand Response. That is something that we  
22 started through the Demand Response Research Center, but  
23 that is something that, you know, I think legislatively we  
24 are not to start using Smart Meters until - I think it is  
25 2020. Doing these demonstrations and tests of demand

1 response on a larger scale is going to give us a great deal  
2 of understanding of whether this works or it does not work,  
3 where we can step in now, once these projects start  
4 unfolding, in supporting and actually developing the  
5 standards that need to be developed to allow not just the  
6 utilities to control the data that is being collected  
7 through Smart Meters, but allow the private sector to come  
8 in and provide their ingenuity and develop new products that  
9 can be used by consumers. So that is what I would say.  
10 Then, the second part, could you just repeat that second  
11 question because I had a response for you on the second.

12 CHAIRMAN DOUGLAS: So, what are some of the other  
13 areas beyond Smart Grid, if you would like to take a stab at  
14 that, where you see our agenda moving forward exponentially,  
15 what are some of the areas where the focus on ARRA and these  
16 tremendous opportunities that we did not want to let pass,  
17 diverted our attention from other issues that we may need to  
18 pick up?

19 MR. GOMEZ: Well, I will answer this in this way, so  
20 in the Smart Grid area, because we have been so focused  
21 over, what, the last year and a half, in supporting these  
22 projects, we have kind of taken a step back from funding  
23 research to overcome some of the challenges that we know  
24 exist. So, I would say that is where we have kind of fallen  
25 - I would not say fallen behind, but our focus has kind of

1   been diverted a bit. Now that these projects are going to  
2   unfold, we will be able to jump back into the fray, but that  
3   has taken some time away from resolving some of the issues  
4   that we know are there. And then, I see my boss is standing  
5   up and I think he would love to chime in.

6               MR. GRAVELY: Mike Gravely from the Pier Research  
7   Program. I would like to answer just a little bit of this.  
8   I have been tracking this quite a bit and I would say that  
9   there are some distinctive advantages and advancements that  
10   I believe, again, from my perspective of watching this, and  
11   would like to say publicly here to this, and also say that  
12   there are some challenges that come out of that, too. So,  
13   the advantages, I would think one of the big advantages is,  
14   in fact, that there was such a large amount of money  
15   introduced at a quick time, so projects that were ready,  
16   PIER projects that we have been working in areas like  
17   synchrophasors, energy storage, integration of renewables,  
18   integration of distributed resources, and demand response,  
19   we have years of work and many of the projects that you will  
20   hear about today, these are key elements of that, from the  
21   different projects, so that we were able to advance and are  
22   able to advance in technologies that would have probably  
23   taken a long time to get there, normally, or maybe never  
24   gotten there before this. And, for example, the awareness  
25   of energy storage needs today, I have been involved in

1 energy storage for 20 years, it is a generation above what  
2 it has been in the last 10 years, and the opportunity, the  
3 technologies that are being proven, the large scale projects  
4 that are out there over the next few years, the opportunity  
5 for huge advancement, the research that we do indicates that  
6 we believe we will need thousands of megawatts of storage in  
7 2020, so we have time to make that happen. So, there has  
8 been quite a bit of advancement in technology that we are  
9 ready; one of the disadvantages that we have run into is  
10 that this - it does focus on what I will call "shovel-ready"  
11 projects, and so, when you are doing research, you know,  
12 better technologies come along, and you actually advance  
13 those technologies, and when you go commercial, maybe you  
14 are on the second or third generation, so there is an  
15 opportunity here that we could end up with some current  
16 technologies in large scale that may not be the technology  
17 we would have advanced, had we taken a five-year timeline.  
18 But I think, at the end of the day, we are better off. I  
19 also think one of the major advantages of ARRA, from my  
20 perspective, and we will hear some today and you can  
21 certainly ask SMUD next, but I believe this opportunity has  
22 advanced the public utilities in California, the opportunity  
23 for them to go after - many of the utilities got funding -  
24 so I think the technology integration, the capabilities they  
25 have, where they will go in the future, I believe the public

1 technologies in California will be better off because there  
2 are a couple of aggressive ones that have got such good  
3 projects, I think they will learn more, and they typically  
4 have been - I will say in the shadows - of the larger  
5 investor-owned utilities, so I think these ARRA funds have  
6 given the public utilities a chance to go where they want to  
7 do, and have some large funding to do that. So I think that  
8 is a big win for us here in California. So, I think the  
9 challenge is going to be - the last statement - would be  
10 integration. We would like one Smart Grid in California and  
11 not five or six, so one of the challenges we have, as we put  
12 this new technology and old technology together, and we look  
13 at different utilities and public programs, and everything  
14 else, is that we develop a system that will be interoperable  
15 in the future, and so, you mentioned before, that is where  
16 we will focus a lot of our attention is understanding what  
17 is out there and helping the process so that we field  
18 systems that will work in the future and we do not use - I  
19 guess I heard a good analogy before, you know, the cell  
20 phone charger - you could have 25 cell phone chargers and  
21 not have the one you need, as opposed to a USB port where  
22 everybody can plug it in, and anybody can use it. We would  
23 like to go the USB port route for assisted cell phone  
24 charger route. And so we think it is part of our  
25 responsibility in sharing information to help to go that



1 route.

2 CHAIRMAN DOUGLAS: Thank you.

3 MR. GRAVELY: Thank you.

4 COMMISSIONER EGGERT: Actually, that reminds me of -  
5 I guess it is a question relevant to these projects, and  
6 actually something you had said, Pedro, which is the need  
7 for this information to flow, to provide an understanding to  
8 the parties to be able to further develop these technologies  
9 into the market, and I think that is true in a lot of  
10 different areas beyond the Smart Grid, as well, and I know  
11 we have activities going on for Monitoring, Verification and  
12 Enforcement, but I would be curious if the future speakers  
13 might be interested in commenting on how we are going to  
14 make this data available. I think this is one of the great  
15 opportunities of ARRA, which is that there are specific  
16 reporting requirements, but then, if you take advantage of  
17 that information, we are going to have to actually follow-up  
18 and make sure that it becomes useful for other parties to  
19 use either for research or actual commercial development.

20 MR. GOMEZ: Well, if I may, one of the projects that  
21 we are in the process of funding is actually data gathering  
22 and the development of a website that will track all of the  
23 projects, not just in California, but nationally, and so  
24 that would be one of the avenues that we use for sharing  
25 what is coming from all of these projects.

1 COMMISSIONER EGGERT: Thank you.

2 COMMISSIONER BYRON: Thank you, Pedro.

3 MS. KOROSSEC: Do we have any questions from the  
4 audience?

5 MR. SWEENEY: I had a question. There is a lot of  
6 talk about -

7 COMMISSIONER BYRON: Please identify yourself.

8 MR. SWEENEY: Oh, J.P. Sweeney, Central Transit &  
9 Development Corp. The question I have is, there is a lot of  
10 talk about existing projects and the ARRA funds that had  
11 been basically already allocated. What is going on for the  
12 future and future projects? Is there money available for  
13 future projects, as well? Will these programs continue?

14 MR. GOMEZ: Yes, so as I told you earlier in the  
15 presentation, PIER receives \$86 million a year to fund  
16 research, we set aside \$30-35 million of that block to  
17 support our projects, so the balance is available for  
18 continued research.

19 MR. SWEENEY: Annually, okay. Thank you.

20 COMMISSIONER BYRON: You know what? Let's go ahead,  
21 leave it on, go ahead and turn it on and leave it on.

22 MR. KRIEGER: Doug Krieger with CALGreen at Work,  
23 and I would like to thank you all for putting this on for  
24 the General Public. One of the comments - reoccurring  
25 comments - that are being made here today is the

1 institutional research that is propelling a lot of these  
2 innovations and funds. I would just encourage the  
3 Commissioners to remember that HP and Apple came out of a  
4 garage, and that what I mean by that remark is, I think that  
5 here in California there is a great deal of innovation and  
6 creativity outside of the institutional research platforms,  
7 and that you should keep this in mind. We are a private,  
8 public, philanthropic, consortium of companies, which have  
9 been galvanized together at the behest and encouragement of  
10 the Governor's Office of Economic Development, and when we  
11 had the smart innovation vehicles and transportation and the  
12 summit that the Governor just put together, he looked at our  
13 vehicle, which gets about 150-170 miles a gallon, and said,  
14 "How come I have not seen this before?" And I said, "Well,  
15 that is because you have not visited the chicken coop in Rio  
16 Linda," and sooner or later, the Governor's Office came out  
17 to the chicken coop, and it is amazing what can happen in a  
18 chicken coop with innovation and creativity. Many things  
19 are going on. We are coming forward and saying to the  
20 Energy Commission that, "Hey, there's a lot of other things  
21 going on out there." It is up to us to find out a way to  
22 work together and to find out these innovations. One of the  
23 questions I did have is that - and, Commissioner Byron, you  
24 alluded to this - and that is, what would happen if AB 32  
25 were turned down? What are the implications that we might

1 be looking at as far as a lot of this funding and so forth?  
2 And maybe you could address that just real quickly. Thank  
3 you very much.

4 MR. GOMEZ: I would like to maybe defer to  
5 Commissioner Byron, first, and then I would like to throw it  
6 back to Mike Gravely to answer that.

7 COMMISSIONER BYRON: Mr. Krieger, you know, I wrote  
8 that question down, I am saving that to ask one of the  
9 participants that can present this, so I do not recall  
10 really alluding to that yet, but it is certainly on my mind,  
11 and I am not going to answer it because I have very strong  
12 feelings on it, but I would like to hear from others in the  
13 audience. So, Pedro, I know you passed it to me, but I am  
14 going to pass it to Commissioner Eggert.

15 COMMISSIONER EGGERT: I would just make a quick  
16 comment. I think you are talking about the Governor's  
17 Summit on Vehicles and Fuels -

18 MR. KRIEGER: And then AB 32 implications -

19 COMMISSIONER EGGERT: Right, actually at that summit  
20 I was moderating the second panel, and certainly, from both  
21 the first panel and the second panel, which were made up of  
22 some of the business leaders that are actually deploying  
23 these technologies and making these investments in the  
24 state, the one clear message that I heard from them was the  
25 need for durable policy, that, if there is - you know,

1 incentives are great and they said really nice things about  
2 our AB 118 program, especially if they were recipients, but  
3 even if they were not, they said it was important to have  
4 that as a signal from the state, but they said, even more  
5 importantly than the incentives is durable policy, and so I  
6 think sustaining our environmental policies, including AB  
7 32, which they called out explicitly, is a very important  
8 factor in bringing that investment, and continuing these  
9 activities beyond the end of the Stimulus program.

10 CHAIRMAN DOUGLAS: I will just state briefly, I  
11 agree with you, Commissioner Eggert. I have always said,  
12 and always thought, that AB 32 itself was only possible  
13 because it was built upon decades of stable policy in  
14 California to promote alternatives to oil, to create a  
15 cleaner electricity system, and promote energy efficiency  
16 from renewable energy, clean the air, which was a major  
17 major driver throughout our state's history, and these  
18 frameworks built the institution and institutional  
19 knowledge, and sparked tremendous innovation and development  
20 of new technologies and new ways of thinking and working in  
21 California, that put us in a position where the state was  
22 even able to assert the leadership that it did, with AB 32.  
23 And so, I think Commissioner Eggert is exactly right about  
24 the importance to stable policy and how that has gotten us  
25 to the tremendous opportunities that we see today, and I

1 would be very concerned about the future of that if there  
2 were a significant change to AB 32, so we are obviously  
3 watching closely and we are moving forward, and there is  
4 such talent and such innovation, and such drive in the  
5 state, we think we can capitalize on it.

6 COMMISSIONER BYRON: All right, I cannot help but  
7 comment now. You know, Commissioner Eggert said "durable,"  
8 you used the term "stable," I will use the term "regulatory  
9 certainty," and it is great to have your perspective, Madam  
10 Chairman, AB 32 builds on many years of policy work in the  
11 state, and AB 32 does not represent all of the policies. We  
12 have got energy efficiency programs, renewables, there are a  
13 lot of policies that have moved forward, and this  
14 Commission, prior to my joining it, my predecessors have  
15 certainly moved the ball forward, so we are very pleased  
16 with where we are today, these ARRA funds tie into this, but  
17 I will say it as strong as I can - well, I am sure I could  
18 say it more strongly - but I will say this, if we whipsaw  
19 the investment community by altering the path that we are on  
20 right now, it will definitely have a detrimental effect on  
21 the economic recovery of the state. And I spent a lot of  
22 time in Silicon Valley, that is my home, and this has been a  
23 topic that has come up on numerous occasions in recent  
24 summits and that include venture capitalists and other  
25 investors in technologies, so I apologize for having stated

1 my opinions before I was able to ask others in the audience,  
2 as well, but it is tough, and I am very interested in  
3 hearing from those that will be before us as we finally move  
4 on our agenda here. I am very interested in what others  
5 have to say on this topic, as well.

6 MR. GOMEZ: There is a question online, but before  
7 we look to address that, I just wanted to follow-up, Mr.  
8 Krieger, that, in fact, we have not forgotten about the  
9 ideas that are percolating in garages and chicken coops.  
10 Among the process of solicitations that we run through the  
11 Commission, additionally, we have the Energy Innovation and  
12 Small Grant Program that is available to you to apply as  
13 many times as you want, and so there are avenues that we can  
14 help. And if you have anything in particular that you are  
15 trying to promote, feel free to contact me, the contact  
16 information is there, and I will put you in contact with our  
17 Small Grants Program; however, if it is something else, I  
18 will do my best to help you out.

19 MS. KOROSEC: All right, we have a question on line  
20 and we are going to unmute the line. Okay, go ahead, your  
21 line is open. Craig, you are going to have to speak more  
22 loudly.

23 MR. HORNE: Okay. This is Craig Horne at EnerVault  
24 down in Sunnyvale. We are a developer of stationary energy  
25 storage systems [inaudible]. I would like to thank Pedro

1 and Mike for their help. Can you hear okay?

2 MR. GOMEZ: Yeah.

3 MR. HORNE: I have a lot of static on mine.

4 CHAIRMAN DOUGLAS: If you could speak slowly and  
5 extra clearly, I think our Reporter would be pleased.

6 MR. HORNE: Is this better? Hello?

7 MS. KOROSEC: Yes, that is better. We cannot speak  
8 loudly here because we have got the mics turned up so loud  
9 to get you loud, so just go ahead with your question.

10 MR. HORNE: Thank you. Well, I would like to thank  
11 Pedro and Mike for their support and I think the PIER cost  
12 sharing with small companies, we feel, is very important,  
13 and especially in [inaudible] energy storage because it does  
14 provide certainty and more confidence, and [inaudible]. But  
15 my specific question, has the status of PON-09-002 been  
16 addressed? I had a little bit of audio difficulty here  
17 during Pedro's presentation, so I do not know if he  
18 commented on it verbally or not.

19 MR. GOMEZ: Okay, so we are in the process of  
20 announcing the awards from PON-09-002, we should have those  
21 out probably in the next week or two, and that is where we  
22 stand on that right now.

23 MR. HORNE: Terrific. Thank you.

24 MR. GOMEZ: Thank you.

25 MS. KOROSEC: All right, we will move on to our next



1 speaker, who is Jim Parks from Sacramento Municipal Utility  
2 District.

3 MR. PARKS: Anyway, I am delighted to be here today  
4 to talk about what SMUD is doing with our Stimulus money.  
5 As was mentioned earlier, we got \$127.5 million from the  
6 Smart Grid Investment Grant. Yes?

7 COMMISSIONER BYRON: Mr. Parks, please introduce  
8 yourself so we will all know who you are.

9 MR. PARKS: Jim Parks from the Sacramento Municipal  
10 Utility District, also known as SMUD.

11 COMMISSIONER BYRON: Good.

12 MR. PARKS: We received \$127.5 million from Smart  
13 Grid Investment which, as it turned out, was 63 percent of  
14 the money that came to California for that one. It was very  
15 exciting and slightly embarrassing to receive that much  
16 money. We were wondering as we were going through the  
17 process whether we were going to get, you know, 50 percent  
18 of the money, or 75 percent, or whatever, but we got the  
19 full amount, and so it was very exciting for us. And staff  
20 gave us several questions, and what I am going to do is just  
21 answer those questions across the board.

22 We are in line for \$1 million of PIER funding for a  
23 \$308 million project. The project includes several  
24 elements, they are partner projects, and I will talk about  
25 each of these elements briefly, Advanced Metering

1 Infrastructure, a Consumer Behavior Study, Demand Response,  
2 Distribution Automation, Electric Vehicle Infrastructure,  
3 and, of course, Cyber Security. The only thing that is not  
4 really listed on here, but which is very important and has  
5 been alluded to earlier, is integration. We have got a  
6 bunch of proscriptive projects, from my perspective, and  
7 really the big piece is going to be bringing these  
8 altogether into a cohesive whole. And I think Mike talked  
9 about that, too, we do not want five or 10 Smart Grids in  
10 California, you want one cohesive Smart Grid, and we want to  
11 work in that direction. We partnered with several agencies  
12 in the Sacramento Area, the Los Rios Community College  
13 District, which has four campuses in SMUD service territory,  
14 the Department of General Services, and California State  
15 University in Sacramento. This is the way the funding lays  
16 out, and I am not really going to go over this in detail,  
17 but you can basically see the partner projects like DGS,  
18 \$24.9, \$8.4, \$9.3, down the list there on the right-hand  
19 side, and basically they are committing to cost share 50  
20 percent, so half of that number is what they are going to  
21 get from the Federal dollars; and then, you can see on the  
22 bottom, \$308 million worth of projects.

23           What we are looking at right now, we do not have the  
24 PIER contract in place at this point, but we are looking at  
25 using that money to help fund distribution automation, but

1 even though it seems like it is just a single focused  
2 element, PIER will get the complete reports that we send to  
3 DOE for all of the projects, and I think that is going to be  
4 one of the big benefits here because there are local  
5 projects going on, distribution automation in and of itself  
6 does not appear to be really so much R&D, but you are going  
7 to get the full report and the full package, and I am hoping  
8 at the end that we will be able to evaluate each one of  
9 these individual projects and determine like cost-  
10 effectiveness, benefits, issues, those sorts of things. So,  
11 at the end, there will be something that is revocable for  
12 the State of California.

13 Our partner projects, each of the entities that we  
14 are working with are going to install energy management  
15 systems, or upgrade their existing energy management  
16 systems. The college campuses are going to have electric  
17 vehicle infrastructure installed, there will be charging  
18 stations which will be what we call the Level 2, the 240  
19 volt charging stations, and there will be Smart Chargers so  
20 we communicate with them. We have got a fairly significant  
21 amount of money going towards Auto DR, we plan to test that  
22 in the facilities and those that want to implement it on a  
23 more permanent basis, and we would certainly do that. The  
24 CSUS distribution system will be upgraded and they will also  
25 install Smart Meters on campus. CSUS actually gets what we

1 call transmission level power, it is really distribution  
2 level 12 kV power, and so they actually, on a lot of their  
3 buildings, do not have individual meters, and so they have a  
4 master meter from SMUD, so we are going to do some  
5 individual metering there. Advance metering infrastructure,  
6 we are in the process of doing this right now, we have  
7 Landis & Gyr meters, and we have Silver Spring networks. We  
8 have installed about 63,000 meters at this point, and we are  
9 holding off until the beginning of 2011 to really complete  
10 the project. We are just working through some different  
11 issues and trying to make sure everything is working  
12 properly, that the customer communication is in place and  
13 those sorts of things. A Consumer Behavior Study - this is  
14 going to be an interesting one for us, we have done several  
15 critical pricing projects in the past, but we are planning  
16 to expand this to a much larger scale, and we really want to  
17 see how customers respond to this. I think, you know, we  
18 are talking about installing Smart Meters across the state,  
19 and if you do not do some sort of a critical peak pricing,  
20 or real time pricing, I think you lose a lot of the benefit;  
21 if you are just going to do hourly readings, you might as  
22 well have just stuck with the old system, from my  
23 perspective. So, I think somewhere down the line, this is  
24 the direction that we need to go, and this is where we are  
25 going to get some of the big benefits from Smart Grid. We

1 are going to install programmable communicating thermostats  
2 and we are going to check the customer response to these  
3 technologies. We are going to do some significant work in  
4 demand response in our Draft Integrated Resource Plan right  
5 now, we are calling for 375 megawatts of demand response  
6 through the next cycle, which is really over 10 percent of  
7 our ultimate peak load, so it is a pretty big number. And  
8 we are going to do some projects on that. And we are  
9 starting a project right now, this summer, and we are  
10 planning to expand that next summer to a larger scale, to  
11 determine what works and where we get the biggest benefits.

12           Distribution automation - we are doing a lot of work  
13 in this area, we are expanding the SCADA, Supervisory  
14 Control and Data Acquisition, in 36 substations. One of the  
15 really - the most excited about - is really the Conservation  
16 Voltage Reduction, which is the last bullet there, where we  
17 will actually at the substation level reduce the voltage for  
18 the purposes of saving energy. This works well if  
19 everything is in place correctly. Depending on what  
20 equipment you have on the line, the system may compensate  
21 for that reduction and actually boost the voltage back up,  
22 and so you have to make sure the system is capable of  
23 actually handling that, so we are going to do some  
24 experiments in that area, and I am excited to see what type  
25 of energy savings we will get from that.

1           On the Electric Vehicle Infrastructure, if you look  
2 down at the bottom, the number is actually covered up there  
3 in red there, but it is 1,100 megawatts potentially of  
4 electric vehicle load by 2030 that we are seeing in just our  
5 service territory, this is not California, so we are looking  
6 at essentially the equivalent of two utility-scale power  
7 plants worth of power that will be needed to supply the load  
8 of electric vehicles. And so, from our perspective, this is  
9 something the utilities need to prepare for and put a  
10 significant effort into being ready when these vehicles  
11 come. Some of the other factors that come into play here,  
12 when you put an electric vehicle on an old transformer, it  
13 can be anywhere from like a fourth of a house to, if you  
14 have a Tesla, it could be multiple houses, added to that  
15 transformer, and if you are at your limit already and you  
16 start adding electric vehicles to a transformer,  
17 theoretically you are going to overload the system. And so  
18 this is something that is not really a major concern at one  
19 level because we are planning for it, preparing for it right  
20 now. We are going to install 180 charging stations through  
21 the Smart Grid Investment Grant, we have some other grants  
22 where we are also going to install additional charging  
23 infrastructure. Also, we want to test the impacts on the  
24 Grid. I told our General Manager, I said, "Look, I want to  
25 put some electric vehicles, or the equivalent of electric

1 vehicles on a transformer, and I want to wait until the  
2 third day of the heat storm when we are at our very peak,  
3 and then I want to plug in those vehicles and monitor the  
4 transformer." He kind of gave me a dirty look. You know, I  
5 told him, "Look, we'll make sure that we can unplug them  
6 right away if we have to."

7 Cyber Security - SMUD has a cyber security plan and  
8 we have been really state-of-the-art in this area, it is an  
9 important area, it is a big focus of the Federal Government,  
10 and we want to make sure that our system is secure. When  
11 you are working with a dumb grid, you do not really have to  
12 worry about cyber security so much, who is going to come in  
13 and control your system when there are no controls with  
14 which to control it? And so, when we automate everything  
15 and everything is computerized, then there is more  
16 opportunity for the bad guys to come in and hack your  
17 system, so we need to be diligent in that area.

18 Okay, here are some of the questions that were asked  
19 of me, you know, the expected outcomes. And unfortunately  
20 here we are, job creation, energy savings, greenhouse gas  
21 reduction, and I am like "to be determined," but I will say,  
22 and we have made this public all along, the initial out-of-  
23 the-chute thing for us is going to be eliminating  
24 approximately 80 meter reading and meter reading supervisor  
25 jobs because of the advanced metering infrastructure and the

1 automation that that entails. But, having said that, there  
2 will be additional jobs created, mainly in the IT area,  
3 manufacturing area, installers, and those sorts of things,  
4 and so I do not really know what the net outcome is. We are  
5 developing an impact and metric plan right now and that will  
6 take a look at these things. But, other outcomes that we  
7 see, we are going to enhance our utility infrastructure,  
8 this is a big boost for SMUD. You know, if we had not  
9 gotten the \$127.5 million, things would move much more  
10 slowly for us. It adds transparency and control to our  
11 system and it is going to promote customer engagement. We  
12 see the customers as actually being a part of the solution  
13 for us in being able to save energy and reduce their peak  
14 loads and control their energy use. It is going to promote  
15 distributed generation and improve air quality, and it is  
16 also going to integrate the intermittent renewable  
17 resources, which from the utility's perspective, is kind of  
18 a big deal as we see our renewable energy standards and  
19 renewable portfolio standards going up, those are typically  
20 intermittent resources that are difficult to control and the  
21 utility has to manage those. So, typically, the higher the  
22 number, like the 33-1/3 percent or something, that gets to  
23 be a serious issue for the utility.

24           Some of the challenges - AMI issues across  
25 California, PG&E was kind of the first out-of-the-chute in



1 Bakersfield to experience that, and believe me, everyone  
2 else in the state and probably across the country took  
3 notice. And we enhanced our communication plan to make sure  
4 we were communicating with other customers, that they knew  
5 what was going on to ensure that we were not going to run  
6 into the same problems. The emerging technologies  
7 marketplace, I think Mike alluded to this earlier, that  
8 there are so many people coming out of the woodwork now with  
9 new technologies, the chicken coop inventors, you know, the  
10 garage inventors, and those sorts of things. And, you know,  
11 from our perspective, this is great, and yet at the same  
12 time we have this parade of people coming across our pathway  
13 and partly I am confused, and partly I am wondering where  
14 are these going to be two years from now? Where are they  
15 going to be five years from now? If this system, if we  
16 deploy it on a broad scale and it suddenly fails, who is  
17 there to help? Who is there to ensure that it is going to  
18 continue working? So, there is some confusion, there is  
19 some reliability issues. Lack of standards is another big  
20 deal, if you are a manufacturer, you go out and manufacture  
21 some product, the people come in today and they go, "Well,  
22 we have Zigbee and we have this and we have that, and it is  
23 capable of doing all these things," well, somewhere when  
24 standards are put in place and manufacturers will have some  
25 assurance that this is the way we need to make it, and

1 everyone is on the same boat. I was pleased to see recently  
2 that they even developed the quad for the 240 volt charging  
3 and the 120 volt charging, it is like, that is great because  
4 you do not want 10 manufacturers coming out with 10  
5 different systems, and you buy an electric vehicle and you  
6 are carrying 10 whips in your car because you do not know  
7 what charging station you are going to come up against. And  
8 so, that is great.

9 Resource challenges? I mean, right now, you know,  
10 unemployment is very high, but yet in a Smart Grid arena, I  
11 still think there are going to be some issues about, "Are we  
12 going to have to train people that we need to actually  
13 implement this for us?" There are a lot of people buying  
14 equipment, some of them manufacturers that are really the  
15 top ones, the key ones, they are actually having trouble  
16 meeting their quotas, and so there are some issues there  
17 with getting the equipment and the staffing in time to do  
18 these projects. For us, this is not really a concern at the  
19 Commission so much, but the federal requirements, you know,  
20 the contracting, the reporting, the Made in America clause,  
21 and those sorts of things, they become kind of an issue  
22 because most of the stuff is not made in America, and it is  
23 like, how can the manufacturers kind of adjust their message  
24 to make it look like it was made in America, at least, when  
25 most of it is made in China? And one of the short

1   timeframes to deliver, we have three years on this contract,  
2   and we are talking about a massive massive project, and that  
3   is where the technology thing comes in, too. You have got  
4   all these new technologies and you go, "What are we going to  
5   deploy on a fairly broad scale that is going to get us where  
6   we need to be, and it is not going to be obsolete at the end  
7   of the project?" You know, I do not want to this mass scale  
8   deployment and then somebody go, "Oh, let's pull it out two  
9   years from now because everything changed."

10           So, what would we do differently? You know, in  
11   terms of how we did our proposal, we would not really do a  
12   whole lot differently, I mean, the funding opportunity  
13   announcement came out, the announcements of the PONs came  
14   out from the CEC, and we responded to them. You can never  
15   give people a full year to work through these things, or you  
16   will never get the job done, and so, you know, within the  
17   timeframe we had, we did the job we needed to do, people  
18   worked a lot of overtime, I cannot really say we would do a  
19   whole lot differently, especially since we won; now, had we  
20   lost, I might have some other ideas about what we might do  
21   differently, but, you know, we were successful.

22           What could CEC do differently? I will say that, in  
23   the early application process, I thought it was pretty  
24   straightforward, and the staff was very helpful for us, the  
25   notices were issued, and I felt like that process went

1 smoothly. Now, we are moving forward in to the next phase  
2 and I am concerned about reporting requirements, quite  
3 honestly. The Federal reporting requirements were termed -  
4 I asked a guy one time that worked for the Federal  
5 government, I said, "Are the reporting requirements  
6 onerous?" And he said, "No," with a straight face, "No,  
7 double onerous." Oh, great. And so, we have got the  
8 Federal reporting requirements and now we are adding on some  
9 CEC requirements, and I am just, really, if there is  
10 anything you can do to make the Federal requirements good,  
11 you know, that is the report, that would help us  
12 tremendously, and I would just point out that, you know, we  
13 have got a \$308 million project and we are looking at a  
14 significant grant from the CEC of a million, but it is less  
15 than 1/300<sup>th</sup> of the project, and so, you know, we are not  
16 willing to really change our whole reporting or develop two  
17 reports, so if at all possible, if the Federal report can  
18 work, that would thrill us to no end. And I would just  
19 point out here that our agreement with the CEC is not final  
20 yet, and that is not really staff's fault. [Phone alarm  
21 rings] I just gave myself a timeline so I would know I  
22 should stop talking. And so, we are working through that  
23 and staff has been very helpful on that. That was perfect,  
24 I'm right here at the last slide. We are moving forward  
25 with our Smart Meters project, our communication network is

1 99 percent complete, we have over 60,000 meters installed,  
2 95 percent of the customers are satisfied, which sounds  
3 good, but, you know, if five percent of them actually came  
4 to our Board, that would be a problem, but I think it just  
5 means that they are not thrilled, but they are not really  
6 complaining too much. We are testing the meters and the  
7 system through year-end, and we are really going to go out  
8 with a full scale deployment starting January 2011. Our  
9 contract with DOE is approved, but we are still working  
10 through some of the details. Things change between the time  
11 you submit your proposal and the time the proposal is  
12 approved, and so we are kind of adjusting the project here  
13 and there. And then, as far as our own procurement, you  
14 know, we do it similar to the state, we issue an RFP and we  
15 will procure products that way, and that is why I tell all  
16 the vendors when they come in, they come in and want to show  
17 us their product, and we are like, "You know, there is going  
18 to be an RFP process, and that is how we are going to  
19 evaluate this." And then, we are performing pilot tests  
20 where necessary, right now we are doing some pilots with the  
21 distribution automation before we really do the broader  
22 scale deployment on that, to make sure the stuff works. So  
23 that is it.

24 COMMISSONER BYRON: Mr. Parks, thank you. You know,  
25 you had indicated early on that, when you won this proposal,

1 you were very embarrassed, well, you should not be.  
2 Clearly, DOE recognized your proposal represented an  
3 innovative technology and approach here for California,  
4 which is saying a lot, because we have moved ahead  
5 aggressively with so-called Smart Meters, but there are many  
6 other utilities in the state that were equally embarrassed,  
7 if not more so, with your proposal win.

8 MR. PARKS: I would guess. I think I said "slightly  
9 embarrassed."

10 COMMISSSIONER BYRON: Yeah, modestly embarrassed.  
11 But the word is out, you know, that the utilities' Smart  
12 Grid programs, that this agency has put forward, and really,  
13 there are a lot of third parties out there, you know, let's  
14 call them high tech companies that have been looking into  
15 this space, that have a lot of - they have applications,  
16 they have got hardware, software ready to go, and I have met  
17 with a number of them, and they are looking to this project,  
18 and they are looking to SMUD, to help provide a platform  
19 and, let's say, an example for how the state should proceed.  
20 So I guess I am cautioning you, you are a little bit  
21 apprehensive about that, and the possibility of deploying  
22 technology and/or all these other companies and where will  
23 we be in two or three years if this does not work, I am  
24 concerned about that, as well; so, it is extremely important  
25 that your program be effective. Some of the utilities in

1 the state have given the word "Smart Meter" a bad name, or  
2 "Smart Grid" a bad name, and you cited one example, but  
3 there are other examples, and we need to correct that  
4 process, and it is in terminology. So, if I may, you know,  
5 this whole notion that we look at this from the utility  
6 perspective has to change, for instance, I will give you an  
7 example that you may or may not agree with, but this whole  
8 notion of "critical peak pricing?" Scratch that term, that  
9 is looking at it from the utility - and the policy makers'  
10 perspective. We have problems that we are trying to deal  
11 with on the grid, and look at it from the customers'  
12 perspective, be customer-centric in this regard, I just  
13 jotted down, maybe call it the "customers cost-saving  
14 pricing" because that is really what they are going to be  
15 interested in and what they are after here.

16 MR. PARKS: Point well taken, and I would submit  
17 that we probably would not call it critical peak pricing to  
18 our customers because they would not have a clue what we  
19 were talking about. We would put some name on it, you know,  
20 like the "Pecan Street Project."

21 COMMISSIONER BYRON: Exactly. So, you know, and the  
22 expected outcomes, you listed the ones that we are certainly  
23 interested in, but I would add that the primary expected  
24 outcome will be the choices that you will bring to  
25 customers, reducing their energy use, saving money,

1 increased control, convenience, these are the goals that I  
2 hope you will accomplish and, again, we are looking to your  
3 program, I think it is extremely important and it is going  
4 to be an example. I know when I meet with some of these  
5 technology companies that have third-party opportunities,  
6 they know where they need - we send them to you because,  
7 clearly -

8 MR. PARKS: Thank you.

9 COMMISSIONER BYRON: -- that is right, they know  
10 where the opportunities are within the state. So, there is  
11 a lot at stake here, the bad press around the so-called  
12 Smart Meter is not very good right now, and it has done a  
13 great disservice to everybody, while the investor-owned  
14 utilities under mandate saw millions of so-called Smart  
15 Meters. There is a lot at stake that we change the  
16 impression here that the consumers in the state have around  
17 that.

18 MR. PARKS: And I agree, and that is kind of a  
19 balance, how can you do it effectively, in a quality  
20 fashion, successfully, but in the time allotted?

21 COMMISSIONER BYRON: So, good luck.

22 MR. PARKS: Thank you. We will do well, I have  
23 utmost confidence in our staff and our ability to perform.

24 CHAIRMAN DOUGLAS: Glad to hear that because we have  
25 seen great innovation from SMUD. I have observed that SMUD



1 has really taken this opportunity in ARRA and applied for  
2 aggressive programs in a number of areas, and been quite  
3 successful across the Board, so we will be looking for very  
4 great things from SMUD, not only in this, but in other  
5 areas. A quick question, you mentioned Los Rios Community  
6 College District is a partner, and I assumed when you said  
7 that they are providing workforce training - is that  
8 correct?

9 MR. PARKS: They are not doing training as part of  
10 this FOA, but they are doing training through another loan.

11 CHAIRMAN DOUGLAS: So, in this case, they are a  
12 partner for the EV charging?

13 MR. PARKS: EV charging and energy management system  
14 upgrades.

15 CHAIRMAN DOUGLAS: Okay, good. Thank you.

16 COMMISSIONER EGGERT: Actually, so you had also  
17 mentioned the potential challenge of finding adequately  
18 trained work force and I know we do have quite a number of  
19 work force programs. I presume you have looked at those and  
20 seen whether or not they are suitable for -

21 MR. PARKS: We are partnered with several  
22 organizations on that, yeah.

23 COMMISSIONER BYRON: And the Energy Commission is  
24 not your source of work force, okay? [Laughter]

25 MR. PARKS: You have noticed, have you?

1           COMMISSIONER BYRON: SMUD has had a very good track  
2 record of picking out some of our excellent staff here at  
3 the Commission.

4           COMMISSIONER EGGERT: Actually, just a follow-up, I  
5 have another follow-on question to Commissioner Byron's  
6 question about the behavioral aspects of your study. Is  
7 that information - will that be readily available to other  
8 research institutions and others to take a look at it?

9           MR. PARKS: You know, some of that is kind of to be  
10 determined, but my full expectation is that, at the end of  
11 the project, there will be some sort of a final report that  
12 really identified the things that were done, what the  
13 benefits were, what the costs were, and those sorts of  
14 things, that would be available to everyone. And I believe  
15 that one of the elements in the Energy Commission contract,  
16 which is probably one of the things that I think - how  
17 should I say this - probably should stay in there, you know,  
18 because I do not think we really have a final report  
19 requirement in the Federal contract. And so, I think it is  
20 important that we have a final report that is a public  
21 document.

22           COMMISSIONER BYRON: Good.

23           MR. PARKS: But all that other stuff, let's focus on  
24 the federal reporting as sufficient.

25           COMMISSIONER BYRON: We got that.

1           COMMISSIONER EGGERT: And actually just one - on the  
2 customer preferences for information and messaging, does  
3 that include options for real time pricing?

4           MR. PARKS: What that is focused on more is, you  
5 know, they will be able to get day behind information. We  
6 take hourly reads and we take it all in at one time in the  
7 evening, so the customer can look at their energy use  
8 information the day behind, and that is more what it is  
9 focused on, and there will be different methodologies for  
10 doing that, it might be a display, it might be through the  
11 Internet, and so forth. And I think I missed a piece of  
12 your question, could you repeat that again just to make sure  
13 I am getting it right?

14          COMMISSIONER EGGERT: Well, actually, my curiosity,  
15 I think you answered it, which is whether or not there would  
16 be the opportunity to test different real time pricing  
17 models, to basically push pricing information through the  
18 meter to the customer.

19          MR. PARKS: I am not sure how many pricing models we  
20 will test. What we are really looking for is to put in  
21 place - or to test a price that we would actually consider  
22 doing broad scale if the timing was right and we had all the  
23 right approvals, and so forth, and then see how that works,  
24 and then tweak it, so that we are trying to get something  
25 that we could actually potentially use in the future, do not

1 just willy nilly test prices that we would never use on a  
2 broad scale, so we are looking at testing prices, but we  
3 want to make sure it is something that we would consider  
4 using in reality.

5 MS. KOROSEC: All right, do we have any questions or  
6 comments from anyone in the room? Pedro?

7 MR. GOMEZ: I just wanted to thank Mr. Parks for  
8 helping us out through the process. But, more importantly,  
9 I wanted to weigh in concerning how our plan is to  
10 essentially accept whatever you are reporting to DOE as the  
11 deliverable to us, so it would not be some additional  
12 requirement, that is our plan at this point.

13 MR. PARKS: Okay.

14 COMMISSIONER BYRON: There you go, a public  
15 commitment to that.

16 MR. PARKS: I heard that public commitment and I  
17 will get back to you with our proposed contract, we will  
18 work through it. Thank you.

19 MS. KOROSEC: All right, we are running just a bit  
20 late. I apologize, I am having some technical difficulties  
21 here.

22 CHAIRMAN DOUGLAS: Suzanne, before we begin, we are  
23 talking about lunch logistics over here. We were thinking  
24 that if the last speaker is able to pick up at 1:00, that we  
25 would go on with this presentation and then break for lunch.

1 MS. KOROSSEC: Yeah, I think we were checking with  
2 that speaker, he is presenting via WebEx and we were waiting  
3 to hear back whether he was okay with doing it after lunch,  
4 so let's go ahead with this, and if we hear differently from  
5 him, I will let you know.

6 CHAIRMAN DOUGLAS: Thank you.

7 MS. KOROSSEC: So now we are proceeding to Mr.  
8 Nichols from Semptra - SDG&E, pardon me.

9 MR. NICHOLS: Okay, thank you. Okay, I am between  
10 everybody and lunch, as usual, thanks. Thanks for the  
11 opportunity to come and talk about our project, so the  
12 members of the audience, members of the Commission, thank  
13 you. We are pretty excited about our somewhat unique  
14 project. I am coming here not as part of the utility's  
15 specific Smart Grid team, I am actually an IT employee, I am  
16 a Director for Network and Communications for actually both  
17 utilities, for Southern California Gas and for San Diego Gas  
18 & Electric, IT as a shared service of both utilities. And I  
19 am here because our proposal, again, our project and our  
20 proposal looks a little bit unique. I enjoyed listening to  
21 the gentleman from SMUD, we had a similar proposal from  
22 SDG&E that was not as successful as SMUD's, but we had this  
23 proposal that was accepted. We were unique in that we are  
24 not selling meters, we are not doing demand response  
25 directly, we are not doing distribution automation or any of

1 the other, you know, Smart Grid applications directly. What  
2 we are doing is laying down a foundation. We started with a  
3 very simple, but what I think is a somewhat profound idea,  
4 which is, I do not care how you define a Smart Grid, I do  
5 not care what applications you are talking about, any notion  
6 of a Smart Grid needs to start with secure, pervasive,  
7 reliable, communication systems, some of which do not exist  
8 today. And then, you know, that is a subject of some  
9 debate, but we have debated it at length with partners and  
10 ourselves, industry, over the course of the last couple of  
11 years, and that is the fundamental idea behind our project.  
12 So, given that notion, that any idea of a Smart Grid needs  
13 to start with a secure wireless service, now, notice I said  
14 "wireless," I made it pretty clear to you before I am  
15 finished, I am an Engineer, when we look at doing the  
16 communications for any kind of application, whether it is in  
17 traditional information technology or whether it is in this  
18 new genre called Smart Grid, or it is, I think people before  
19 me noted, it is not that new, it has just got a new and  
20 timely label, we would like to start with wire  
21 communications, whether it is fiber optics or copper wires,  
22 we would like to start there. But, when you start thinking  
23 about what you are trying to do with a Smart Grid, that is  
24 not going to be possible. I started asking it as an  
25 Engineer, I started asking questions of my Smart Grid

1 brethren a couple years ago, saying, "Where are you going to  
2 put the sensors for these applications?" "Well, you know,  
3 we are not really sure yet, but it could be anywhere in our  
4 service territory. How much capacity are you going to  
5 need?" "Well, we're not really sure yet, but it could be a  
6 little, it could be a lot." I started asking questions and  
7 I started getting answers that were not all that encouraging  
8 to engineering staff. But what I came up with is what you  
9 see at the bottom of this slide, there really are two modes  
10 of communication that kind of fell out of all this, there is  
11 a need to build some kind of pervasive wireless network,  
12 something that gives me the ability to deliver bits anywhere  
13 on the grid, whether it is for monitoring, whether it is for  
14 control, whether it is for some kind of very important, you  
15 know, kind of real time application, or just simple on/off  
16 monitoring, so that there is a class of applications that  
17 require pervasive communications, I have to cover - in our  
18 case, it is 4,000 square miles in the San Diego Gas &  
19 Electric Service territory, in the Southern California Gas  
20 Service Territory it is more like 20,000 square miles, it is  
21 a grand challenge in terms of engineering, and wireless is  
22 the only way to go, so that is why that word is there. And  
23 the other kind of application that we saw falling out, the  
24 other general class, was high performance, or high capacity,  
25 and the word that gets used is broadband, and broadband is

1 one of those kind of ill-defined words, but in general, we  
2 are defining broadband as somewhere between 1 and 5 megabits  
3 per second, and we are also defining it as having high  
4 performance and communications terms that means low latency,  
5 and very rapid response time. So, our program, in a  
6 nutshell, is to build that reliable secure wireless service  
7 that supports Smart Grid, Smart Meter, field service  
8 operations, because just because we have a Smart Grid, we  
9 are still going to have people running out there with trucks  
10 trying to fix things, and solve things, reinstall things,  
11 and so on, that does not change in the new world.  
12 Transmission distribution operations and, in fact, emergency  
13 services, these are all the things that we are trying to  
14 support with our project.

15           You know, I really, I kind of struggled on whether  
16 to put this slide in here or not, there is a lot of geek-  
17 speak in here, a lot of things that you probably do not care  
18 about, but the basic ideas remain fundamentally  
19 straightforward. Our project has about four tracks,  
20 foundation services is the project that will put up multiple  
21 radius systems that have pervasive coverage. Some of them  
22 are for fixed utility assets like substations, reclosers,  
23 monitoring points, some of them are for mobile assets, that  
24 is, people in trucks, typically. Then, we have a track for  
25 broadband services and, you know, broadband services,



1 because they are higher capacity and higher performance, we  
2 and the ratepayers simply cannot afford to put them over our  
3 entire service territory. It would be prohibitively  
4 expensive. So, we are selectively applying hot spots of  
5 coverage, oh, a mile, a square mile or two, for these  
6 broadband services at substations, at high value grid  
7 assets, and places where we are going to install  
8 synchrophasors, because that is one of the very difficult  
9 problems that we have to solve for the Smart Grid future,  
10 how do I deliver large amounts of information with very high  
11 performance communications? Today's communication systems  
12 typically are not designed for that, and that is one of the  
13 innovative things about our proposal, is we are doing just  
14 that.

15 Control services is the other, I think, truly  
16 innovative part of our proposal, and I think it is the part  
17 that the Department of Energy was particularly interested  
18 in. Utilities - we are like all the other utilities - we  
19 have been installing, and private communication systems, and  
20 using public communications systems from the public carriers  
21 for decades. But they have always been single purpose, one  
22 communication system for this application, another  
23 communication system for another application, and on and on.  
24 When we looked at this a couple years ago, we asked the  
25 question, "Is there a consolidation play possible here? Is

1   there an economy of scale possible here? Does the  
2   technology and the way we can operate in the future support  
3   a better way?" And it turns out it did. It turns out it  
4   did, and we will talk about that a little bit. Finally,  
5   migration, this is a project that is building a  
6   communication system for the utility and its operational  
7   partners, including in some cases public safety. So, we are  
8   going to have to migrate people from these old communication  
9   systems to the new ones, and so that is the fourth track in  
10   our program.

11           This is a picture of pretty much when I talked about  
12   to date, this is a very simple, straightforward project in  
13   some regards. We are installing several wireless  
14   communications and radio networks over the Southern  
15   California landscapes, you know, in San Diego County,  
16   primarily, that will provide selectively very high capacity  
17   to applications like synchrophasors, here referred to as  
18   wide area measurement/control substation automation, that  
19   will provide a lower amount of capacity pervasively, over  
20   our entire service territory, somewhere between a megabit  
21   and two megabits per second, and that is the deal with the  
22   applications of a Smart Meter backfill and recloser  
23   switches, transformer, and so on. We also have a strategy  
24   to deal with the so-called stranded or hard to reach meter  
25   problem, we have heard a little bit of talk today about, you

1 know, that we need to change the public's perception of  
2 Smart Meters, we are a million plus meters into our Smart  
3 Meter roll-out of the separate initiative, that this program  
4 will end up retrofitting some of the communications, and one  
5 of the things we are going to be able to do is we are going  
6 to be able to reach certain meters and certain customers  
7 that just are not feasible today, just not practical, we are  
8 going to be able to do that.

9           And finally, at a lower bandwidth, or lower  
10 capacity, we will be supporting the mobile field users,  
11 everything with integrated security and integrated  
12 management control. I cannot emphasize enough, I mean, that  
13 is really the core of our project and our proposal and our  
14 idea, is that this communication system is the foundation  
15 upon which Smart Grid applications, Smart Grid benefits,  
16 whether it is benefits to the ratepayers, benefit to the  
17 utilities, benefits to all, this is the foundation that it  
18 will be built on.

19           This is our roadmap, our Phase one project which  
20 covers SDG&E, and will enable about 20,000 new communication  
21 endpoints of different types, it is a \$63 million project  
22 over two years. I will get into the cost breakdown and that  
23 in just a minute. It will deliver a lot of new  
24 capabilities, 10-100 times multi-data capacity delivered to  
25 the people in trucks who would like to - you know, we would

1 like to be able to deliver them maps, we would like to be  
2 able to deliver them Web-enabled information, we would like  
3 to be able to deliver them video, and so on, and we cannot  
4 do that with the systems today. Video, I mentioned. Low  
5 latency service to substations -- that is really huge.  
6 There is a lot of talk about superphasers, and if you have  
7 fiber to all your substations, synchrophasors are certainly  
8 doable from a communications point of view. If you do not,  
9 it is a real challenge, and this is a way to bridge that  
10 gap.

11           The ability to reach remote Smart Grid assets, one  
12 of the things I asked when I said, "Well, help me understand  
13 what communication system I need to build, where are the  
14 wind farms going to be." "Well, somewhere around east."  
15 "Where are the photovoltaic resources going to be?" "Well,  
16 kind of anywhere and everywhere in San Diego County."  
17 "Where is the storage going to be? Where is the energy  
18 storage going to be?" So, this is where - it did not take  
19 me long, they hit me on the head with it a few times, but it  
20 did not take me long to figure out, okay, pervasive data  
21 coverage is what we need. We need to kind of just take  
22 location out of the equation, and I can, when we are  
23 finished with this, and we want to bring on a new energy  
24 asset anywhere in San Diego County, and I will be able to  
25 provide very very reliable communications to that asset, to

1 bring it up, and bring it online fast.

2 We have a Phase 2 that we proposed to our Board,  
3 that was not part of the ARRA proposal, or the Department of  
4 Energy grant proposal, and that is to spend approximately  
5 \$30 million to take the same concept and do it in Southern  
6 California gas service territory, that is not what we are  
7 working on today and, frankly, I am waiting to - you see  
8 that thing in the middle - Southern California Gas AMI  
9 Network Strategies set, that is happening in real time, as  
10 we speak. My team and I are part of that decision and part  
11 of that strategy, and later on, if we can take the same  
12 concept and move it on to the gas grid, not just the  
13 electrical grid, it makes sense.

14 This is the funding summary, \$20 million was our  
15 grant, we were nowhere near as ambitious as our brethren  
16 from SMUD, but this appeared to be about the right amount of  
17 money for a communications system. SDG&E is putting \$34  
18 million of capital and, like SMUD, we do not have a CEC  
19 agreement yet, it is pending, but that will be for a million  
20 dollars. And by the way, all the interactions with the CEC  
21 leading up to our proposal were just wonderful, were really  
22 great, and nothing but - it is one of the reasons I chose to  
23 come up here in person and really, you know, talk to you is  
24 that it was a great partnership, we learned a lot just from  
25 our interactions, so thank you for that. We are about ready

1 to sign our first major contract for suppliers, for the  
2 foundation services piece, that will be about 30 percent of  
3 the program. We got started right at the end of April with  
4 our signing of the DOE grant, which it feels weird for me to  
5 say "we got started" because I have been working on this for  
6 over two years, but we have initiated work on all program  
7 tracks and we are shovel-ready, we expect first production  
8 service in 2010, and we will complete before the middle of  
9 2012.

10           Job creation is always a difficult thing, we try to  
11 be very conservative with whatever algorithm or assumptions  
12 that we come up with to decide our job creation statistics,  
13 but in any project of this size and, frankly, this one is a  
14 little unique because it is a communications system, that  
15 means the expertise for this project is fairly narrow, but  
16 we think there will be about 83 full-time positions, both in  
17 utility and suppliers, that are created and enabled over  
18 this two-plus year project.

19           In terms of environmental and other energy impacts,  
20 you know, frankly, we do not have very good metrics for this  
21 project, this was one of the things we struggled with in our  
22 discussions with the DOE, and we are talking to them about  
23 more appropriate metrics. You know, there is an argument to  
24 be made that we are going to make our mobile workforce and  
25 the trucks that we put on the road that much more efficient,

1 fewer trips, more efficient trips, less rerouting, ability  
2 to enable home starts, all kinds of efficiencies, but you  
3 know, I am frankly underwhelmed by that, and we are working  
4 with the DOE to come up with a better set of metrics that  
5 describe the environmental and energy impact.

6           What is next for us? We are like any other large  
7 program, having gotten the go ahead, we have to finish  
8 staffing, we are two months into our DOE oversight and  
9 reporting requirements, and that is going quite well. As I  
10 said, we are getting some key suppliers under contract, we  
11 are dotting the I's and crossing the T's on all of the  
12 engineering and requirements aspects, getting our new users  
13 used to the idea that this thing is coming. But we are  
14 doing all the things that you would expect any large program  
15 to do. We are also working more and more closely with our  
16 Smart Grid team. The way we were organized, the Information  
17 Technology Division supplies the computing and the  
18 communications to Smart Grid, which is viewed as more of an  
19 application for both the consumer and the utility, so we are  
20 an enabler.

21           On some of the discussion questions, you know, what  
22 would we have done differently? I think a couple of things.  
23 We had the strategy before the ARRA funds showed up, and we  
24 would have taken quite a bit longer to realize the strategy.  
25 I think in that regard, the Stimulus program, at least in

1 our little part of the world, had to be considered  
2 successful, because we are creating jobs, we are doing work,  
3 we are building and buying systems several years in advance  
4 of when we would likely have done it otherwise. I think the  
5 other thing that is very hard to quantify, I think the other  
6 thing that - I think there was a question from the  
7 Commission here about possible other exponential advances?  
8 Security is the thing that comes to mind. You can do all  
9 the theoretical security work you want, I have been doing IT  
10 work, security work for many many years, you do not really  
11 know what you are doing until you build things, until you  
12 construct things, and getting Smart Grid Communications  
13 substantiated, installed, and secured, getting us further  
14 along the security timeline faster, I think that is a huge  
15 benefit. We do not want to find that we have some fatal  
16 communications flaw 10 years from now, we want to find it  
17 now. We want to find it and fix it now, before these  
18 applications become widespread. And so, I think the notion  
19 of exponential advances, which really are hard to measure  
20 and more when we talk about explicitly, I think that is one  
21 of them.

22 As far as the California Energy Commission, you  
23 know, the question was what we would ask of you, I was very  
24 very pleased to hear about the stance you are going to take  
25 on reporting requirements, that will be helpful to us, as



1 well. And we really did not have much to recommend, I mean,  
2 this is, you know, adopt a coordinated grant application  
3 process, frankly, there was not time for that, you know,  
4 this thing just showed up on people's doorsteps, the ARRA  
5 Program, so we understand why that did not happen. If it  
6 ever happened again and you had notice, I suspect you would  
7 do that.

8           So that is really our story. We are excited to be  
9 moving, I certainly am. And I would be happy to answer any  
10 questions that the Commission or the audience has.

11           COMMISSIONER BYRON: Mr. Nichol [sic], thank you for  
12 being here this morning, I guess now it is this afternoon.

13           MR. NICHOLS: Yes.

14           COMMISSIONER BYRON: I heard a similar presentation  
15 by Dave Gier on San Diego's Smart Grid activities, the plan,  
16 and very progressive approaches here, I congratulate you in  
17 that regard. And you have already answered one of my two  
18 questions, and that is kind of really you were headed down  
19 this path anyhow, so how much did it accelerate your  
20 program, and you said several years in advance, perhaps, of  
21 where you were heading.

22           MR. NICHOLS: Yes, sir.

23           COMMISSIONER BYRON: And so that is really good to  
24 hear. The other is, how much applicability do you think  
25 this project might have to other utilities, particularly the

1 investor-owned in the state? The large utilities?

2 MR. NICHOLS: We actually think it has broad  
3 applicability. Every utility's requirements are a little  
4 bit distinct in that they have their unique geographies,  
5 they have their regional set of stakeholders, they have  
6 their regional set of priorities, and yet the mission is the  
7 same, you know, deliver energy to the ratepayers, to the  
8 consumers, at a reasonable price, and deliver it very very  
9 reliably. So, we think that this kind of strategy has great  
10 applicability. We have ongoing debates with the public  
11 carriers about the wisdom of building a private system vs.  
12 just using the public systems.

13 COMMISSIONER BYRON: Right.

14 MR. NICHOLS: And what I tell them each time is we  
15 have many many use cases, or applications, for which public  
16 carrier services are exactly the right solution. And we are  
17 purchasing those today and we will continue to purchase  
18 those. There are other applications for which the public  
19 communications carriers are not really able to satisfy  
20 certain requirements, it is just not reasonable for them.  
21 It is not reasonable for them to, at the moment, given the  
22 state of the technology, and the state of wireless systems  
23 in Southern California, it is not reasonable for them to  
24 guarantee they will recover 100 percent of our service  
25 territory, it is not possible, reasonable for them to cover

1 or to provide, you know, five to 10 megabits per second with  
2 100 milliseconds of latency, you know, very very high  
3 performance where we need it and when we need it, and so on.  
4 So we seek to strike a balance with them. Given that, we  
5 think the approach and the solution is very applicable to  
6 similar utilities.

7 COMMISSIONER BYRON: Good.

8 COMMISSIONER EGGERT: I just wanted to - I guess a  
9 comment - I thought you were sort of spot on with respect to  
10 the fact that you are highlighting that this is really an  
11 enabling activity -

12 MR. NICHOLS: Yes, sir.

13 COMMISSIONER EGGERT: -- and that the significant  
14 potential for job creation and economic activity is probably  
15 going to be coming from the investments that will be enabled  
16 through this, the distributed generation, energy storage,  
17 electric vehicles, etc., and I think that is one of the  
18 challenges we face on a number of our programs, that they  
19 are sort of enabling our institutional, so setting up the  
20 infrastructure that allows for those other investments to be  
21 made. So, will you also be, as part of this project,  
22 tracking that other activity that this is enabling in terms  
23 of -

24 MR. NICHOLS: We are actually - it has come up - it  
25 has come up with the DOE as we are trying to find more

1 appropriate metrics to describe our somewhat unique project.  
2 The discussion has been around second order metrics, you  
3 know, so this is the foundation, this is the enabler, can  
4 you track far enough, you know, the applications that have  
5 been built on top of this, and track some of their benefits,  
6 and attribute their benefits to this initiative? I have  
7 been an IT infrastructure guy most of my career, I am very  
8 familiar with that kind of dilemma, I think it makes sense,  
9 but it will require that we keep some kind of tracking  
10 mechanism going beyond the confines of the program. So we  
11 are interested, we are willing, but we have not agreed yet  
12 on exactly what those tracking metrics might be, or how long  
13 you attract them for the future.

14 CHAIRMAN DOUGLAS: Just a brief comment. I am  
15 really pleased to hear about your program. I really had not  
16 had the opportunity to sit through a briefing in this level  
17 of detail, it is really interesting to me. This does sound  
18 like exactly the sort of thing we hoped ARRA would  
19 facilitate for California, shovel-ready projects, bringing  
20 real and lasting long term benefits to the state,  
21 transformational in scope, and I am really pleased to be  
22 able to get this federal cost share in investments that  
23 California wants to move forward with, that --

24 MR. NICHOLS: As were we.

25 CHAIRMAN DOUGLAS: -- are going to strengthen us,

1 and that we will be able to build on, and we will be able to  
2 take advantage of well into the future. So, thanks again.  
3 Thanks for being here.

4 MR. NICHOLS: You are very welcome. Thank you.

5 MS. KOROSEC: Do we have any questions from the  
6 audience? Anything online? All right, thank you very much.

7 MR. NICHOLS: Thank you.

8 MS. KOROSEC: With that, I would recommend that we  
9 break for lunch now. Our last speaker has graciously agreed  
10 to come in after lunch, so let's break and return at 1:20.  
11 Thank you very much.

12 (Off the record at 12:20 p.m.)

13 (Back on the record at 1:24 p.m.)

14 MS. KOROSEC: We will go ahead and get started  
15 again. We are going to start this afternoon with a  
16 presentation by Marcello Di Paolo from the Los Angeles  
17 Department of Water and Power. Marcello, go ahead, you are  
18 live via WebEx.

19 MR. DI PAOLO: Okay, hello everybody, hello  
20 Commission. I am going to do a quick rundown of what LADWP  
21 is doing for their Smart Grid Demonstration Grant, and how  
22 the CEC portion, or the PIER portion is associated with this  
23 project. Next slide, please.

24 So, basically, a quick background. In 2009, the DOE  
25 had the ARRA release, an opportunity for a workers Smart

1 Grid. DWP was awarded a \$50 million grant, which was  
2 basically, we did it with a partnership with three entities,  
3 we partnered with USC, UCLA, and JPL. Next slide.

4 Basically, oh, we can skip that, it is just our  
5 general org chart we have our different Executive  
6 Committees. Next slide. We have a Program Steering  
7 Committee that oversees everything, next slide, and we have  
8 a Smart Grid Program that is basically divided into five  
9 subcomponents, we have a Program Management Office that  
10 oversees the entire project, we have a demand response  
11 project, an electric vehicle project, cyber security  
12 project, and a customer behavior project. And all four of  
13 these projects are basically interrelated and integrated  
14 with each other. Next slide. So, PEPMO, basically it is a  
15 standard management office. In that office, we are going to  
16 be doing everything from all the management of the work,  
17 definition of architecture, requirements, testing, all the  
18 reporting, and all that jazz, and all the project management  
19 portion of the project will be done there. Next slide.

20 Demand Response. In demand response, basically what  
21 we are going to do is use AMI Communications, Smart Meter  
22 deployment, and apply DR, so we are going to work with our  
23 partners at USC and UCLA to develop high tech demand  
24 response protocols, as well as systems that we can control  
25 at these little micro-grids that we are going to develop at

1 both the University of Southern California and the  
2 University of California at Los Angeles. We are going to  
3 try and experiment with different HAM networks, different  
4 AMI networks, and most importantly, we are going to use the  
5 campus test pads for demonstrations to really see how the  
6 customer and how the utility can quickly react on a demand  
7 response. Next slide.

8           On this slide here, I list a couple of things that  
9 we are going to demonstrate as part of this project. We are  
10 going to demonstrate controls, monitoring, we are going to  
11 demonstrate production of megawatts for short duration, and  
12 how we can reduce megawatts, or increase if needed. We are  
13 going to do voltage regulation, we are going to demonstrate,  
14 bring in a meter data management system, we are going to  
15 play with different customer functions in billing and try  
16 TOU, maybe do some dynamic billing, we are going to  
17 demonstrate some new Website capabilities, you know, a huge  
18 part of demand response is getting the consumer involved, so  
19 we are going to do some Web redesign where the consumer can  
20 see more information. We are going to do a little bit of an  
21 increase into our outage management system, where once these  
22 meters start calling home, instantly tying it to our outage  
23 management system where we already have all of our circuits,  
24 our GO-coded map, so we can instantly see where outages are.  
25 We are going to basically demonstrate some outage management

1 and also demonstrate some distribution automation on some of  
2 our circuits. Next slide, please.

3           For Electric Vehicles, here we are going to use AMI  
4 Communications and various other RTU and remote telemetry to  
5 work with EVs. And with Electric Vehicles, what we are  
6 going to do is we are going to focus on Smart Charging, we  
7 are going to work on battery aggregation and backfilling, we  
8 are going to also create a fully operational micro-grid and  
9 we are also going to work on using these EVs as renewables  
10 because, quite frankly, these are going to be mobile  
11 batteries, so see how we can use these as immobile battery.  
12 And lastly, we are going to take advantage of certain  
13 existing cost share programs that both USC and UCLA have,  
14 put EV infrastructure in place, and start seeing how we can  
15 affect the community and see how these cars can actually  
16 impact us as they are being used. Next slide, please.

17           So some of the things that we are going to  
18 demonstrate on EVs will be like monitoring of all chargers.  
19 We are going to install about some 600-700 chargers  
20 throughout Los Angeles. So, we are going to be able to  
21 monitor and meet all of the megawatts, demonstrate control  
22 of the charges, like, for instance, if it is a peak hour and  
23 our customers agree to that, or actually contract for this  
24 program, we will be able to send like a command saying  
25 "don't charge right now" or "charge later" or to start doing



1 different types of charging ideas like where, say you have  
2 to charge your car, you have four hours that you need to  
3 charge your car in, but you only need two hours charging  
4 time, your transformers are kind of overloaded, can you a  
5 cycling where you charge for 10 minutes on, 10 minutes off,  
6 10 minutes on, so it is not a constant, you know, we are  
7 going to try different experimental things. We are going to  
8 try doing various - how do I best say this - integration of  
9 BCVs and see how they truly impact the grid. We are going  
10 to basically see, what kind of harmonics are there? What  
11 kind of effect are they going to have on the grid if we  
12 install a bunch of these on one feeder, one section? How -  
13 you know, there is a lot of EV research that needs to be  
14 determined to see what the true impact is. And, also,  
15 another great thing with this is, we are going to do a lot  
16 of modeling where we will do a lot of load forecasting, a  
17 lot of studies to see what the true impact of EVs will be in  
18 the future. Next slide.

19 We are also going to do some next generation type of  
20 security research where we are going to do demonstrations  
21 with grid resilience, testing, and finding a way to redefine  
22 what our security parameters are. Next slide.

23 So what are we going to demonstrate on this? This,  
24 by far, if you look at it through a techie point of view, is  
25 probably going to be one of the funnest ones where you are

1 going to have hackers that are going to try and hack in  
2 constantly through our AMI system, through our firewalls,  
3 through the various things that we are going to salvage, and  
4 try to develop a new secured network for us. So, we are  
5 going to look at doing various planting of viruses, seeing  
6 if people can see if we can detect an intrusion, or if we  
7 can even intrude, we are going to basically do monitoring of  
8 networks. We are going to do logging out activities, we are  
9 going to try and see if we can demo pattern recognitions and  
10 see where certain things are done, and there are going to be  
11 lots of studies where, here at JPL, is going to use a lot of  
12 their brains basically to actually monitor and try to come  
13 up with new ways to make us more secure. Next slide,  
14 please.

15           So, some of the behavior studies, I think this is  
16 probably one of the more interesting parts where, at the end  
17 of the day, whether you do demand response, AMI, Smart Grid,  
18 or whatever, the customer is a huge factor, so what we are  
19 going to do is we are going to bring the customer on board  
20 and we are going to do a lot of outreach during our DR, we  
21 are going to measure and track, based on attitudes, based on  
22 EV, and to see what the true impact is going to be, and  
23 also, with university test pads and the surrounding areas,  
24 to see how the community really is going to respond as AMI  
25 comes on board, or as DR is used. Next slide.

1           So, some of the things that we will demonstrate and  
2 be able to show, for instance, we are going to be able to  
3 demonstrate customer use patterns, customer usage data,  
4 utility behavior, customer savings, and a couple other ideas  
5 like demonstrate failures and successes, we are going to  
6 demonstrate customer pattern of communication, and also a  
7 private business one is we are going to be able to see what  
8 customers' reactions truly are to demand response, or also  
9 on Electric Vehicles, see how much we can get away at the  
10 utility with the customers, like will we be able to tell a  
11 customer, "Hey, your car requires - you have eight hours  
12 until you have to use your car, we choose when you can  
13 charge it, you just plug it in at home, you push a button,  
14 and say in eight hours fully charge it, I do not care, all I  
15 need is three hours of charging, utility, you pick when to  
16 charge my car." We are going to try different things like  
17 this and see how people react to it. Next slide.

18           So, basically on expenditures, we are going to spend  
19 close to \$45 million on demand response, \$35 million on  
20 electric vehicles, \$15 on Cyber Security, and \$11 on  
21 Consumer Behavior. Next slide. And the \$1 million that we  
22 are going to use from the PIER funding is going to be truly  
23 dedicated to this one circuit were we are going to try and  
24 do a distribution automation AMI circuit of the future,  
25 which will be part of a little micro-grid that we are going

1 to create to help us actually study and see how it is going  
2 to impact DWP. We are going to do purchase distribution  
3 automation, we are going to do cap control, we are going to  
4 do monitoring of transformers, whether it be overhead,  
5 underground, or pad-mount. We are going to install a bunch  
6 of charging stations for EVs where we are going to be able  
7 to back feed and use them as mobile battery supply. At the  
8 same time, we are going to have a live circuit with live  
9 customers and cars where we are going to be able to do grid  
10 impact and stability studies. We are also going to try  
11 various distribution automation technologies using various  
12 wireless communications to see what the best map is and  
13 seeing if there is a way in which we can overlay our  
14 distribution automation with our AMI infrastructure. Next  
15 slide.

16 We are basically going to demonstrate a few things,  
17 just remote operation, autonomous operations, and see how we  
18 can truly improve power factors. What we are going to do is  
19 we are going to basically, on this circuit, we are going to  
20 integrate and automate everything from the generation  
21 station all the way down to a [inaudible] distribution  
22 station and a feeder, so basically we will be able to see  
23 how the feeder reacts, how the substation reacts, the  
24 switching station, receiving station, and generation  
25 station. Next slide.

1           And with the transformers, we are going to do  
2 various [inaudible] and see what the effects on the  
3 transforming are? You know, you are going to put this car  
4 online, an EV, [inaudible], well, you know there is going to  
5 be a load increase, but how much of an impact is there going  
6 to be? How much heating is that transformer going to see?  
7 [Inaudible] constantly control that car, and at the same  
8 time not affect the transformer as much, these devices will  
9 help us see it. Next slide.

10           For renewables and battery integration, quite  
11 frankly, every utility has an RPS goal; now, one of the  
12 things that you always try to plan is ways to meet your RPS  
13 goals and find creative ways of doing it. Building power  
14 plants are expensive, but you know, when you start looking  
15 at community storage, an EV can be a great battery. Now,  
16 this will require some more work and investment in the  
17 future for the utility, but the idea is, if we ever choose  
18 to maybe buy the battery directly from the car  
19 manufacturers, do we choose in the future to lease them to  
20 consumers? That way, the utility can control them,  
21 [inaudible] to actually charge, discharge, we see them as  
22 portable batteries, like a Nissan Leaf can come with a 3.3  
23 kilowatt battery, that will actually replace 25 kva  
24 [inaudible] for a few hours. That is a good deal for us.  
25 So we are going to do some research on that and see how we

1 can cycle batteries, how we can aggregate these batteries,  
2 and also we are going to try and demonstrate - it is sort of  
3 like a garage of the future where we are going to install  
4 some solar plants, a car charger, we have our normal lines  
5 and we will see if you can put any other renewable on this  
6 circuit and see how we can intelligently control the power  
7 and how we can play with various technologies. Next slide,  
8 please.

9           For Grid impact study and power study, this is kind  
10 of interesting. We actually have - USC is going to be  
11 dedicating the head of their power system in their EV  
12 program, the head of power, is this one professor by the  
13 name of T.C. James. He is dedicating himself for five years  
14 to this program, and all he is going to do is power studies,  
15 [inaudible] studies, modeling of the power grid, and he is  
16 going to look at how EVs are going to truly impact DWP and  
17 part of WECC. So what he is going to do is basically - I  
18 have already showed him like - we actually heard when Obama  
19 ran for President, one of the big things he said was, by  
20 2015 he wanted to see a million Electric Vehicles in the  
21 U.S., he is really big into electrocution of cars. Our  
22 Mayor wants to make L.A. the EV capital of the world. So  
23 when you look at a million cars coming to the U.S. by 2015,  
24 it is pretty fair to guess 10 percent of those cars will be  
25 in California, a large percentage will be in Southern

1 California. So, to better prepare for this, we are going to  
2 be doing various studies and models showing how EVs impact  
3 generation, transmission, distribution, and study what  
4 various loading scenarios could happen. We already have an  
5 electric model on DWP of all of our circuits, so we are  
6 going to integrate some software and study and see, okay, if  
7 clusters come, which areas will be impacted the most? How  
8 will it impact the grid? Can we still maintain the  
9 liability by Smart Charging or intelligently controlling  
10 these chargers so that, if three people off the distribution  
11 transformer come home at the same time, will that blow up a  
12 transformer? Things like that will be done in this study.  
13 Next slide.

14 And for distribution automation, we are going to  
15 basically be playing with everything from 35 KB automation  
16 equipment, industrial station equipment, [inaudible] KB,  
17 distribution equipment where we are going to monitor faults,  
18 we are going to do transformer monitoring, we are going to  
19 do local energy storage integration, we will do remote  
20 switching, cap control, smart control. Next slide.

21 And for AMI, we are going to install, well we will  
22 probably during this project probably install three or four  
23 and maybe up to six various meters from different  
24 manufacturers to evaluate which ones work, and what we are  
25 probably going to do is to just evaluate which really works,

1 what is the best way to [inaudible], and we are going to try  
2 to demonstrate two-way communication, remote on/off, demo  
3 fault monitoring, demo voltage demand, bar read, you know,  
4 everything that they show that AMI can do, but what we are  
5 going to try to do is integrate the solution and, most  
6 importantly, we are going to create a control center just  
7 for this grant, where everything will go in there and we  
8 will start figuring out how do you truly integrate all of  
9 the data that comes in from Smart Grid, and how do you use  
10 it? And that is pretty much it for - next slide - that is  
11 pretty much what L.A. is doing with this grant.

12 MS. KOROSEC: All right, do we have any questions  
13 from the Commissioners?

14 COMMISSIONER BYRON: Yes. Thank you, Mr. Di Paolo.  
15 This is Commissioner Byron. And I was not very familiar  
16 with the LADWP project until now, and this is an extremely  
17 aggressive project, you are trying to accomplish a lot of  
18 things, but before I ask maybe one or two questions in terms  
19 of scope, let me ask you this. I am trying to piece  
20 together the financing of all of this and you may have been  
21 vague intentionally, but page 1 indicates there is a \$60  
22 million ARRA Smart Grid Grant, and then I am looking at page  
23 8, my slides are not numbered, so it is probably about Slide  
24 15 or so, it shows the Smart Grid Program expenditure, and  
25 it shows a total of \$120 million.



1           MR. DI PAOLO: Right. Well, the way it works is the  
2 DOE Grant for - the Smart Grid Demo Grant that we were  
3 awarded has a 50 percent cost share, so we were awarded a  
4 \$60 million grant and DWP is basically going to have to  
5 match it.

6           COMMISSIONER BYRON: Gotcha.

7           MR. DI PAOLO: Since we have two university partners,  
8 the way that it is working is, USC - the complete breakdown  
9 is, okay, let me be exact on this, USC is going to give \$20  
10 million worth of activity -- \$10 million for their match and  
11 \$10 million they are getting from the DOE; UCLA is doing the  
12 same thing, \$10 million match and \$10 million that came from  
13 the DOE; JPL is a Federally funded Research & Development  
14 Center, they cannot really match the money, so DWP is going  
15 to pay for their match, we are going to give \$3 million, and  
16 then the Grant will give \$3 million, and the remaining money  
17 is about \$74 million worth of activity. Half of that will  
18 be matched and the other half will be government.

19          COMMISSIONER BYRON: Okay, good -

20          MR. DI PAOLO: When we look at \$120 million, we have  
21 \$120 million worth of work, \$60 million of our own money,  
22 per se, well, \$40 million is DWP money, \$10 million USC, \$10  
23 million UCLA, and the other \$60 is from the Federal  
24 Government. The \$1 million of the CEC PIER Grant that we  
25 are receiving, we are going to use to fund this Micro-Grid

1 that is going to be created to support the work that is  
2 going to be done.

3 COMMISSIONER BYRON: Good. All right, well, thank  
4 you very much, that is very helpful to understand that and I  
5 appreciate you breaking that down. This is obviously a very  
6 substantial project for you. Let me ask you a similar  
7 question I asked earlier, does this advance your plans in  
8 any significant way? And maybe the answer might be in terms  
9 of the number of years that this might accelerate your  
10 program?

11 MR. DI PAOLO: Well, if you look at the research  
12 that is going to be done in Cyber Security, yes, absolutely.  
13 That is going to benefit us greatly. On Electric Vehicles,  
14 that is going to have a huge benefit, as well as Demand  
15 Response. What we are right now in the process of, we have  
16 a plan in place to actually come up with a business plan on  
17 a Smart Grid architecture for a long term plan at DWP, and  
18 we are hoping that what we get out of this demonstration  
19 grant, we will be able to leverage and include to actually  
20 facilitate when we are doing our long term investment. So  
21 ideally, yes, it should accelerate it, but one of the things  
22 that also we are waiting on completion of this Business Plan  
23 that we are creating to help us figure out where the  
24 quickest return on the investment is. We are a Municipal  
25 utility, we really cannot go to the PUC, do a huge capital

1 investment, and say we want to increase our rates, we need  
2 to make a lot of our decisions based on return on  
3 investments so that we really do not have to go to our City  
4 Council and say we want to increase our rates. We want to  
5 try and stay relatively at the same rate and be able to get  
6 a huge return for what we invest in.

7 COMMISSIONER BYRON: Oh, do not be afraid of going  
8 to your City Council and asking for rate increases.

9 MR. DI PAOLO: You have not watched the news lately,  
10 have you?

11 COMMISSIONER BYRON: I have. Two quick questions.  
12 Have you been talking with SMUD and their project, any  
13 coordination of value?

14 MR. DI PAOLO: Not as much with SMUD. I am an  
15 active member of -- SCPA in Southern California has a Smart  
16 Grid Ad Hoc Committee where you have people from Glendale,  
17 people from Burbank, Anaheim, and we have meetings where we  
18 are talking about the projects that are going on within  
19 Southern California, but with SMUD? Not really.

20 COMMISSIONER BYRON: All right, well, it is just  
21 something that I suppose that Commissioners ask often when  
22 we have to coordinate research activities. We would not  
23 require that, of course, but if there is some benefit to it,  
24 we certainly encourage it. One last quick question if I  
25 may, this is clearly an enormous program, emphasis on the

1 utility information and control of your grid and your  
2 system, and I think you are going to learn a tremendous  
3 amount, and I hope it is extremely helpful to you. I was  
4 interested, as I looked through this, on the customer  
5 benefits, you have sociological and behavioral studies that  
6 you are going to do, let me ask it this way: what is in it  
7 for the customer? Have you been able to think through how  
8 you are going to communicate benefits to the customer?  
9 Because, as I look through this, I really do not see any of  
10 that listed in here.

11 MR. Di PAOLO: Well, some of the things - since  
12 right now we are just in the process of beginning our design  
13 phase of this project, what we are looking at is possibly  
14 doing building designs, website redesigns where more  
15 information is easily conveyed to a consumer, in which,  
16 okay, when you get an electric bill at the end of the month,  
17 or at the end of every other month, all you see is something  
18 - a number, and then a term called "Kilowatt hour." Unless  
19 you are an electrical engineer, or you work in the utility  
20 industry, a lot of people cannot correlate what a kilowatt  
21 hour is, or how much consumption it is. So, by creating  
22 interactive websites or interactive things that the consumer  
23 can easily see, creating a Blackberry application that tells  
24 you, "Hey, guess what? Right now, because you have your  
25 air-conditioner, your computer, and your plasma TV on, you

1 are paying a dollar a minute." "I want to turn this off to  
2 drop down to \$.50 a minute." You know, things like that are  
3 stuff that we are going to create and we are going to use  
4 the University test-pads as areas where we can quickly get  
5 information to consumers, we can quickly see how it works,  
6 and we are also going to look at large industrial customers  
7 and how we can - if we have these large customers there who  
8 are on demand meters that are built on total consumption,  
9 there are ways that we can give them more information, that  
10 they can say, "Hey, if I turn off my power for a little bit  
11 today, I will save X many dollars." Is that enough of a way  
12 to get a customer influenced demand response and be able to  
13 save on the amount of power we have to generate, and then,  
14 at the same time for the customer, allow them to save on how  
15 much electricity they use? So, we are going to do the  
16 studies in that, and hopefully by using the various test-  
17 pads that we are going to create, we will be able to gather  
18 a ton of information from actual real customers.

19 COMMISSIONER BYRON: All right, well, thank you.  
20 Good luck with your project.

21 MR. DI PAOLO: Thank you.

22 COMMISSIONER EGGERT: This is Commissioner Eggert,  
23 and thank you for being here with us today through the  
24 WebEx, saving some travel costs and emissions by staying in  
25 your office. The proposal that you have here with respect

1 to the EV, a portion of the study seems quite substantial  
2 and ambitious, and comprehensive. I guess, is this going to  
3 be linked through the expanded ETEC deployment activities?

4 MR. DI PAOLO: Yes, we are going to look at the ETEC  
5 stuff, but the ETEC Program is going to do some of that, it  
6 is going to be done in parallel with us. We might choose to  
7 leverage some of the ETEC stuff and research it and learn  
8 from it, but quite frankly, the way that this project  
9 started and we planned everything, it was prior to even  
10 knowing about ETEC, but we might use some of their chargers,  
11 we might use some of their technology, but the goal is, it  
12 is a demonstration grant, it is research and development, it  
13 would be a shame to have entities like JPL, USC, and UCLA  
14 involved, and not allow them to research and look at other  
15 technologies that are available, as well. So, we are going  
16 to look at ETEC, but we are also going to look at whatever  
17 else is available and see if even - I think UCLA is going to  
18 be demonstrating their Wind Smart technology that they  
19 developed, which is an open program that everyone can use,  
20 we are going to evaluate their product, as well, and see  
21 what really is the best solution for us, as well as for  
22 other people.

23 COMMISSIONER EGGERT: Okay, that is helpful. And  
24 then, in terms of your sort of battery analysis, whether it  
25 is cycle charging, or battery aggregation, do you have any

1 sort of current partnerships that you are pursuing along  
2 those lines with any of the automakers or battery  
3 manufacturers?

4 MR. DI PAOLO: Well, right now, we have done some  
5 preliminary talks with various - it is kind of interesting -  
6 every manufacturer wants to get involved, but we have only  
7 gotten commitments from one, and that was actually with BMW  
8 and their Mini Cooper. They are actually going to be doing  
9 something special, they are going to give us a lease of one  
10 of their vehicles at a very decent rate, and allow us - and  
11 they are going to modify it so that we can actually  
12 aggregate it in and use it for back feeding. So, it is one  
13 of these things that we are talking with the manufacturers,  
14 but a lot of these car manufacturers are kind of hesitant to  
15 say, "Yes, please do it," because the second you start  
16 cycling a battery, you reduce the life of a battery, and  
17 they do not want it because DWP doing that, they would get a  
18 bad reputation for their vehicles and their battery life.  
19 So, the manufacturers have some concerns, but we are talking  
20 with everyone and our plan is to talk to every manufacturer  
21 and see who will allow us to do it. In the event they do  
22 not allow us, we might modify it ourselves and see how it  
23 works. But we do not want to put the car manufacturer in a  
24 situation where we modify their car, we use it, and then the  
25 battery life is one year, and they get a reputation of

1 providing a bad Electric Vehicle, we do not want to do that.

2 COMMISSIONER EGGERT: So, again, I appreciate the  
3 response. And I guess maybe my last would be a comment  
4 along the lines of Commissioner Byron's comment, which is  
5 that we are actively involved in quite a number of research  
6 initiatives in looking at these activities, including  
7 through the PIER Program, and hopefully you are able to  
8 connect through those activities that are going on, I think,  
9 including at UCLA, but also at some of the other  
10 universities, as well.

11 MR. DI PAOLO: Definitely.

12 CHAIRMAN DOUGLAS: This is Chairman Douglas. Just a  
13 brief comment. Thank you for making this presentation, it  
14 has been very interesting to all of us and, as Commissioner  
15 Byron said, this is - the scope of this project is  
16 definitely very far ranging. You did not talk much about  
17 reporting and one of the presenters this morning from SMUD  
18 certainly did, and exhibited some concern about that, is it  
19 your expectation based on what you heard, as well, that DWP  
20 would report to the Energy Commission - and I could ask this  
21 of Energy Commission staff, as well - basically what you  
22 would submit to the Federal Government on the entire  
23 project?

24 MR. DI PAOLO: On anything that we submit  
25 electronically, whoever the contact is, they will be cc'd on



1 it, and that is not even an issue. And even better, you  
2 know, I like to talk a lot, I am guilty of talking, and if  
3 ever anyone wants to come down from the CEC down to Los  
4 Angeles, I will gladly demonstrate, I will arrange people to  
5 be there from the various components, heck, the university  
6 people are more than willing to have some of our partners to  
7 actually show what they are doing. So we will be glad to  
8 talk, speak, write. One of the great things with partnering  
9 with the Universities and JPL, one of the things with this  
10 demonstration grant, is that the DOE wants publications,  
11 they want information to come out. By having a bunch of  
12 PhD. Professors and their grad students working on this with  
13 us, these are people that are trying to finish their  
14 dissertations, they are required to publish papers, so we  
15 are going to be publishing as much information on our  
16 research, of what we learned, and what does not work, we are  
17 not going to be negative in what we write, we are just going  
18 to be talking about successes and so forth, so we are  
19 definitely going to be beyond open, and quite frankly, I  
20 totally expect an open door policy where, if ever the CEC  
21 wants to come down and visit, you are more than welcome.

22 CHAIRMAN DOUGLAS: Well, that is great. Thanks very  
23 much. We appreciate that and good luck with your project.

24 MR. DI PAOLO: Thank you.

25 MS. KOROSSEC: All right, do we have any questions

1 from those in the room? Anything on WebEx? All right, then  
2 I think we will go ahead and move on to Percy Haralson from  
3 Southern California Edison.

4 MR. HARALSON: Hi, I am Percy Haralson, I am with  
5 Southern California Edison, and actually the Manager of  
6 Field Technologies in our Advanced Technology Organization.  
7 And I am going to go ahead and talk to you about our ARRA  
8 projects that we have. We actually have three projects, and  
9 I am going to talk about all three of them.

10 Okay, the first one I am going to talk about is our  
11 Irvine Smart Grid Demonstration Project. The Irvine Smart  
12 Grid Demonstration Project is actually a project that is  
13 based on making a vertical cut through all different  
14 technologies with Smart Grid technologies, that we believe  
15 are instrumental in making the Smart Grid come to life. As  
16 you can see from this project size, about \$80.2 million, \$40  
17 million of that is DOE requested. We have a partner share  
18 of \$12.2 million. We have SCE contribution of \$27.9  
19 million, and then PIER funding request of \$1 million. The  
20 objectives of the Irvine Smart Grid Demonstration Project,  
21 we have a number of them; one is that we want to go ahead  
22 and look at energy smart customer devices, so we are looking  
23 at a number of - kind of think of it as different times of  
24 efficiencies of homes. We are looking at homes in the  
25 current year, right now, so basically untouched. We look at

1 homes that are just a few years out, looking at some energy  
2 efficiency gains, you know, made to the structures. And  
3 then we are looking at all the way to the Z&E  
4 [phonetic] homes for 2020, and saying, "What is that going  
5 to look like? And how are these going to affect the grid?"

6 We are also looking at plug-in Electric Vehicles,  
7 and we all know that plug-in Electric Vehicles can represent  
8 a huge increase in load to the distribution system, so we  
9 are going to be looking at what those impacts are and how  
10 that communication is going to work that. We are also  
11 looking at integration of solar, both DG, so Distributed  
12 Energy Resources, we are looking at incorporating battery  
13 storage, battery storage in multiple locations, so it would  
14 be battery storage within the home, battery storage within  
15 the community, and battery storage and large battery  
16 storage, actually, in our case, it is a mobile storage unit,  
17 but a much larger one that could be used in the substation.

18 We are looking at energy efficiency on the  
19 distribution grid, itself, by looking at a regulated volt  
20 bar control system where you go ahead and try to optimize  
21 the distribution at your distribution line, so that you can  
22 keep your voltage as low as possible, but still within the  
23 regulatory requirements and for the customer.

24 We are looking at self-healing, incorporating the  
25 self-healing grid. Southern California Edison has one of

1 the largest distribution automation systems in the U.S., but  
2 it has its limitations, and the limitations it has is that,  
3 if we had a fault on one of our circuits, the system takes  
4 the entire circuit out, then goes through its algorithm of  
5 determining where the fault is, and then restoration. It is  
6 a fairly slow process. What we are looking at doing in this  
7 case is building a loop type circuit, a different topography  
8 than we would normally use, along with multiple fault  
9 interrupters with high-speed wireless connections between  
10 them, so that only the section that would have a fault on it  
11 would be disturbed and the rest of your customers would not  
12 be disturbed. Wireless is the key concept to that, too.

13 We are looking at not only wireless communications  
14 for our distribution devices, we do that today, but high  
15 speed wireless that is actually within the realm of  
16 protection communication speeds, which we have actually done  
17 in an earlier project using fiber optic cable, so the key  
18 is, how do you go ahead and bring the speed up fast enough  
19 in a wireless technology to actually meet the requirements  
20 that we had within our fiber system.

21 We have another project, too, it is a super  
22 conducting transformer, and I will talk about that a little  
23 bit later, it just happens to be integrated with the ISGD,  
24 we go in the same substation.

25 And then secure energy network; now, there is

1 nothing without security, and I think we have heard that  
2 over and over again, without security for the next  
3 generation, you really do not have an operable  
4 communications system for the Smart Grid, so we are going to  
5 be looking at end-to-end security, all the way from control  
6 systems, through the substation, through the wireless  
7 systems, through the device in field, and then also  
8 workforce of the future. So, we are also looking at, what  
9 is the impact of Smart Grid to the work force? And what  
10 type of education curriculum has to be put together, then,  
11 to go ahead and meet that requirement for the future?

12 Our sub-recipients that we have, we have GE, USC,  
13 and then we have our vendor list, too, UC, Boeing, GE, EPRI,  
14 Itron, SunPower, UC Irvine, a couple at Pomona, Cal State  
15 University Los Angeles, Al23, so working with a number of  
16 universities as a part of this project.

17 This is actually a map of our project. So you can  
18 see the technologies that are involved in it. It includes  
19 all the pieces that I talked about before, including solar  
20 charting for EVs, and also battery storage technology with  
21 the EV charging, so that you can go ahead and actually  
22 change from the time you collect the energy to the time you  
23 actually dispense it to the car. You can see the different  
24 groups of homes that we are going to be implementing and the  
25 different styles of integration of equipment. Part of the

1 equipment that you are also going to see in these homes,  
2 too, for the consumer side, is intelligent home appliances,  
3 also. So, it is not just a matter of giving somebody PCT  
4 and, you know, a [inaudible] [34:36] communicating  
5 thermostat, or an in-home device, an in-home display device,  
6 but actually incorporating some of the newest technologies  
7 of advanced dryers, washing machines, refrigeration, and  
8 things like that, too, and those devices are able to go  
9 ahead and respond to demand response signals.

10           The second project I want to talk about is our  
11 Tehachapi Storage Project, and this is actually a storage  
12 project associated with our Tehachapi Wind Generation  
13 System. Again, what we are looking for here is actually a  
14 number of goals that we have for this project. You can see  
15 the size of it, \$57.3 million, DOE request of \$25 million,  
16 partnership cost share of \$6.3 million, and then SCE  
17 contribution of \$26 million, along with the \$1 million  
18 funding request from PIER for this project. This is  
19 actually what we are trying to do for the Tehachapi Storage  
20 Project. We want to go ahead and we are going to be using a  
21 lithium-ion storage system, it is actually the largest  
22 lithium-ion storage system that has been produced and used  
23 on the grid. It is an 8 megawatt hour, four-hour battery  
24 system, it is very large, it is about an 8,000-square-foot  
25 facility that it is going into, pretty good size, yeah. It

1 is a lot of laptop hours. And this is being produced by  
2 A123, and again, all of the data from this will be shared  
3 with all the different organizations. We have a measurement  
4 and verification plan, we have 13 use cases that we are  
5 going to be trying this out for, so it is a matter of  
6 looking at it for transmission uses, system uses, and ISO  
7 market uses. It is everything from voltage and grid  
8 stabilization through capacity resource adequacy, shifting  
9 of wind generation outputs, frequency regulation, which is  
10 actually - frequency regulation is actually one of the  
11 things this technology has been used for in the past, and  
12 then we are also seeing how it can go ahead and be used for  
13 ramp-up and ramp-down, also, to make wind a much more  
14 dispatchable energy source. Again, our sub-recipients are  
15 A123, lithium-ion battery technology, you will see A123  
16 throughout these projects, and for the battery technology  
17 that we are using. Vendors are Cal Poly Pomona and Quanta  
18 Energy, and then we have an advisory group that is made up  
19 of a number of different organizations.

20           This is an artist's conception of the facility,  
21 again, a pretty good size, this is going to go at our  
22 modeling substation, you know, it is one of those things,  
23 when we were first thinking about it, we were thinking  
24 trailers, right? And then as we realized it, trailers are  
25 not going to work, this is much bigger than we thought,

1 originally. And then, what it finally came out to is this  
2 8,000-square-foot facility.

3           And then we also have our Waukesha electric systems,  
4 this is our superconducting transformer. Now, in this one,  
5 it is not actually our work, we are a cost-share  
6 contributor, which means we are really creating the location  
7 for it to be tested, we would take care of the integration  
8 into our substation, and then also take data collection for  
9 it, and allow the distribution system to be used and for it  
10 to go ahead and drive the distribution systems that we can  
11 go ahead and take the data for it. You know, obviously, the  
12 advantage that we have in this is the ability of really  
13 combining together a fault current limiter and a  
14 transformer, all-in-one. So, if a fault occurs, then the  
15 transformer automatically will be driven out of  
16 superconducting and it will current limit that, so it will  
17 automatically current limit. The other advantage, too, is  
18 this is obviously much more efficient, too, it is a  
19 transformer when it is not having to current limit. And,  
20 again, for the project size of this, you can see \$21.7  
21 million, and a request of \$10.7 million from DOE, and a  
22 partner contribution of \$10.2 million, and SCE's  
23 contribution of \$.8 million, and then PIER funding of  
24 \$755,874, that is pretty amazing, we got down to a dollar  
25 there.



1           And this is to give you a little bit of background  
2 on the fault current limiting superconducting transformer.  
3 It has a lot of advantages. As I said, one advantage is  
4 that it is automatically a fault current limiter on its own,  
5 the other advantage is that it is much smaller than a  
6 typical transformer. This would be a - I believe it is a 28  
7 MVA transformer, which is typical for our distribution  
8 substations, but a much smaller size, and more efficient.  
9 Our partners team for this is Waukesha Electric Systems, a  
10 super powered tech center for super connectivity at the  
11 University of Houston, and the Oakridge National  
12 Laboratories and, of course, Southern California Edison.

13           The expected outcomes from these projects, we have a  
14 number of expected outcomes, we are going to be going  
15 through and quantifying what the values are, the benefits of  
16 each of these different technologies, and how these  
17 technologies -- more importantly, how these technologies  
18 work together. We are finding out what the scalability is  
19 going to be of each of the technologies. We will also be  
20 looking for the Tehachapi wind energy storage project where  
21 we went through a number of different outcomes that we are  
22 looking for on it, but its biggest value is to allow us to  
23 be able to increase the amount of wind generation that we  
24 can actually put on our system in order to be able to go  
25 ahead and have an intermittent resource. But, increased

1 intermittent resource, but still have a reliable solid grid,  
2 it is there to be able to go ahead with one of the uses, is  
3 to fill in those gaps between when the wind blows and when  
4 wind does not blow, and when you get a gust, and when you do  
5 not get a gust, back and forth, and then it also has a  
6 number of uses, then, too, including transmission  
7 efficiency, too. And then our Waukesha Electric Systems,  
8 too, and this is for our super conducting transformer, to be  
9 able to take the super conducting transformer and find out  
10 what its limits really are, and what the value of the  
11 technology is, and how well it actually works. The other -  
12 the biggest value, really, of all these projects is to be  
13 able to push the envelope on the technology and be able to  
14 accelerate that so that these technologies can then be  
15 reliable for all the utilities to be able to start using.

16 Lessons learned from the process - this has been  
17 really exciting, you know, we started out originally and I  
18 think one of the earlier speakers had mentioned how well -  
19 it just kind of like showed up on a desk, you know, one day,  
20 and then everybody kind of ran with it. You know, I think  
21 that is the way it probably worked for everyone, so, it was  
22 a very steep learning curve for all of us. As we started  
23 getting into it, we realized that there was a lot more to  
24 this than we thought. We started realizing there is tax  
25 implications of the award, we had to go through and try to

1 figure out, what does that mean to the utility? What does  
2 it mean to our customers? And get that worked out. The  
3 Davis-Bacon Act compliance, this had to do with things all  
4 the way down to, well, you need to be able to go ahead and  
5 handle your payroll on a weekly basis. Well, we do not pay  
6 on a weekly basis, that is not the way the company works,  
7 and it is not the way our systems are set up, so that  
8 created issues for us and all the way through the company.  
9 Property ownership and disposition issues, that was  
10 something that we had not really thought about before, too,  
11 as far as now, for one of the first times, we are putting  
12 equipment out on our distribution system, including  
13 switching equipment now, that is theoretically partly owned  
14 by the U.S. Government, instead, so they are not necessarily  
15 fire accessed, then, so how do you work that out? At the  
16 end, there is also disposition of it, how do you retire this  
17 equipment in the end? And that took a lot of months.  
18 Property encumbrances, we had issues with that and we  
19 started looking at financing, our normal project financing,  
20 and we realized that DOE was basically going to be the first  
21 name on the list for the financing, which we cannot have  
22 either, for a utility. So, that took a while to work  
23 through that.

24 As far as looking for the issues that we ran into,  
25 one of them was the structure of the application. If you

1 look at Federal mandates and state mandates, they are a  
2 little bit different, and the way that the applications work  
3 are different. And one of the things that I think we saw,  
4 and I think you heard from a number of the different  
5 presenters today, is really a question of harmonization - is  
6 there a way that we can harmonize the processes that CEC  
7 uses and what DOE uses so that we can be consistent, then,  
8 between the two of them, one of them being, of course,  
9 reporting. I think I heard this morning, oh, that problem  
10 is already taken care of, so you were looking for exactly  
11 the same reporting as DOE does. That is a huge relief for  
12 us, that makes it much simpler. So that is really the same  
13 thing as everyone else has said, I think.

14           Next steps. Okay, final PIER funding, you know,  
15 documents require that we "definitize" - I love that word.  
16 I do not think that is a word, but somehow *undefinitize*  
17 became our first new word that we did not know about, we  
18 thought about that about six months ago, and then afterwards  
19 you have *definitize* agreements. And we finally have an  
20 agreement. It has been exciting for us. As soon as we have  
21 that signed, we are actually in the midst of that right now,  
22 all the paperwork has been turned in, all of the issues, we  
23 believe, have been resolved now, and we expect to have  
24 everything signed by the end of July. We have all of our  
25 partners lined up, everybody is all ready to go, so it is

1 really literally just a matter of getting our signature with  
2 DOE, then, getting that taken care of. And then Waukesha  
3 Electric, it is the same issue there, they also are in the  
4 same position we are in that they are going through trying  
5 to get their definitize award taken care of also, and  
6 working through all their - it is really the same issues,  
7 different company, that is all, trying to do the same thing.  
8 And as soon as that happens, then we will be passing it all  
9 along to you guys. And I think that is it.

10 COMMISSIONER BYRON: This is great. Mr. Haralson,  
11 my recollection is, in dealing with investor-owned utilities  
12 years ago, doing research at the Electric Power Research  
13 Institute, whenever we talked about government funding, the  
14 utility would run in the other direction.

15 MR. HARALSON: Well, it is fear. In all sincerity,  
16 it is because of these issues, the issues of who owns what  
17 and how do you go ahead and close down the project at the  
18 end and decide, you know, you take all the widgets and do we  
19 give them back, or do we get paid to remove them, or do we  
20 have to remove them ourselves -

21 COMMISSIONER BYRON: And I suspect that is why you  
22 do not have a definitized agreement yet!

23 MR. HARALSON: Yes!

24 COMMISSIONER BYRON: Is this a first for SCE and the  
25 Department of Energy?

1           MR. HARALSON: Actually, it is. Yeah, we have  
2 always had smaller projects that have been much simpler, but  
3 in the case of this one, this was really the first time we  
4 have had anything of this size and kind of the full ARRA  
5 issues.

6           COMMISSIONER BYRON: Well, and I am somewhat  
7 familiar with this proposal - I should say these proposals,  
8 as well, when they went in, my hats off to SCE and being  
9 able and willing to work with both Federal and State  
10 Governments in order to get this funding. Similar questions  
11 I have asked in the past, does this accelerate your plans?

12           MR. HARALSON: Absolutely, yes.

13           COMMISSIONER BYRON: And, you know, there is not a  
14 whole lot of PIER co-funding in this, we try to be very  
15 equitable and do you have any sense, Mr. Haralson, do you  
16 think having the state co-funding helps you in winning these  
17 awards?

18           MR. HARALSON: Yes, I think it does.

19           COMMISSIONER BYRON: Or are you just being kind?

20           MR. HARALSON: No, I mean that sincerely. It is a  
21 matter of showing the Federal Government that the State is  
22 also with us, and that there is consistency. I think if our  
23 company would just go out on our own without that, you know,  
24 it is just an independent corporation now, you know, saying  
25 that they are going to do this. By having CEC, or by having

1 the State with us, it gives us, I think, a tremendous amount  
2 of clout and shows that you believe that we can do it, too.

3 COMMISSIONER BYRON: That is great. And one last  
4 thing, I guess more a comment than anything else, we do have  
5 an ulterior motive, though, in providing our co-funding, and  
6 it is not your reporting so much as making sure that we  
7 transfer this information, this technology throughout the  
8 State so that other utilities get the benefit of the work  
9 that you are doing, you know, it is public research, and so  
10 I know - I can tell we are hearing from the Project Managers  
11 today because they do not want to do the reporting, but we  
12 are very interested -

13 MR. HARALSON: It is so painful - the work is fun.

14 COMMISSIONER BYRON: I really like the SMUD  
15 recommendation to make sure that we do require a final  
16 report because we want to make sure this information is  
17 disseminated to other utilities that can benefit from it.

18 MR. HARALSON: Yes, yes, and we will. We will have  
19 a final report. All the information that we gather is part  
20 of the DOE contract, you know, for this work, will be  
21 released to everyone. Just like, I think, as you heard  
22 earlier, everybody on the cc list, everyone is going to get  
23 it, so that will not be an issue.

24 COMMISSIONER BYRON: Well, excellent projects. I  
25 appreciate so much your being here to share them with us.

1 Very positive feedback in terms of our contribution to this,  
2 and welcome to the Brave New World of working for the  
3 Federal Government's funds. We will see if you are quite as  
4 happy at the end of the project with having received these  
5 funds.

6 MR. HARALSON: Well, thank you for the opportunity.

7 COMMISSIONER BYRON: Thank you for being here.

8 MR. HARALSON: Thank you.

9 COMMISSIONER EGGERT: Actually, a couple follow-up  
10 questions. Actually, it relates in terms of some of these  
11 technologies that you are testing at the TSP and the FCL,  
12 fault current limiting super transformer, do you see that if  
13 these projects are successful in this demonstration that the  
14 next step is to proliferate them across the system? Or  
15 where do you see them?

16 MR. HARALSON: You know, I think you have to look at  
17 each technology individually. Some of the technologies are  
18 more on the edge of the curve, right, than the other ones  
19 are. A good example would be our high-speed protection  
20 system that we have for our loop circuit, that is a  
21 technology that I think has tremendous value, and I think  
22 this project is going to show that, and it is going to allow  
23 it to come to fruition much quicker than it would have  
24 otherwise; along with that is the high-speed communications  
25 that has to go along with it, again, that is another one of



1 those technologies that everything is close to being able to  
2 do it, but not quite there, and I think this project is  
3 going to be able to give that extra little push to get the  
4 communications to the point where it is there. So those  
5 would be my examples.

6 COMMISSIONER EGGERT: And then, this is more of a  
7 curiosity. In terms of the battery storage system, what led  
8 you to choose the lithium-ion technology, particularly A123,  
9 did you look at others like sodium flow batteries?

10 MR. HARALSON: Yes. The big advantage of lithium-  
11 ion to us was that it is a known technology, it is a very  
12 high density, it is available on the market, there is a  
13 large amount of experience with it, granted, in much smaller  
14 applications, but it leverages those smaller applications  
15 that are used all over the world for a larger application.  
16 The other reason for it, too, is that lithium-ion is the  
17 battery source, or the battery technology that is the most  
18 likely for EVs, and Southern California Edison believes that  
19 we have tremendous synergy between the EV market and the  
20 utility market, or the power grid market, that those two -  
21 it is kind of like either one of them, on their own, is good  
22 in that there is a fair amount of sales there, you know,  
23 that could help push the technology to market, but the two  
24 together is much stronger than that for both, for both  
25 sides. And I know that you know that we are a big believer

1 in Electric Vehicle transportation and we are one of the few  
2 utilities that actually has had an electric vehicle  
3 transportation group for the last 17 years, it is something  
4 we truly believe in, and we continue to believe in.

5 COMMISSIONER EGGERT: Thank you very much.

6 MR. HARALSON: You are welcome.

7 CHAIRMAN DOUGLAS: Thank you.

8 MS. KOROSEC: Are there questions from the audience?  
9 Anything on line, Lynette? Thank you.

10 MR. HARALSON: Thank you.

11 MS. KOROSEC: All right, I would like to introduce  
12 Tammy Candelario from Primus Power.

13 MS. CANDELARIO: Don't they call this the "dead  
14 zone" in terms of giving presentations in the afternoon when  
15 everybody's digestion is at its peak level? So I will work  
16 on my monotone, but really glad to be able to come and talk  
17 to you today about our project. I am Tammy Candelario with  
18 Primus Power. Primus is a small battery start-up in  
19 Alameda. Primus was the brain child of the founder, Rick  
20 Winter, who spent a lot of his career working in various  
21 battery technologies. He spent time at PG&E and has a long  
22 history with battery development. In probably September,  
23 Primus started hiring employees and work began in earnest  
24 and has been going on since the fourth quarter of last year,  
25 and we are up to about 20 employees at this point in our

1 life as a company.

2 I am going to talk about the things that everybody  
3 else has talked about today, so I will just whip through  
4 that slide. So what we are really trying to do is develop,  
5 integrate, and field deploy a zinc flow battery storage  
6 system. So, think big battery, utility scale application,  
7 much like the gentleman from SCE just talked about. The  
8 early stages are cell and system development, so that will  
9 be going on for the first couple of years. Once we have our  
10 concept and our general design pretty well established, we  
11 want to field demo that. FEG's Modular Generation Test  
12 Facility, and some of you might be familiar with that  
13 facility, a number of the do-it [phonetic] technologies were  
14 tested there, because we want to get a not quite in our own  
15 backyard sort of test and look at our basic building block.  
16 And ultimately we are looking to install a 25-megawatt --  
17 75-megawatt installation at our customer site at Modesto  
18 Irrigation District. That application is a wind farming  
19 application. MID has about 180 megawatts of wind that they  
20 are dealing with now, and they are looking to increase their  
21 wind and solar generation in response to their RPS  
22 requirement. They expect that they will be responsible in  
23 the future for doing more of the farming related to those  
24 technologies coming online. So, that is our primary  
25 application, but, as with the SCE system, this system will

1 be developed, it will have the capability to do the list of  
2 13 that you were all curious about, those values, and  
3 particularly with Modesto, we are going to be doing some  
4 modeling studies with the to understand the other value  
5 streams that come into play in their particular  
6 applications. So we call it a wind farming project, but,  
7 you know, more to be said about that. The attractiveness of  
8 it is low cost and a smaller footprint solution, I have a  
9 slide on that in a minute, and we are looking at using local  
10 source manufacturing. Our facility is in Alameda. We are  
11 going to be moving all the way up the freeway to Hayward as  
12 we expand, and are looking to tap into certainly local  
13 talent and do manufacturing locally.

14 So, this is generally the value proposition of why  
15 this battery and not some other battery. The footprint gets  
16 smaller as you go to the right, and cost gets smaller as you  
17 go to the top, and these are directional arrows, but just as  
18 a - we are a three-hour storage system, our goal is to make  
19 them smaller and cheaper. And I also should point out the  
20 difference with the lithium battery technology is you can go  
21 buy those now, and we are still about two years before we  
22 have product in the field.

23 This is what are system is essentially going to look  
24 like, this is 75 megawatt hours worth. These, we are  
25 developing our building blocks to be in 45-foot shipping

1 containers, stackable up to three high, which also helps  
2 with that footprint issue, this one is actually at a  
3 substation, the MID application will be at a substation and  
4 also this is the artist's rendering. The technology is  
5 actually fairly mature, the core electric chemistry is  
6 fairly mature. EPRI had done a lot of work on the zinc  
7 chlorine technology up through the mid-'80s, I think, there  
8 were funding issues. The reason why they did not push the  
9 technology further, Rick Winter had worked with Phil Simmons  
10 and taken advantage of new developments in flow battery  
11 technology and new developments in materials technology, to  
12 come up with the basic design. And I would like to point  
13 out that Rick took advantage of the \$95,000 CEC grant and  
14 his garage was, in fact, involved, so sometimes I think it  
15 works the way that we all think it should.

16 COMMISSIONER BYRON: Was he raising any chickens in  
17 the garage?

18 MS. CANDELARIO: I do not know! We had a picture of  
19 his garage design and I convinced him that it is just a  
20 little, you know, a little too clunky for this purpose, but  
21 in retrospect, we probably should have brought it.

22 COMMISSIONER BYRON: Okay, Mr. Gravely, we want to  
23 make sure we keep track of this one, okay?

24 MS. CANDELARIO: So this is really our AC building  
25 block module. This is what is going in the shipping

1 container, the little tanks you see are the basic cells,  
2 they are in pressurized containers, one of these pods, one  
3 of these shipping container sizes is about 660 KW, they are  
4 built to be a 480 volt AC installation, again, a lot of  
5 thought around making sure that they are transportable and  
6 modular so that they will fit in substation applications,  
7 any number of applications with substation applications, in  
8 particular.

9           Our schedule, as I mentioned before, the first year  
10 we are really developing that basic cell technology, the  
11 technology in the tank, and then Year 2 is about the DC  
12 component, the power conditioning units, the control units,  
13 so that, by the end of 2011, we have a standalone DC system  
14 that - I am sorry, AC system - that we can install at PG&E.  
15 That will really help us freeze our building block design  
16 going to production, and have 42 building blocks produced  
17 and ready for installation at MID in early 2013, and then we  
18 have two years of evaluation - field evaluation that we are  
19 doing at that point.

20           I also want to mention, MID is our customer in this  
21 case, but we also are really looking to MID as a partner and  
22 we have just put an agreement in place with them so that we  
23 can share information. We are really looking forward to  
24 having them help give us good advice and grounding from  
25 where we are developing our specifications, and we are

1 developing our test plan for PG&E, and really value their  
2 participation in this particular project. We also like the  
3 fact that they are a Muni, they are kind of mid-sized, so  
4 fewer variables than dealing with a really big utility, but  
5 I think a large enough utility to really make us think hard  
6 about what our module can do when we are done.

7           So, as I mentioned, work has been going on, a lot of  
8 work going on in the lab optimizing the chemical and the  
9 electrical operating parameters, looking a lot at commodity  
10 materials. One of the ways to keep costs down in this  
11 particular technology is not to develop a bunch of new  
12 exotic electrode or electrolyte materials, so really looking  
13 at commodities materials, and also looking at thoughtfully  
14 outsourcing some of our components. I think one of the  
15 risks that sometimes start-ups have is they have a lot of  
16 really bright engineers who want to build everything, and I  
17 think we have been challenged in not going down that path  
18 probably a couple of times already and have more of those  
19 challenges to come, but it is very clear that, if we are  
20 going to develop this cheaply, that we need to look at  
21 outsource to be very thoughtful about what we are doing in-  
22 house.

23           From our program perspective, several people  
24 mentioned that they are working on metrics and reporting,  
25 this is part of our DOE requirement and, of interest to all

1 of us from the standpoint of really being able to understand  
2 what we have accomplished after we have this thing in the  
3 field and operating - is it really going to do what we  
4 thought it could do and are we really seeing the value out  
5 of it that we thought that we were going to?

6           We are also working on a customer requirement  
7 specification. We are trying really hard early in the  
8 process to not build a system that we want to build, we are  
9 trying hard to listen to our customers and build a system  
10 that they actually can use. So, this involves a lot of - a  
11 lot of talking with people who have battery systems in their  
12 hand, that is actually not a real long list, and also  
13 talking with people who have done a lot of thinking about  
14 it. We are early in that process and it is kind of one of  
15 those things where you think you are never done, but  
16 certainly what we see is a real important effort early in  
17 the process. IP position - you know, a big deal for start-  
18 up companies, we have four patents filed with several in  
19 progress, and we are growing according to our plan. We are  
20 in Alameda right now sharing space with an incubator-type  
21 organization, we are sharing an office space, we are growing  
22 out of that and we are going to be moving to Hayward  
23 hopefully next month, which will allow us to expand our  
24 testing operation.

25           Our funding - we were one of 16 DOE Smart Grid



1 storage demonstration programs, that was a \$14 million award  
2 for us, out of our total \$47 million. That allows us really  
3 to - it enables a three-year commercialization plan, as  
4 opposed to a much longer commercialization plan. And we  
5 just learned yesterday, we were very excited that we are on  
6 that list of ARPA-E recipients. We had submitted an  
7 application for alternative electrode materials and not  
8 something that we would have done otherwise, we are very  
9 very focused on getting our core technology developed, but  
10 it will certainly give us opportunities that we otherwise  
11 would not have. We were one of the five CEC recipients for  
12 Smart Grid demonstrations, and as I mentioned as a follow-on  
13 to that initial \$95,000 worth of funding that was critical  
14 in improving the concept, and that funding is going to go  
15 mostly toward that early cell development that I mentioned,  
16 and helping us with our production process design.

17           Expected outcome, the biggie, is a reliable energy  
18 storage system and with quantified benefits, to really  
19 understand what it is doing and what it is not doing. And  
20 we think, in terms of jobs, that we are looking at probably  
21 over 100. That probably should be a TBD, and I think that  
22 we will be challenged to sort through what jobs would be  
23 created with the funding, without the funding, and what  
24 with. But, at the end of the day, it certainly will be  
25 fairly significant and certainly will help us in terms of

1 accelerating the development of our technology, no question  
2 about that. We also think that we are going to see a  
3 reduction in greenhouse gas benefit [sic], that is one of  
4 the benefits that we are going to be looking at with MID,  
5 and then, as I mentioned, there are other benefits that we  
6 are looking at with MID so we can make an assessment for  
7 that particular application, what in addition to wind  
8 farming are they able to get out of their system?

9           When I put this challenges slide together, I did not  
10 really mean to make it a generic any new start-up developing  
11 technology slide, but it kind of looks that way, I think it  
12 just says that there is really nothing special about us from  
13 a cost perspective. We are concerned about our production  
14 facility design, and we have been bringing in experts early  
15 to help us with our thinking about that. I already  
16 mentioned the material component cost, doing aggressive  
17 sourcing, thoughtful sourcing, in order to keep those costs  
18 down. Everyone developing batteries, I think, pretty much  
19 worries about material stability or the life of the battery.  
20 And from a thermal modeling perspective, our battery does  
21 not have active cooling, so there are no chillers, no AC  
22 units, so the thermal modeling is particularly important in  
23 this particular design and just the basic automation and  
24 communications. From a resources perspective, we have  
25 actually been doing pretty well in relation to our technical

1 team and having access to great technical talent, we have  
2 been able to hire people with a lot of experience and hire  
3 the sort of technical experts that we need to, and we are  
4 hoping that we do not run into issues with that, going  
5 forward.

6           So what would we do differently? It is probably a  
7 year early to ask us that. We still have not definitized  
8 our DOE Agreement yet, although we can definitely say that  
9 the DOE and CEC funding is really critical to our  
10 development. We certainly think that we can get more  
11 efficient internally in how we go after what I fondly refer  
12 to as OPM, Other People's Money, and from a CEC perspective,  
13 it really helped us a lot that this particular solicitation  
14 was tied with the DOE solicitation. So it makes it leaps  
15 and bounds more efficient for us to administer and have that  
16 relationship with the CEC. And in a past life, I was  
17 responsible for both DOE and CEC funding, and they were not  
18 connected, and it was a real challenge in terms of  
19 administration. And I will not bring up the reporting  
20 issue, everybody else has covered that pretty well.

21           One thought that occurred to us, at least to  
22 consider in the future, is that we have a \$47 million  
23 project, the CEC contribution to that project is \$1 million,  
24 and yet CEC is going to have to live with us through the  
25 five-year duration of that project, so it may be something

1 to think about in future projects, if there is a carve-out  
2 that is sooner, I do not know, but that seems like a long  
3 time to hang with a project given the size of the project  
4 and the size of the CEC contribution, so, again, I think  
5 something to think about. And the last issue that I  
6 identified is kind of a nit, and it was not necessarily an  
7 issue, it is probably more reflective of the paranoia that  
8 smaller companies have about their IP, but we did seem to  
9 have a lot of discussion about, "Well, who is going to look  
10 at it? How detailed do we need to get?" We seemed to have  
11 an inordinate amount of handwringing about that. In talking  
12 with some other groups, I think we all were facing some kind  
13 of similar issues, so, again, not that that was any  
14 particular issue with it, it is probably more our issue than  
15 anything. So, with that, were there questions?

16 COMMISSIONER EGGERT: A quick question, I apologize  
17 for having to step out and if I missed any of the discussion  
18 on the costs, by my calculation, for the total program you  
19 have got \$47 million for a 75 megawatt hour capacity, so -  
20 is that right?

21 MS. CANDELARIO: I am sorry - 47 -

22 COMMISSIONER EGGERT: \$47 million for a 75 megawatt  
23 hour capacity?

24 MS. CANDELARIO: That is correct.

25 COMMISSIONER EGGERT: So that is about \$626 per

1 kilowatt hour, and then, for the A123, I realize that these  
2 costs are more than just the actual battery cost, they  
3 include a lot of the programmatic activity and stuff. For  
4 the lithium-ion, it is about three times that, \$1,800 per  
5 kilowatt hour, and I guess that was just - is that number,  
6 the \$626 sort of a reasonable reflection of where this  
7 technology is in terms of cost?

8 MS. CANDELARIO: Here is what I would say about  
9 that. Customer No. 1 is going to pay a different price  
10 because they are taking a different risk than Customer No.  
11 2, so the price that MID would pay for the first system is  
12 less than what the next customer would pay. And I do not  
13 think we know what that math really looks like yet, but from  
14 the math that you just did, to look at Customer No. 2, the  
15 number would need to go up.

16 COMMISSIONER EGGERT: So you are sharing some of  
17 that cost as part of your development budget, I would - is  
18 that what you are saying?

19 MS. CANDELARIO: Yeah. And I would say that part of  
20 the learning for us, even going through this process, is  
21 really understanding what does it really cost, you know, we  
22 can speculate, I mean, we think that number is probably not  
23 what we would sell it to Customer No. 2 for, but do we have  
24 - you know, we are not at a point in our development yet  
25 where we have hard numbers to really say one way or the

1 other.

2 COMMISSIONER EGGERT: And in terms of the sort of as  
3 built, final cost evaluation, is that information that would  
4 be available as part of the project reporting?

5 MS. CANDELARIO: I think we have not negotiated that  
6 yet.

7 COMMISSIONER EGGERT: And then, actually, a  
8 curiosity with respect to - you mentioned the IP issues,  
9 which I know are oftentimes tricky and challenging when  
10 dealing with Government funding, are you saying that those  
11 were able to be resolved satisfactorily?

12 MS. CANDELARIO: Yeah, I think when you talk about  
13 generically, people get twitchy, but when you sit down and  
14 talk about, well, what reasonably makes sense to share at  
15 what point in the process, I think that can be worked out.

16 COMMISSIONER EGGERT: Okay, thanks.

17 COMMISSIONER BYRON: Ms. Candelario, thank you. I  
18 was not aware of this project and, of course, these are  
19 really exciting projects to us because we are quite  
20 concerned about how we are going to integrate renewables in  
21 a more substantial way, and this addresses the firming of  
22 intermittence at the generating source, which is probably  
23 what we want to end up doing.

24 MS. CANDELARIO: In this case, it is not at the  
25 generating source, it is at the Modesto Substation.

1           COMMISSIONER BYRON: Okay. Yes, I think I am  
2 thinking more in terms of vs. larger storage projects, but  
3 that is all right. Still, a very good project. A couple  
4 questions. And I may have missed this, and I am sorry  
5 because you may have gone through this quickly, but you have  
6 got a field demo with PG&E and then, of course, you  
7 indicated you were going to do an installation at Modesto  
8 Irrigation District.

9           MS. CANDELARIO: Yeah, and I probably was not very  
10 clear about the field demo that PG&E did. The purpose of  
11 the field demo, that PG&E needs to take one shipping  
12 container size module that is - at that point, it is an AC  
13 module because it is has power conversion electronics in it,  
14 and test that at PG&E in their modular generation test  
15 facility, in their lab facility. And then, it is basically  
16 the proof of our design, and then we go into full production  
17 with that design to develop in Modesto - the Modesto system.

18           COMMISSIONER BYRON: Are either of these utilities  
19 participating financially?

20           MS. CANDELARIO: PG&E or Modesto? Modesto certainly  
21 will be paying a lot and I think the number that was part of  
22 our DOE proposal was around \$47 million for this system.  
23 PG&E is watching, we think it is a good thing to involve  
24 PG&E. Certainly, their modular generation test facility is  
25 something that we use as a third-party - as part of a third-

1 party service that they provide, but we think that, by doing  
2 the test at PG&E, it lets them get closer in on the  
3 technology and be able to see what we can do.

4 COMMISSIONER BYRON: And you are the lead contractor  
5 on this, correct? This is not a demonstration project, this  
6 falls under a different, oh, Project Opportunity Notice, I  
7 suppose they call them, than the other ones that we saw  
8 presented to us earlier today, is that correct? Mr.  
9 Gravely, do you know?

10 MS. CANDELARIO: For the DOE, or for the - oh, go  
11 ahead.

12 MR. GRAVELY: I believe this one was a part of the  
13 36 instead of 58. Fifty-eight was infrastructure, you saw  
14 some of the infrastructures, I believe this was a community  
15 store one, which was part of FOA36.

16 COMMISSIONER BYRON: And so you are the lead - thank  
17 you very much -

18 MR. GRAVELY: So they are actually doing  
19 demonstration as opposed to an infrastructure demonstration.

20 COMMISSIONER BYRON: Gotcha. So you are the lead  
21 contractor on this, then?

22 MS. CANDELARIO: Yes.

23 COMMISSIONER BYRON: Where would you be without  
24 these ARRA funds? Where would this project be?

25 MS. CANDELARIO: It is hard to say, but I would



1 refer back to the comment that the gentleman on the phone  
2 made, Craig Horne from EnerVault made the comment about the  
3 competence from your investors, I think that definitely  
4 applies in this case, you know, if somebody else loves you,  
5 well, then they love you more, right? The risk is  
6 different. So very hard to say, but I think there is no  
7 question that it accelerates the timing of the technology in  
8 the field.

9 COMMISSIONER BYRON: Good, and that is really what  
10 we are after, and I am glad to hear that. One last  
11 question, you had indicated, I believe you said, well, you  
12 may not have said "definitized" -

13 MS. CANDELARIO: I did.

14 COMMISSIONER BYRON: -- but you have not finished  
15 your contract with the Department of Energy. Could you give  
16 us a sense of what the hold-up is? Maybe that is a bad  
17 choice of words. Is it intellectual property, what other  
18 terms and conditions apply?

19 MS. CANDELARIO: No, I think it is just that there  
20 are a lot of projects and few staff. We had -

21 COMMISSIONER BYRON: We understand that problem.

22 MS. CANDELARIO: We know you do.

23 COMMISSIONER BYRON: So are we a problem at all on  
24 this contract?

25 MS. CANDELARIO: We have not gotten far enough to

1 know. But I want to say that your staff has done a great  
2 job of outreach and have provided us with as much  
3 information as we could possibly want to know. I certainly  
4 feel like the minute we sign with DOE, we are ready to push  
5 the button and send the information to the CEC, and I do not  
6 know what more your staff could have done other than that,  
7 so we are not sitting back guessing what the requirements  
8 are, we are not guessing about how you fill out the form, we  
9 have been given all the information that we could want on  
10 that front. So, so far, very good and the staff have been  
11 very sensitive about the issue of - we only want to report  
12 once and those types of things, so we appreciate that.

13 COMMISSIONER BYRON: One last quick comment. These  
14 are exactly the kind of projects that I believe ARRA had in  
15 mind, of course, they have got the large utility  
16 infrastructure demonstration programs, which we heard about  
17 earlier, extremely important and helped advance the football  
18 here - when I say that, they help advanced our policies,  
19 they help advance the technologies, but to see private  
20 sector get involved taking advantage or a energy innovation  
21 small grant program develop into a company that is now  
22 commercially funded, moving forward with new technologies,  
23 this is the model that really creates jobs. I am really  
24 glad that - I appreciate you taking your time out to be here  
25 with us to share the project with us, that these are the

1 kinds of projects that we are very interested in also  
2 advancing.

3 MS. CANDELARIO: And we are extremely appreciative.

4 COMMISSIONER BYRON: Thanks.

5 CHAIRMAN DOUGLAS: Good. I have no questions at  
6 this point, I appreciate you being here, it has been great  
7 to learn more about your project. Thank you.

8 COMMISSIONER BYRON: Good luck.

9 MS. KOROSEC: Do we have any questions from the  
10 audience?

11 MR. KRIEGER: Yeah, I do. Tammy, you had mentioned  
12 that 100 individuals are going to be employed. Is that in  
13 the actual build-out of the energy farm itself? Or in its  
14 continuous maintenance after it is up and running?

15 MS. CANDELARIO: Actually, there is kind of three  
16 pieces to that when you think about jobs, the first is that  
17 there is a team that is developing the technology, that team  
18 is probably 25ish, 30. Then, you have the team that comes  
19 in when we start to do production, so there is the  
20 manufacturing component, and that really is the big spike in  
21 the number. When we start building 42 modules, that is when  
22 we start bringing on a lot of labor to do that production.  
23 The trickiness in the number is we can figure out how many  
24 people it will take us to do production at a certain volume  
25 over time, but how do you kind of slice that to count? What

1 is the DOE, the ARRA funding, and [inaudible] [1:19:18], it  
2 actually has more to do with the production. Part of the  
3 beauty of battery storage systems that we are anxious to  
4 demonstrate in the field is that they do not require a lot  
5 of maintenance, so yes, once you install it, it is fairly  
6 modular, so most of the build, the idea is that most of the  
7 build is actually done in the manufacturing facility, so  
8 that tends to be where the jobs are. There will be some,  
9 you know, construction that needs to go on in the substation  
10 site, not a big jobs add, probably. And, from an ongoing  
11 maintenance perspective, also not a real significant jobs  
12 add, a few, but really it is about the production.

13 MR. KRIEGER: And I also, the fact that your  
14 ultimate goal is 75 megawatts per hour - is that -

15 MS. CANDELARIO: 75 megawatt hour, so this  
16 particular application is 45 megawatts.

17 MR. KRIEGER: I notice that the solar farm down in  
18 Mojave is something like a \$1.4 or \$1.5 billion investment,  
19 and I understand - help me understand this - that it will  
20 employ about 1,000 individuals in the construction of that  
21 solar farm, but the maintenance of it, the figures go way  
22 down, something just about 10 or so individuals to maintain  
23 from what I understand, and I have read the reports on it.  
24 So, I think you have done really well because your rate  
25 shows about \$400,000 or \$500,000 per worker of its 100

1 workers, and theirs seems to be about \$1.5 million per  
2 worker, so you have done pretty well, I think. I do not  
3 know what their megawatt eventuality is, but that is fairly  
4 impressive.

5 MS. CANDELARIO: We will apply it when we get there,  
6 but a lot of the point is to have a system that is not  
7 expensive to implement.

8 MR. GRAVELY: Sorry, I know we are running a little  
9 bit - I just wanted to clarify something real quick because  
10 all the people have said the same thing. In the reporting  
11 element, we mentioned that the PIER will accept the Federal  
12 responses, also, as you have noticed, many of these  
13 contracts are very large, and so you do not have to spread  
14 the CEC funds over the whole five years, it can actually be  
15 an earlier, smaller task, and so you do not have to - you  
16 can do your task early, the requirement is you continue to  
17 provide us the reports even when the PIER task is done, but  
18 you do not have to make it a cookie cutter spread across the  
19 whole project, you can do it upfront and you can receive the  
20 funds early on, but you just have to decide that when you do  
21 your Statement of Work.

22 MS. CANDELARIO: And, in fact, we looked to do that  
23 and that is where the acceleration comes in because it helps  
24 us bring on labor sooner.

25 COMMISSIONER BYRON: Good.

1 MS. KOROSEC: We do have a couple of questions  
2 online from Maxine Scheer [phonetic]. "How much funding is  
3 MID contributing?"

4 MS. CANDELARIO: We need to go through the process  
5 of getting our technology deployed at the PG&E level and  
6 then MID is looking at a funding level of about \$27 million.

7 MS. KOROSEC: All right and, "What was the choice  
8 behind the Primus Power locating in the Bay Area vs. other  
9 parts of the State?"

10 MS. CANDELARIO: I am not sure I am probably the  
11 best person to answer that question. The founder and CTO  
12 lives in the Bay Area -

13 COMMISSIONER BYRON: That is the answer.

14 MS. CANDELARIO: But I think, also, there was  
15 consideration given about the talent pool in the Bay Area.  
16 We, as with most start-ups, really look to very specialized  
17 talent, it can be very competitive for that talent, and we  
18 need to be able to have access to either attract people in  
19 to California, or invite people aboard.

20 MS. KOROSEC: All right, thank you very much. Now  
21 we are going to switch gears a little bit and be talking  
22 about transportation, so we are speaking of the Alternative  
23 and Renewable Fuel and Vehicle Technology Program and we are  
24 starting with Jennifer Allen from the CEC staff.

25 MS. ALLEN: I will make my presentation very short

1 because I am just the opening act. We need to get to the  
2 meat of the projects here. A little bit of background  
3 information. AB 118 was developing their Investment Plan  
4 and we were finalizing the plan about January of 2009, and  
5 in February, President Obama announced the American Recovery  
6 and Reinvestment Act funds that were going to be available,  
7 and projected about \$37 billion, for starters. So we were  
8 looking at an adoption of our plan in about the April  
9 timeframe and, at the same time, the announcement actually  
10 came out for projects associated with the ARRA dollars in  
11 about March of 2009. So, we had over \$170 million that we  
12 had the potential to leverage as co-funding for ARRA  
13 dollars, and the decision was made to try to go for the  
14 leveraging. The question was how to do it. We had two  
15 potential tracks that we were looking at, one was to go to  
16 the Federal Government and say, "Here we are, California has  
17 got over \$170 million in transportation funds that can cost  
18 share dollars, and so would you consider us for a cost share  
19 and we will administer the funds for you?" And then, the  
20 other potential was that we would come out with a  
21 solicitation to allow our money to be used for cost share;  
22 the problem with that was, we would have to put out a  
23 solicitation without any idea what the Feds were going to be  
24 putting out. It ended up being that that was the route that  
25 was taken, and what we were allowed to do with our

1 conversations with the Department of Energy was to go ahead  
2 and put out a solicitation based on whatever - a generic  
3 sort of solicitation, we would accept applications. In this  
4 case, we had a table with what we thought were going to be  
5 the potential solicitations that were going to be coming out  
6 from the Federal Government, and with a lot of to-be-  
7 determined in the dates. And as the solicitations came on  
8 board, what we did was we just basically kept amending our  
9 solicitation, and I want to point out to everybody that this  
10 was PON-08-010, so it was the solicitation before PIER, and  
11 so we basically paved the way for PIER to be able to do  
12 their solicitation.

13           So, the Investment Plan was adopted April 22<sup>nd</sup> of  
14 2009 and the solicitation was posted April 22<sup>nd</sup> of 2009, and  
15 that was also Earth Day. And we had it limited to  
16 Applicants who would be submitting proposals only to  
17 transportation-related on our solicitations, they had to be  
18 consistent with our Investment Plan that had just been  
19 adopted, and we were just basically offering up ARRA funds  
20 if you were successful as cost share. We looked at - and  
21 these are actually in the order as they came up and as we  
22 added them to the solicitation - we started out, the very  
23 first one was Transportation Electrification. We basically  
24 had two weeks to get three proposals in and to take a look  
25 at those proposals, and to have a letter ready to go for the



1 Federal Government. And so there was a potential of \$378  
2 million in Transportation Electrification. The next big one  
3 was \$2 billion for Battery and Component Manufacturing. And  
4 then Clean Cities. So, those were the three large  
5 solicitations that we were really looking at. And the rest  
6 came in further down the road, but we were already well into  
7 the first three by the time we were looking at the TIGGER,  
8 the Transit Investments for Greenhouse Gas and Energy  
9 Reduction, which were strictly for transit agencies, and the  
10 Integrated Biorefinery Operations, and then the very first  
11 ARPA-E solicitation.

12           So these were the dollar amounts that were being  
13 offered from the Feds. Here is our proposals, these were  
14 the final proposals that went forward to the Federal  
15 Government, with Letters of Intent from the Energy  
16 Commission, so out of \$378 million for Transportation  
17 Electrification, California sent forward \$785 million in  
18 projects, and then you can see - so for \$2 billion, we had  
19 \$319 million, Clean Cities, \$425 million. And so on. What  
20 we got was \$88 million in Transportation Electrification,  
21 zero in manufacturing, \$26 million in Clean Cities, zero in  
22 TIGGER - these were projects that were associated with the  
23 AB 118 solicitation. Demonstration of the Biorefinery -  
24 zero, and Advanced Research, we got \$4 billion.

25           COMMISSIONER BYRON: Where did all the money go?

1 MS. ALLEN: To the other states.

2 COMMISSIONER BYRON: Did it go to Michigan?

3 MS. ALLEN: Michigan? Yes. Illinois, I think, also  
4 got a pretty good chunk. I think Texas got a few dollars,  
5 too. Transportation Electrification, \$21 million, is what  
6 actually went out in AB 118 dollars, so obviously in  
7 manufacturing we had no dollars associated with that. \$22  
8 million in Clean Cities, and then down to ARPA-E, we had \$1  
9 million. So this is, what, out of the over \$170 million  
10 that we started with, we ended up with three solicitations  
11 that we were successful in getting projects in.

12 So a summary, there was \$3.4 billion available in  
13 these six solicitations, we ended up having to process 193  
14 applications for \$1 billion in AB 118 funds, and \$2.85  
15 billion in Federal dollars that were being requested. And,  
16 in the final proposals, we processed 108 applications and  
17 that was for \$624 million of AB 118 dollars and going for  
18 \$1.82 billion of Federal dollars. So, we processed a total  
19 of 301 applications within about a span of eight months.  
20 And as a result, we now have the five - these were the  
21 projects that have gone forward and we are in the process of  
22 negotiating or completing agreements with them, and five of  
23 the projects are going to be speaking to you today.

24 MS. KOROSSEC: Do we have any questions from the  
25 dais?

1           CHAIRMAN DOUGLAS: Thank you, Jennifer, you have  
2 gone very quickly what was presented, months and months and  
3 months of very hard work and effort and thought, and just  
4 trying to meet the 118 program demands and the DOE timelines  
5 and the needs of Applicants mesh in any kind of logical way,  
6 so thanks to you and staff from the Fuels and Transportation  
7 Division for marching through all of that. I guess we will  
8 see today at least some of the benefits of that work.

9           MS. ALLEN: Thank you.

10          COMMISSIONER EGGERT: Actually, just a quick  
11 comment. Thanks for your presentation. I think there are  
12 probably a couple different ways you can look at this, 1)  
13 that certainly on some of these solicitations, we did not do  
14 as well as I think we might have hoped, particularly on, for  
15 example, Battery and Manufacturing, where there was a big  
16 goose egg; I guess the other way to look at it, and I think  
17 actually the table in Mr. Perez's first presentation shows  
18 it a little bit more clearly, which is, if my math is  
19 correct here, the \$36 million that we did eventually expend  
20 as cost share, leveraged about \$105 million ARRA and \$106  
21 million additional funds.

22          MS. ALLEN: Uh huh.

23          COMMISSIONER EGGERT: So, from sort of that  
24 perspective, on those projects that we did fund, we got a  
25 significant amount of leveraging.

1 MS. ALLEN: Yes.

2 COMMISSIONER EGGERT: I guess, based on all the  
3 experience, and given that you were sort of in the thick of  
4 it, do you think that there were things that we could have  
5 done differently to increase our success?

6 MS. ALLEN: I think what made it a bit difficult is  
7 we were the first. And so, at the time DOE was just  
8 starting to put out solicitations, they really did not want  
9 to entertain a state coming in, regardless of how many  
10 dollars were available, and they basically did not quite  
11 know how it was going to work out, and so I think that they  
12 already had their marching orders and they were going to  
13 stick with it. And so, they wanted all the states to come  
14 in basically on the same footing, and just come in as a  
15 proposal, without any pre-negotiation for projects. And  
16 they also had certain things that they were required to be  
17 doing and that is why, on the front end, there were some  
18 projects that very clearly fell into certain states because,  
19 from an economic recovery standpoint, there were things that  
20 they were trying to accomplish by having funds go to those  
21 states.

22 COMMISSIONER EGGERT: All right. I guess, maybe as  
23 we hear from the subsequent presenters, I would be curious  
24 to sort of hear from them their experience through this  
25 process, both in terms of, you know, working with our 118

1 program for the purposes of the cost-share for these  
2 activities, and then also kind of going forward, how we can  
3 best engage with them to maximize the benefits of the  
4 projects. So, thanks.

5 MS. KOROSSEC: All right, next we will hear from Mr.  
6 Ray Hobbs on the ETEC Project.

7 CHAIRMAN DOUGLAS: And I think I will just speak now  
8 before we begin with the presenters, to ask you to be both  
9 thorough, but also succinct in going through the  
10 presentations. I am sure we will have questions for you and  
11 all of you, but rather than completely squeeze the last  
12 presentation, I will just put a - and, of course, we can and  
13 often do go past the hour for adjournment that we  
14 optimistically post in our agendas, but, in any case, if  
15 everyone would be mindful of the time as we move forward,  
16 that would be helpful.

17 MR. HOBBS: Madam Chairman, Commissioners, ladies  
18 and gentlemen, thank you for giving me the opportunity to  
19 present the EV project today to you. My name is Ray Hobbs.  
20 I work for Ecotality. In September of 2009, Ecotality was  
21 awarded the largest Federal award for the deployment of  
22 electric vehicle and infrastructure in the United States by  
23 the Department of Energy. We call the project The EV  
24 Project. We really can keep going this way. Why do the EV  
25 project? There are three reasons, first, there are just not

1 enough [inaudible] [1:37:26]. In 2009, the United States  
2 imported just under 200 billion gallons of oil. This  
3 imported oil hurts our economy. If you give any value at  
4 all to that oil, let's say \$70.00 a barrel, you wind up with  
5 over \$300 billion a year going out of the economy. That  
6 works out to just under a billion dollars a day. And the  
7 third point is security. All of this imported oil puts  
8 money into the wrong hands of people who want to do harm to  
9 the United States, and requires the support of our  
10 [inaudible] [1:38:00]. And moving all this oil around the  
11 world definitely has environmental consequences. The  
12 problem is not the car, America has had a love affair with  
13 the car, it has driven us enough to require manufacturing,  
14 it is a major personal outlay of our finance, and it  
15 occupies a big part of our lives and our lifestyle, the  
16 problem is not the car, it is the fuel. Could electricity  
17 replace oil - imported oil? I think it could. Electricity  
18 is just an instantaneous energy currency, it is used, it is  
19 made from other resources that are converted to electricity,  
20 making it easy, convenient, and clean. Today, in the U.S.,  
21 we find electricity practically everywhere. We make  
22 electricity with our own stuff, we do not need to import  
23 anything. But we do buy an electric car. Have you ever  
24 driven an electric vehicle? Have you ever seen one on the  
25 street? Have you ever seen a re-fueling station for an

1 electric vehicle? Would you buy something you have never  
2 seen? You may have concerns about the electric car. "How  
3 far can I go before I have to charge?" "I can't find a  
4 place to charge." "I have to wait a long time to charge."  
5 The challenge for the electric car is not electricity, that  
6 is everywhere. The challenge is the charging  
7 infrastructure. You may be sympathetic to environmental  
8 issues and concerned about seeing all that money for  
9 imported oil go out of the United States, but you have a  
10 life and you need real personal ability that fits around  
11 your lifestyle, not your lifestyle fitting around your fuel  
12 in your car.

13           This project, simply put, puts enough electric  
14 vehicles and charging infrastructure together in a confined  
15 geographical area of the United States to figure out what is  
16 needed to make the EV Program fit into our lifestyle. With  
17 all this equipment and people running around in large  
18 cities, if we are going to figure out what works and what  
19 does not, the Electric Vehicle Program supported by the  
20 United States Department of Energy has some major goals, 1)  
21 the accelerated sales of advanced electric drive vehicles,  
22 2) to reduce imported oil, and 3) to create jobs. The  
23 information gathering in the use of both the vehicles and  
24 the charging will be the foundation for planning and  
25 modeling of something we will call "the Roadmap" for a large

1 deployment of electric vehicles in the future.

2 Ecotality is the Program Manager and is responsible  
3 for the deployment of the charging infrastructure and to  
4 create the roadmap. Nissan and GM will provide the  
5 vehicles, and the EV owner will provide the source of  
6 information: How do they like to drive? Where do they want  
7 to charge? And how to fit the electric cars into their  
8 lifestyle?

9 Now, you may not know much about Ecotality and I  
10 will not spend a lot of time going over it, but I will  
11 briefly say that we have got 20 years of experience in  
12 testing electric vehicles and hybrid vehicles for the United  
13 States Government. We have 20 years in battery testing, we  
14 have 15 years in Smart Charging and Fast Charging, and we  
15 have got a whole bunch of time and experience with the  
16 electric utility and industry and understand the challenges  
17 that it faces today.

18 Here is a picture of the charge line-up and the  
19 vehicle deployment of 1997 and 1998, where California led  
20 the nation in asking for a zero emission vehicle mandate and  
21 it fell away. The EV project has three primary elements,  
22 cars, chargers, and a plan for the roadmap. The cars, we  
23 are going to deploy about 8,300 vehicles across the United  
24 States; chargers, there will be about over 15,000 Level 2  
25 chargers and over 300 Fast Chargers. This large scale



1 deployment of charges supporting infrastructure is going to  
2 make it easy to find EV charging. The information and the  
3 analysis about how this equipment is going to be used will  
4 create the basic information for the roadmap, and the plan  
5 going forward will create a 10-year regional plan for each  
6 area. We are going to learn what works and what does not  
7 work, we are going to see the effectiveness of this  
8 hardware, and we are going to understand the commercial  
9 activity. These lessons will assist in planning the future.

10 Now, this project does not encompass the entire  
11 United States, it is just in specific geographical areas,  
12 encompassing close to 45 million people in those  
13 metropolitan areas. In Washington State, the metropolitan  
14 area of Seattle; in Oregon, the metropolitan areas of  
15 Portland and smaller communities, Eugene, Salem, and  
16 Corvallis, that would be an EV corridor; in California, the  
17 metropolitan area of San Diego and Los Angeles; in Arizona,  
18 the metropolitan area of Phoenix and Tucson; in Tennessee,  
19 the metropolitan areas of Nashville, Knoxville, Chattanooga;  
20 new to the project, the State of Texas, Dallas and Houston;  
21 and now the District of Columbia, with Washington, D.C.

22 Here are the two vehicles that are going to be part  
23 of the program. On the left, you see the Nissan Leaf, and  
24 on the right, the GM Volt. And the Nissan Leaf is 100  
25 percent battery powered, and the Volt is an extended range

1 plug-in hybrid. These vehicles are going to be developed in  
2 the United States, they are going to deploy in each region,  
3 these are going to create local jobs in dealerships, sales,  
4 and service.

5           Unfortunately, not every grid connected vehicle will  
6 be part of the EV project in these identified regions, only  
7 owners who meet certain criteria and agree to project  
8 participation will become part of the EV project. But all  
9 of the grid connected vehicle owners will have an  
10 opportunity to use public charging, providing that vehicle  
11 is compatible with those chargers. Now, to figure out what  
12 real effective infrastructure is, the project needs people  
13 to use them. We need people using their cars, traveling  
14 back and forth across the cities, and we are going to need  
15 folks using that charging infrastructure. This project  
16 needs information about how people operate their cars and  
17 how they use and react to the charging infrastructure. The  
18 sales of the Chevy and Nissan grid connected vehicles are  
19 not limited to just project participants; there may be many  
20 more vehicles in a region than those who participate in the  
21 project. Although electricity is everywhere, there is no  
22 direct charging infrastructure to support the electric cars.  
23 Ecotality has specific responsibilities in this program and  
24 we will collaborate in these regional areas with government,  
25 utilities, businesses, first responders, and others who have

1 an interest or authority in providing the charging  
2 infrastructure. We will identify barriers and create plans  
3 to overcome any problems to the deployment of the charging  
4 infrastructure. Second, Ecotality is going to deploy the  
5 regional charging infrastructure, which will be a  
6 combination of home charging and commercial charging and  
7 fast charging. There will be controlled access to the  
8 commercial charging. The effectiveness of the charging  
9 infrastructure will be determined by gathering the analysis  
10 of operating data and feedback from EV owners and commercial  
11 businesses. Operation data will be compiled by the DOE, by  
12 the Idaho National Engineering Lab in Idaho Falls.

13 Lessons learned from the operations now and  
14 straightforward feedback, and also Smart Grid operational  
15 results. Carmakers and business models will be the  
16 foundation to create the economic models and plans for the  
17 future deployments. Just a footnote about the chargers.  
18 Chargers are classified at three levels, Level 1 is 120 volt  
19 standard outlet, the outlet in your home; Level 2 is higher  
20 voltage, up to 240 volt, and up to 6.6 Kilowatt hour from an  
21 AC outlet, and Level 3 is the Fast Charging which gets you  
22 on your way, in the case of the Nissan vehicle, in about 20  
23 minutes.

24 Ecotality is going to install 2,500 chargers per  
25 region. Now, that is going to be when a new EV owner

1 purchases their car, they will be given an opportunity to  
2 participate in the Electric Vehicle project. If qualified,  
3 Ecotality will install a Level 2 charger at their home at no  
4 cost, it will be free to them. Since the project covers  
5 about a thousand vehicles per region, only about a thousand  
6 EV owners will be project members. Local contractors will  
7 be trained and certified to install these chargers to create  
8 local jobs. After that, we will install 1,500 Level 2  
9 chargers to a commercial locations, allowing a work, shop,  
10 and travel feature, and we will follow-up with about 50 Fast  
11 Chargers for commercial use. This high density of public  
12 charging infrastructure cars will establish easy access and  
13 there will be several EV corridors provided in some of the  
14 cities.

15           How do you drive your EV? Where do you want your  
16 charge and when? How do you want to find charging? What do  
17 you want to do during charge? And how do you want to pay?  
18 These are some of the questions we hope to answer in this  
19 project.

20           This grouping of charging infrastructure in a  
21 community, we refer to as the EV Microclimate. Let me ask  
22 you, where do you want to be? If you own an EV, where would  
23 you like to charge? How about a gas station? Why is  
24 refueling time really important at a gas station? Because  
25 that is the only place you can go to get your fuel for your

1 gasoline car, and you really do not want to be there, so  
2 getting in and out is very very important. You do not want  
3 to hang around a gas station longer than is absolutely  
4 necessary, but if you wanted to be somewhere, if you like  
5 being there, it would not matter about the time because you  
6 are where you want to be. Can you put your lifestyle and a  
7 gas station together? Most of us cannot. Our goal is to  
8 identify your lifestyle with EV charging, you are doing what  
9 you want to do when your EV is charging.

10 Now, this roadmap that we are going to be creating  
11 is looking ahead, and we are going to develop 10-year  
12 regional plans for each of the areas that we are in, and we  
13 are going to look at the deployment area, the electric  
14 vehicle and charging deployment and penetration, and the  
15 charging infrastructure requirements. The models for the  
16 infrastructure, we will create models for the next 500  
17 cities in this Electric Vehicle infrastructure deployment  
18 and we will experiment with the controlled access for  
19 commercial and public charging. For sure, this is about  
20 hardware, but our goal is really to identify your lifestyle  
21 and to put charging infrastructure around it, that means we  
22 are going to need information to begin building models,  
23 including electric vehicle sales, where to install the  
24 charging, the impact of the electric grid from charging, and  
25 the commercial opportunities with risk assessment.

1           It has taken more than 100 years after the early  
2   success of the automobile to get us to where we are today.  
3   The EV is different than Henry Ford's evolutions. The EV is  
4   more connected. We are spending about a billion dollars a  
5   day on imported oil. And what do we get with that? Well,  
6   tankers crossing the ocean, our Navy guarding in national  
7   shipping lanes, our kids in the Marines and Army fighting  
8   terrorists, paid in part with imported oil, air pollution,  
9   respiratory health concerns in some cities, and enjoyment of  
10   filling our car with imported oil and fueling it quickly.  
11   How about putting our refueling and our charging into our  
12   lifestyle, rather than putting our lifestyle around  
13   refueling? EV refueling does not require environmental  
14   permits, it does not need oil tankers, or kits to prevent  
15   access to it. Electricity is everywhere. We can put that  
16   charger where you want to be, and where you want to go. You  
17   do not have to hurry with EV charges. I do not think  
18   anybody will argue about the benefits of electricity, it is  
19   made in lots of ways, so there can be a lot of it, and it is  
20   made everywhere, including right here. It uses regional  
21   resources, it creates regional jobs, it advances regional  
22   economies, and environmental stewardship is assured through  
23   regional oversight. It is a safe and secured source of  
24   energy.

25           This project will define a new fueling system; this

1 project will shape the future of transportation. This is  
2 just the beginning. You wonder what new products and  
3 services will come out of this effort, what new businesses  
4 and opportunities, what new jobs. If you think about it,  
5 what is the connection today between Starbucks and your car?  
6 There is none. What about between Barnes and Noble and your  
7 car? There is none. What about your I-phone and your car?  
8 There is none. We have seen innovation in communication and  
9 consumer electronics. What would happen if we combined our  
10 cars, communication, consumer electronics, and modern  
11 lifestyle into one new industry? This project is about  
12 creating a different future. Our families are very  
13 important to us, our lifestyles, our family, our priorities,  
14 the automobile has made an enormous impact to America and  
15 how we grew, and it is not going to stop. But, what makes  
16 that automobile go is going to change, electricity is  
17 everywhere, but the EV charging network must be invented, it  
18 is going to be new, it is going to be different, it is going  
19 to transform our interaction with our car for a new  
20 sustainable lifestyle, and it is going to create new  
21 economic opportunity, invention, services, and jobs.

22 In bygone days, Americans were pretty independent,  
23 Native Americans, pioneers, the settlers, farmers, factory  
24 workers, our great grandparents, our roots, this project is  
25 the first step to change the type of energy used for

1 personal transportation, one that is safe and secure, one  
2 that is more in harmony with our environment, one that is  
3 sustainable for future generations, one that is higher  
4 efficiency than the past, one that can help improve the  
5 quality of life in our cities, one that can create new  
6 economic opportunities, and one that makes us more  
7 independent. This is just the beginning, just the first  
8 step, it will be the future, and it will be exciting. Thank  
9 you.

10 COMMISSIONER EGGERT: Thank you very much, Mr.  
11 Hobbs, and this is very exciting, and I think you have put  
12 an incredible program on your hands with respect to the  
13 coverage across the country and we are very happy that there  
14 is going to be a significant level of activity going on here  
15 in the state. I have actually three questions, the first  
16 two, I think I know the answer to. And the third, I do not.  
17 So I will ask all three, anyway. Could you maybe expand a  
18 bit upon your interactions with the utilities in the areas  
19 that you will be deploying the charging infrastructure here  
20 in California? And then, the second one, interaction with  
21 any of our existing PIER Research Centers, in particular, I  
22 am thinking of the Plug-In Research Center at University of  
23 California at Davis? And then, I will hold the third  
24 question.

25 MR. HOBBS: Well, let me take number 2 first, Davis,



1 University of California at Davis is part of the project, as  
2 is Ohio State. So they will be right in there with us  
3 trying to figure out what all this data means, and the  
4 implications for it. We have got a whole bunch of utilities  
5 working with us across each region that we have the utility  
6 members, and we will be meeting with them, and we will try  
7 to work with them on the Smart Grid program as each utility  
8 tailors it. So, there is not a generic answer to this, but  
9 I know, in the case of San Diego Gas and Electric, we are  
10 trying a variety of rates down there with the permission of  
11 California Energy Commission, to see how those customers  
12 react to it down there.

13 COMMISSIONER EGGERT: And do I understand, so this  
14 was originally focused around San Diego, but now it is  
15 expanding to L.A.? Is that correct?

16 MR. HOBBS: It is. L.A. is new and, of course,  
17 there is a lot of cars down there and a lot of opportunity,  
18 and Los Angeles and Southern California Edison have been  
19 great supporters of electric transportation in prior times.

20 COMMISSIONER EGGERT: Okay, then my third, my final  
21 question, is actually relevant to our earlier discussion  
22 about sort of what happens after the Stimulus. So, when  
23 does this become sort of commercially viable enterprise  
24 absent additional public funding?

25 MR. HOBBS: If you notice in my presentation, I

1 talked about lifestyle, we really want to work with the  
2 business community to identify the benefits that the  
3 electric car can bring to that business, and conversely,  
4 what those businesses can bring back to the person who owns  
5 the EV. So this whole thing of lifestyle is a real major  
6 driver for us because we want to insert this into our  
7 community and we are not going to win if we are less as  
8 desirable to gasoline, or equal to, we want to be better  
9 than, and that means good old - and I will say Silicon  
10 Valley has some great minds coming up with those new  
11 opportunities, those new inventions, those new gadgets, the  
12 new software to do stuff that you just cannot do today with  
13 the gasoline car, but you could do with a computer on wheels  
14 in your EV. And the EV charging presents opportunities,  
15 too. And one of the neat things is, after you kind of work  
16 with this for a while, and you see the excitement and the  
17 potential of this, but we have got to go out and do our job  
18 and sell it to the business community, too, because that is  
19 that beneficial relationship, that symbiotic relationship  
20 between the customer and the business, that is what we are  
21 really going to try to work.

22 COMMISSIONER BYRON: Mr. Hobbs, this is - I call  
23 this singing to the choir, okay? This is really good, it is  
24 so good to hear you also say we need to go out and sell this  
25 to the business community and the relationship with

1 customers is extremely important. You know, once we begin  
2 thinking outside what the needs of the policymakers are and  
3 what the needs of the utilities are in serving customers,  
4 and serving ratepayers, then we start hearing about  
5 customers. So, this is a really good thing. A couple of  
6 quick questions, I hope. First of all, it says in here, in  
7 your presentation, you have got all this experience,  
8 including 100 years of experience in the electricity sector.  
9 What is the predecessor to this company?

10 MR. HOBBS: Individuals who believe in the electric  
11 car.

12 COMMISSIONER BYRON: You have some old people.

13 MR. HOBBS: We do, well, look at me, you are looking  
14 at about 40 years right here, so -

15 COMMISSIONER BYRON: So you are talking about the  
16 cumulative years of experience, okay. And what are the  
17 conditions of participation? Maybe you said those, but I  
18 did not catch them.

19 MR. HOBBS: It starts out with something as simple  
20 as your Zip Code because we want to be sure that we have a  
21 concentration of EV owners and infrastructure in close  
22 proximity, so we do not want the stranded situation going  
23 with our project team members, so that is one thing; second,  
24 how far are you going to drive your car every day? Because  
25 we want you using that infrastructure, we want you going out

1 and being active in the community, so those are two really  
2 important pieces of information, and we have built these  
3 models that we want enough activity going on that we can  
4 take meaningful information away from them. There are other  
5 considerations, too, like what kind of electric service you  
6 have -

7 COMMISSIONER BYRON: I was going to ask about that.  
8 Okay, you know, 40, 50-year-old home, 100 amp service, maxed  
9 out, are you going to pay for a new 200 amp service in that  
10 house?

11 MR. HOBBS: No, we probably will not do that. We  
12 will not do that. So, that is one of the things that will  
13 help us put this package together. We do have limited funds  
14 and so we cannot do all the upgrades, unless the local  
15 utility wanted to...

16 COMMISSIONER BYRON: Well, can the consumer  
17 participate?

18 MR. HOBBS: Oh, yes, and that is, when you walk into  
19 your Nissan dealer, your GM dealer, in these areas, and you  
20 say you want to buy a Volt or a Leaf, you will go down  
21 through the questions, so those are the folks we are looking  
22 for. We are really looking for folks that are going to  
23 really buy cars and make up the future of transportation.

24 COMMISSIONER BYRON: Okay, well, thank you.  
25 Interesting project and it looks like we are in for about \$8

1 million up against DOE, about what? Forty million dollar or  
2 so?

3 MR. HOBBS: The total project is \$230 million, and  
4 the DOE is carrying 50 percent of the cost.

5 COMMISSIONER BYRON: Okay, so the numbers I just  
6 said, though, I took from the table which was just  
7 presented. Is that California's share?

8 MR. HOBBS: That must be California's share.

9 COMMISSIONER BYRON: All right, so 2,500 chargers,  
10 that is \$20,000 a charger.

11 MR. HOBBS: Oh, they are not that expensive. You  
12 know, we put out these random numbers at this point in time,  
13 at the end of the day, it is really going to be who comes in  
14 and buys the EV, and so California buys an awful lot of  
15 vehicles, so when you take a look at the population let's  
16 say between Portland, Oregon and San Diego, between Oregon  
17 and Southern California, we see that this is just a general  
18 point of discussion. We expect to see disproportionate  
19 number of vehicles across the United States based upon  
20 population.

21 COMMISSIONER BYRON: So I could ask this question a  
22 number of different ways, but what I am trying to understand  
23 is, are you going to install chargers until you run out of  
24 money?

25 MR. HOBBS: Yes, until we are fully subscribed,

1 correct.

2 COMMISSIONER BYRON: So, it will be more than 2,500  
3 chargers?

4 MS. ALLEN: We are also paying for a Smart Grid,  
5 some of the Smart Grid Study, so there is a portion, about  
6 \$2 million of that, it goes for the Smart Grid coordination  
7 with the utility, and 60 - we have a larger number of the  
8 direct chargers, so we have 60 direct chargers.

9 COMMISSIONER BYRON: Okay, thank you. I -

10 MS. ALLEN: And a thousand home - only 1,300  
11 commercial and 60 direct charges, and then we have a very  
12 large Smart Grid Study that goes along with this - a Smart  
13 Charging and Smart Grid Study that goes along with the  
14 utility, and then there is a lot of data collection.

15 COMMISSIONER BYRON: Thank you, Ms. Allen, my  
16 mistake to just do the simple math on this scope of work,  
17 that is not fair.

18 MR. HOBBS: That is great.

19 COMMISSIONER BYRON: Thank you, good project. Thank  
20 you.

21 CHAIRMAN DOUGLAS: So this has just raised one  
22 question for me. So, is your distribution of chargers,  
23 then, between states, within states, centrally driven by how  
24 many customers buy cars and in what region?

25 MR. HOBBS: Yes.

1           CHAIRMAN DOUGLAS: Both? Both. And that is true  
2 for both home and commercial, or retail place, chargers?

3           MR. HOBBS: You can see the models from trying to  
4 build - our attempt to predict EV penetration and the cost  
5 revenue opportunities, so it only works if we create good  
6 elements in those models, so it is very important, yes.

7           CHAIRMAN DOUGLAS: Thank you.

8           MS. KOROSEC: All right, next we will be hearing  
9 from Matt Miyasato.

10          DR. MIYASATO: Well, good afternoon, Madam Chair,  
11 Commissioners Eggert and Byron, and CEC staff, and members  
12 of the public, I am Matt Miyasato, the Assistant Deputy  
13 Executive Officer for Technology Advancement at the South  
14 Coast Air Quality Management District. And the project I am  
15 presenting on is a Goods Movement Truck Program that was  
16 sponsored in part by the California Energy Commission, but  
17 we think it represents a unique and cooperative model for a  
18 regional partnership because it involves not only a need-  
19 based technology in a certain environmental justice  
20 community, but also because it involves a regional  
21 governmental agency, it also involves the state government,  
22 as well as the federal government.

23          I would like to start off by providing some  
24 background and explicitly stating why there is this need in  
25 Southern California. Now, the South Coast Basin is a four-

1 county region made of L.A., Orange County, Riverside, and  
2 San Bernardino Counties. Over 40 percent of the state's  
3 population resides in our region, and so I know that  
4 Commissioner Boyd likes to say it is the Nation's State of  
5 California, and we like to think of ourselves as perhaps a  
6 sub-nation within that nation state because we have a high  
7 population density in our region, but also a high population  
8 of light-duty vehicles and, especially, heavy-duty vehicles.  
9 Combining them adds to air conditions and also the two ports  
10 at San Pedro, so that is Los Angeles and Long Beach, that  
11 makes up the fifth largest cargo gateway in the world, so a  
12 lot of the economy that is driven in Southern California  
13 and, indeed, the state, is driven by goods moving through  
14 the two ports at Los Angeles and Long Beach. But that also  
15 provides an air pollution challenge that we suffer every day  
16 in the South Coast Basin. And a testament of that is the  
17 American Lung Association every year puts out a State of the  
18 Air Report indicating the most polluted cities across the  
19 nation and historically Los Angeles and our region is at the  
20 top of those lists, so this year is no different, we were  
21 number one in ozone pollution, in the top five for year-  
22 round short term particle pollution, and year-round particle  
23 pollution, so that is PM2.5 And the effects of that  
24 particle pollution are severe health effects. What I would  
25 like to point out in terms of ozone is that the Inland



1 Empire is the one that suffers the most because of the  
2 transport and the forming of that secondary pollutant in the  
3 atmosphere, it is photochemical oxidant. You can see this  
4 is a particularly bad day in the summertime of last year, we  
5 anticipate we are going to see similar episodes like this,  
6 this year, you notice that dark maroon color is very  
7 unhealthy for all residents in that region. And so, what is  
8 remarkable about this ozone isopleths is that almost all of  
9 the region, South Coast, is in the yellow or orange color,  
10 so that is moderate or USG, USG means Unhealthy for  
11 Sensitive Groups. And Sensitive Groups are those with  
12 developing or challenged cardiopulmonary systems such as our  
13 children and the elderly, so that is a call of great concern  
14 to the South Coast because this is indeed a health effects  
15 driven phenomenon with these point sources throughout the  
16 region. And if you look at the particulate emissions, we  
17 have estimated cancer risk associated with having heavy duty  
18 diesel and other air toxics in the region, and you can see  
19 the dark purple color essentially outlines the entirety of  
20 the freeway system throughout the South Coast, so you notice  
21 the ozone isopleths were in the Inland Empire out here, but  
22 you notice here you have got particulate emissions, and  
23 estimated cancer risk right here at the Ports of L.A. and  
24 Long Beach, and you can even see this trail of the marine  
25 vessels coming into those ports, offshore.

1           So, because of that, it is a great need, the voters  
2 approved in 2006 what is known as Proposition 1B, that was a  
3 bond mechanism that allowed the state to address a Good  
4 Movement emissions problem throughout the region. The state  
5 was divided into four major trade corridors, the South Coast  
6 Basin being one of those, and \$1 billion is offered over a  
7 four-year period to try to mitigate those effects. The  
8 South Coast AQMD, in collaboration with the California Air  
9 Resources Board, and the Ports of Los Angeles and Long Beach  
10 had been administering a program to replace heavy duty  
11 diesel drainage trucks at the ports. So, when we applied to  
12 the CEC for assistance in co-funding, our intent was to  
13 place drainage trucks - those are these trucks which have a  
14 subscribed number of trips into and out of the ports, and  
15 they go through the gates, collect the containers, and then  
16 move out into the region. That was part of the regulation  
17 taken effect in January 1 of 2010.

18           Now, Ms. Allen described in great detail the hectic  
19 nature of applying and trying to secure some of this ARRA  
20 funding, and the need was extremely great in our case  
21 because we are up against this regulatory deadline of  
22 January 1, 2010, to replace these trucks, so we partnered  
23 with the ports and, also, we did secure some federal  
24 funding, we also had some EPA Diesel Emission Reduction Act  
25 funding, where we replaced 1,300 drainage trucks in a short

1 amount of time, 850 were diesel, but you can see that 453  
2 were natural gas drainage trucks. And that was to support  
3 an additional funding by, as I mentioned, the Department of  
4 Energy, the EPA, as well as the Ports of Long Beach and Los  
5 Angeles. Because that funding has already been  
6 accomplished, there is another phase to the Proposition 1B  
7 program where we are going to apply the CEC funding. But,  
8 what I wanted to highlight here is the benefits that we see  
9 for natural gas now in the trucks that are being deployed,  
10 that is 80 percent reduction in NO<sub>x</sub> emissions and, also,  
11 depending on the duty cycle, you get 20-30 percent reduction  
12 in greenhouse gas emissions, and also with the Air Resources  
13 Board's estimates for using biomethane, and I know that the  
14 AB 118 investment community has been looking at the  
15 application and implementation of biomethane, you can  
16 actually achieve close to a 90 percent reduction in  
17 greenhouse gases if that biomethane is used in these types  
18 of applications. But not only do you get criteria pollutant  
19 emission benefits, greenhouse gas emission benefits, we also  
20 get energy security in terms of petroleum reduction. And  
21 then, on top of that, we believe it is imperative to keep  
22 the technologies advancing to develop the technologies and  
23 balance the plant, fuel delivery, energy storage, fueling  
24 tanks that go hand in hand with gaseous fuels, and now it is  
25 going to help us with hydrogen, or hydrogen blends for

1 natural gas.

2           In the second phase of Proposition 1B, where we  
3 intend to utilize the entirety of the CEC co-funding, is for  
4 replacement of Goods Movement Trucks. Now, these are trucks  
5 that do not have a prescribed number of visits to the port,  
6 but they do - they haul containers into and out of the  
7 ports, and throughout the region in the South Coast area.  
8 It was a very large award made by the AQMD Board, just this  
9 past June, where we are replacing 480 trucks. We also have  
10 a back list of a thousand trucks, but of the 480 that were  
11 approved, 350 are diesel trucks, but 130-135 are natural gas  
12 trucks. Now, the CEC cost share and co-funding will be  
13 applied to those trucks to provide an incentive of \$100,000  
14 per truck, and you will be leveraging funding not only from  
15 the DOE and their ARRA grant, but also the EPA, and that is  
16 through their Diesel Emission Reduction Act.

17           I just wanted to point out that there is a long  
18 history, a rich history, of collaboration with the South  
19 Coast AQMD and the California Energy Commission, this is  
20 just a list of some of the most recent projects that we have  
21 worked hand in hand together on, the Cummins Westport HPDI  
22 engine is a natural gas heavy-duty engine, which you co-  
23 sponsored through your PIER Program; you have also helped  
24 develop hydrogen stations with us in our Five Cities  
25 Program. We are also the proud recipients of two of the

1 projects that Ms. Allen listed on her ARRA cost share, one  
2 was for transportation electrification plug-in hybrid  
3 electric utility trucks, that is a large fleet of utility  
4 trucks that would be implemented throughout the nation, and  
5 the CEC is helping us co-fund that. Also, we are recipients  
6 of CEC funding for natural gas fueling stations throughout  
7 the region. I know that SANBAG will be talking about the  
8 Ryder Truck Program, and we have been helping with the ICTF  
9 [sic], which is Interstate Clean Truck Corridor. So very  
10 pleased to be continuing our work with the California Energy  
11 Commission.

12           And then finally, I just want to point out, as I had  
13 mentioned at the beginning of my presentation, that this is  
14 a continuing demonstration of a accessible partnership where  
15 we established a local need, especially in environmental  
16 justice communities, we are a regional champion for applying  
17 clean technologies; but we are also leveraging federal  
18 funding not only from the Department of Energy, but from the  
19 EPA and it makes a nice fit to finally have state funding to  
20 go along with that in the form of Energy Commission funding.

21           Finally, I would like to add that there is an  
22 existing need in terms of health effects, as I pointed out,  
23 and I hope it would clearly make a case that, in the South  
24 Coast Region, we have a high population, and it is also  
25 exposed to very high criteria pollutants, we have an

1 existing demand, we are over-subscribed with respect to the  
2 number of trucks and infrastructure that can be deployed,  
3 and certainly more funding in that regard could certainly  
4 help with that. I might also point out that our governing  
5 board just recently passed a fleet rule that is requiring  
6 the phase-in of natural gas refuse haulers, and so, again,  
7 natural gas refueling infrastructure through our region will  
8 be required, and we look to the continued partnership with  
9 the Energy Commission. So with that, that concludes my  
10 presentation. I would be happy to entertain your questions.

11 CHAIRMAN DOUGLAS: Well, thank you. And I have got  
12 one question. How much would you say that the ARRA grant  
13 has helped you in advancing your plans for replacing trucks  
14 in South Coast? Did it accelerate your plans by months? By  
15 years? How big a step forward is this for the industry?

16 DR. MIYASATO: I think what the ARRA grant has done  
17 is essentially doubled, if not tripled, the number of  
18 vehicles that could be deployed at a single time. Certainly  
19 with the CEC funding, as well, also, did it accelerate the  
20 deployment of clean air? Yes. Did it accelerate the  
21 deployment of cleaner greenhouse gas emission trucks? Yes.  
22 Did it provide greater petroleum reductions? Absolutely.  
23 So, in all three counts, we would say that was a big win.  
24 But, also, in terms of showing you these partnerships  
25 between the regional government, the AQMD, the State

1 Government, CEC, and then the Federal Government, I think  
2 everyone mentioned how it is very important to have these  
3 partnerships as you go forward and seek additional funding,  
4 so I think it has been extremely important to be able to do  
5 that in a large manner, and I know that Michelle Kirkhoff is  
6 going to talk about how these Ryder trucks are also helping  
7 in that regard. I think it is also important to note that,  
8 when you are replacing these trucks, especially ones that  
9 are subject to a regulation, you are preserving a job. That  
10 trucker would not have his livelihood if that truck was not  
11 provided because there was a regulation that said "no more  
12 dirty trucks." So we see this as a win, as well, for the  
13 economy in terms of keeping these drivers on the road.

14 CHAIRMAN DOUGLAS: Well, thank you. And I was  
15 impressed to see that South Coast AQMD was also aggressive  
16 in seeking out funding from various ARRA solicitations and  
17 we at the Energy Commission were very pleased to see that,  
18 and it is always great to have California entities stepping  
19 up and putting in the work to try to bring funding to these  
20 important goals in California. Commissioners, other  
21 questions? Commissioner Eggert.

22 COMMISSIONER EGGERT: Sure. Thank you very much,  
23 Mr. Miyasato. I greatly appreciate you coming here. We  
24 have known each other for, I think, almost a decade now, and  
25 I know the South Coast is a tremendous champion of these

1 technologies for, certainly, as long as I have known him,  
2 and I know a lot of it is due to your leadership there, so  
3 appreciate that. Also, I want to thank you for reminding us  
4 that air quality is still a problem, particularly in  
5 California, despite all the improvements and advancements in  
6 vehicle technology. The fact that we still have episodes  
7 that result in very unhealthy or hazardous conditions for  
8 all citizens is really, I think, it cannot be overstated.  
9 So, I guess my question is in relation to these projects and  
10 activities, how can we move even quicker, aside from more  
11 money, which is always a welcome thing, are there other  
12 things that we could be doing to help accelerate these  
13 technologies into the marketplace?

14 DR. MIYASATO: That is an excellent question and I  
15 think one thing that I probably did not touch on, which I  
16 think bears me providing it in response is that, what you  
17 are doing in PIER, the Public Interest Energy Research in  
18 the development of heavy-duty natural gas engines, that type  
19 of technology, or even the Center of Excellence, that AB 118  
20 is going to provide with heavy-duty trucks, those types of  
21 activity are extremely important to advance technologies,  
22 not only for the cleanest technologies available today, say,  
23 with heavy-duty natural gas engines, but then going to  
24 hybridization, hydraulic hybrids, something that pushes the  
25 envelope even further to reduce petroleum, greenhouse gases,



1 and criteria pollutants. So, those types of activities,  
2 this portfolio approach that I know that the Energy  
3 Commission subscribes to, as well as the AQMD, is having  
4 that portfolio of different activities which bear from  
5 different times, but are necessary such that we have answers  
6 in place, online, in queue, within five to 10 years. And  
7 that type of activity is something that is extremely  
8 important and we applaud your leadership there and hope to  
9 work with you on all those fronts.

10 COMMISSIONER EGGERT: Excellent, thank you.

11 COMMISSIONER BYRON: Dr. Miyasato, thank you for  
12 this vote of confidence in Public Interest Research. You  
13 have a very difficult problem you are trying to solve down  
14 in Southern California and it is interesting that ARRA funds  
15 are being applied not just creating jobs here, but trying to  
16 affect human health.

17 DR. MIYASATO: It is all about the health.

18 COMMISSIONER BYRON: Yes. But does this move the  
19 needle for you? Does this project, as big as it is, does it  
20 make much of a difference in those isopleths that you were  
21 showing earlier?

22 DR. MIYASATO: Absolutely, because a lot of the  
23 emissions are coming when the trucks are idling, for  
24 example, at the gate, at the ports. And so, not only are  
25 the folks that are around in the residences affected, but,

1 in fact, the drivers are affected, the dock workers are  
2 affected. And so, when you look at it in that respect, you  
3 are affecting lives very directly by replacing these types  
4 of older diesel trucks with cleaner even diesel trucks, but  
5 also natural gas engines, and so, in terms of moving the  
6 needle? Absolutely.

7 CHAIRMAN DOUGLAS: Good.

8 COMMISSIONER BYRON: Well, again, thank you for  
9 being here. Thank you for your presentation, and I am  
10 really satisfied to see that this is just more than creating  
11 jobs, that there are other great advantages to this - if you  
12 will accept my term - "moving the needle" here with these  
13 ARRA funds, obviously affecting human health.

14 DR. MIYASATO: Absolutely, it is my pleasure.

15 COMMISSIONER BYRON: Thank you, doctor.

16 MS. KOROSSEC: All right, next we are going to hear  
17 from Mr. Richard Lowenthal from Coulomb.

18 MR. LOWENTHAL: I am not Ray, but Ray did such a  
19 good job, I will be very brief. So, Commissioners, thank  
20 you very much for having me, and Madam Chair, thank you for  
21 having me here today. I appreciate getting a chance to  
22 address you. And I certainly appreciate your help in  
23 rolling out an exciting program for us. So, our program has  
24 a lot of similarities to the EV project that you heard about  
25 earlier as part of the electrification of transportation,

1   ARRA segment, and, well, we could not do it without you.  
2   Next slide.  Okay, so it is under the FOA28 ARRA  
3   solicitation, our project size nationwide is \$37 million,  
4   \$15 million from the Department of Energy, which is Stimulus  
5   money, \$3.4 million from the California Energy Commission,  
6   which we appreciate very much.  The project size in  
7   California is \$12 million of the \$37 million, and I will  
8   explain why there is different accounting in front of you  
9   than the \$12, but it basically gave more than three times  
10   leverage of the California Energy Commission money, in terms  
11   of bringing jobs and infrastructure to California.

12           Our company is a California company, we were founded  
13   here in 2007, we are in Silicon Valley.  Our manufacturing  
14   is all in California, so there is a lot of great side  
15   effects to helping us grow our business here.  In our  
16   project, we will be bringing a little over 1,500 Level 2  
17   Charging Stations to California, and 650 to people's homes,  
18   850 to commercial spaces, at no cost to the property owners.  
19   The installation costs covered for normal installations with  
20   -- basically the money from the California Energy Commission  
21   is going to be used to pay for installation.

22           We have three focused regions in California,  
23   Sacramento, the San Francisco Bay Area, and the LA Basin,  
24   and we are working with three automaker partners, those are  
25   Ford, Chevy, and Daimler Benz.  It is a 19-month program,

1 ends December 31<sup>st</sup>, and Commissioner Byron kicked it off for  
2 us last week in Palo Alto at EPRI, where we installed our  
3 first station in California. The stations look like this,  
4 outside, a shared station looks like the one on the left, we  
5 have been deploying those, we have over 130 customers, we  
6 deploy those around the world. Our first customer was the  
7 City of San Jose, our second customer was the City of San  
8 Francisco, so these stations are familiar in California,  
9 but, of course, there will be a lot more of them due to this  
10 project. The station on the right is a new product for us,  
11 that we essentially did for this grant, this is a home  
12 charger, so for the first roughly 650 people who buy Chevy  
13 Volts or Smart, or Ford Transit Connects, or focuses here in  
14 California, they will get free charging stations to go home  
15 with the car.

16 Our company is a little bit different than other  
17 ones in this space, in that we are very software oriented,  
18 so we have a lot of tools here for measuring how the  
19 vehicles are used, where they are charged, how much they are  
20 charged, where people drive. We also interact with the  
21 utilities, we have software interfaces with the utilities so  
22 that they can do Smart Grid management, they can do demand  
23 response and pricing within our stations, and we can pass  
24 that on to our users. We have fleet management capabilities  
25 for people who are running electric vehicle fleets, so they

1 will know which cars are ready to dispatch and when, so a  
2 lot of software tools. Most of my engineers are software  
3 folks, so although we are known for our hardware and we are  
4 very happy to say one of those charging stations is now in  
5 the Smithsonian, and I am prouder to say I did the voice-  
6 over, but we are really a business software company, so we  
7 do building systems, for instance, for these stations, we do  
8 asset management tools for the utilities, and we do Smart  
9 Grid integration for the utilities, as well. We have  
10 features, like you can take your e-phone, put in an address  
11 of where you are going to go next, and it will navigate you  
12 to the closest station to that address that is not currently  
13 in use, so those are some of the things you get from our  
14 software system.

15           The partners in this are Ford, Chevy, and Daimler  
16 Benz through Smart USA. Ford will start with the Transit  
17 Connect, we are starting to deploy those now. The Focus  
18 comes out next year in 2011. And home installations will  
19 basically be, if you order one of these cars, you will get a  
20 free station with it.

21           The vehicles, you can see where the vehicles are  
22 going, we are doing this in coordination with the vehicle  
23 manufacturers, not just because we are good guys, but  
24 because DOE insisted on it, because they wanted us to put  
25 infrastructure where it would be used, and we could measure

1   how it would be used. And I understand how people use  
2   infrastructure, where they need it, and how much these use  
3   it. We have the split in our total program of 2,000 home  
4   stations, 2,600 public stations, that is in order to see how  
5   people, how much they charge at home and how much they  
6   charge at work, and we will be reporting all of that back to  
7   you.

8           Program objectives, you know, we want to get  
9   infrastructure out there, so people in California can buy  
10   cars. It is an issue in parts of California. In San  
11   Francisco, over half the cars park curbside at night, so we  
12   have to put out some public infrastructure or you can never  
13   buy your Chevy Volt in San Francisco. San Francisco has six  
14   times as many cars as garages. There is an ordinance in the  
15   City that says you cannot build more than one garage per  
16   housing unit, so as a result, they have a lot of - it is  
17   difficult to park. But the home garage is not going to  
18   work, and our product was designed for that situation where  
19   you have the multiple dwelling unit apartment or  
20   condominium, or curbside parking, and our stations that are  
21   in California now, in San Francisco now, are all curbside  
22   and by City Hall.

23           So, we want to roll out a lot of infrastructure to  
24   help get this movement to EV started and we think California  
25   will naturally be the early adopter state; fortunately, so

1 do the automakers, so they will be here selling a lot of  
2 EVs. We want this to be very visible, so that is why there  
3 is a big public component here, in order to reassure drivers  
4 that California is an EV-friendly state, and that you can  
5 buy a vehicle here without being concerned about fueling.  
6 You know, I drive a BMW mini-electric vehicle, the Cooper  
7 electric vehicle, as my commuter, but I cannot go to San  
8 Francisco unless there is a charging station there, so I can  
9 charge it up and get home for dinner, so we want people in  
10 California to feel comfortable with EVs and so there will be  
11 an adequate infrastructure out there, so you will not get  
12 that evil thing called "range anxiety."

13           So, we are working with the other stakeholders, of  
14 course, the utilities, we have been working for the  
15 utilities for years and the three automakers to see that  
16 this goes well, and we will be collecting a lot of data and  
17 reporting it to the DOE. From the DOE's viewpoint, this is  
18 a data collection project to see how the big deployment  
19 across the United States goes. And as you have heard  
20 earlier, there is expected to be a million vehicles in the  
21 United States by 2015, and that is a lot more than we are  
22 talking about here today, so we want to be ready.

23           And, of course, to a large degree, this is funded by  
24 Stimulus funding money, it creates jobs, every time we ship  
25 a station, three people go to work for a day, one to build

1 it, and two to install it. Directly, this program will  
2 bring 100 jobs to California, but indirectly a lot more  
3 because the automakers believe that, with public  
4 infrastructure, they will sell twice as many cars, that is  
5 one aspect, the other aspect is our company is growing like  
6 wildfire, thanks to help like this, you know, we started  
7 only in 2007, we did a million dollars in revenue last year,  
8 we will do \$9 this year. This is a big program for us. We  
9 are very excited about it, but we feel very confident that  
10 we will be able to execute it well.

11 A little bit about our status. The DOE program has  
12 been awarded and we did get through - the contract is done  
13 and we have begun to receive funding from the DOE. The  
14 Energy Commission Program was awarded and you voted on June  
15 23<sup>rd</sup>, we thank you for that, and we announced that award last  
16 week at EPRI, at the installation of one of our charging  
17 stations. We are already installing in most of the cities,  
18 we would like to do more here, and we will talk a little bit  
19 about that issue there, and until we start to put out the  
20 public stations, the private stations go with the vehicles,  
21 and the vehicles are not being delivered yet. So, as those  
22 vehicles come out, the home stations will be installed. We  
23 are busy taking requests for free public stations, so  
24 anybody in the San Francisco, LA, or Sacramento Area who  
25 wants a public station can go on our website, they can



1 request one, and get in line and we will come out and  
2 install it, and we are ready to do it now. And we will do a  
3 formal kick-off of our program in the San Francisco Bay  
4 Area, a Plug-In 2010 show July 29<sup>th</sup>. Thank you. The issue I  
5 wanted to bring up is just, the best way to help would be to  
6 give us the money because you are the ones that pay for the  
7 installation, and so the California deployment, we will wait  
8 for you, and you do not like us to reimburse ourselves, you  
9 do not like us to lend you money by spending it first and  
10 getting reimbursed, so we would appreciate getting through  
11 the award stage and getting a little more package so that we  
12 can get on with doing California in a big way. Some of our  
13 customers will self-install and pay for it themselves, and  
14 so we will make progress there, but of course, we would like  
15 to get through the normal process here with the Energy  
16 Commission. Anybody have any questions?

17 COMMISSIONER BYRON: Mr. Lowenthal, it is good to  
18 meet you. I have heard that you want the money faster.  
19 This is not a VC firm, you know, we actually give it out  
20 faster than VC firms.

21 MR. LOWENTHAL: Yeah, I am sure of that. I have got  
22 plenty of experience there.

23 COMMISSIONER BYRON: I am just kidding. I really  
24 enjoyed the opportunity to be there at the dedication and  
25 kick this off last week, and meeting your co-founder, Mr.

1 Mandal, and I am really intrigued with the notion that you  
2 picked up, that you really are a software company.

3 MR. LOWENTHAL: We are.

4 COMMISSIONER BYRON: And I got that, as well, from  
5 your product information available. In fact, I coined a  
6 phrase, "this is really an information kiosk that dispenses  
7 electricity."

8 MR. LOWENTHAL: It is.

9 COMMISSIONER BYRON: And Mr. Mandal seemed to like  
10 that, as well, so that is a freebie, we are giving that one  
11 away.

12 MR. LOWENTHAL: He is a software guy, so he really  
13 likes that.

14 COMMISSIONER BYRON: If I were to take my car and  
15 charge it up at an Ecotality charger, and then over to drive  
16 up to one of yours, would I have any problems?

17 MR. LOWENTHAL: No. We are sharing our - there is  
18 an authentication method for the public stations, so you  
19 have to prove that you are an authorized user, it is a  
20 matter of safety and then, ultimately, some organizations  
21 will want the drivers to pay for using the stations.

22 COMMISSIONER BYRON: Of course.

23 MR. LOWENTHAL: So we have offered this up to our  
24 competitors, including Ecotality, including companies like  
25 Better Place, so that we all have a standard authentication

1 method. Worst case, there is a phone number on all of our  
2 stations, you can call up and you can operate it with your  
3 phone. So, if you have a cell phone, you can operate a  
4 station even if you do not have any authentication method.  
5 So, we are all very interested in not having any clubbing  
6 here - no clubs. Everybody gets to use everything, and it  
7 is a requirement of our stations that everybody can use  
8 everything.

9 COMMISSIONER BYRON: So, I was thinking about the  
10 technical interchangeability, but you are thinking about the  
11 billing interchangeability, again, an information company,  
12 that is good.

13 MR. LOWENTHAL: Information, people need to be  
14 authenticated. This is one thing we learned in the City of  
15 San Francisco. San Francisco was deployed in January of  
16 2009, and for them, there was a big safety issue because  
17 they did not want live electricity out in the streets, we do  
18 some level one charging out in the streets there for their  
19 plug-in Prius, and so they do not want people to be able to  
20 use this for other purposes - we are talking about electric  
21 blankets, or whatever, on the streets of San Francisco, and  
22 so they wanted an authentication mechanism as a safety  
23 measure, but they also want it, for example, with level 1,  
24 the cable goes with the car in level 1, you can carry it  
25 around in your trunk; with level 2, which is 220 volt

1 charging, it is attached to the station, so no problem; but,  
2 when you are carrying it around with you in your trunk, the  
3 cable, for instance, on a Testarossa costs \$3,000. So, we  
4 lock it in place during the charging process because you are  
5 gone for a couple hours, and you can only retrieve it if you  
6 are the person who put it there in the first place, so there  
7 are a lot of reasons to have authentication, and that is the  
8 reason we share this information with our competition.

9 COMMISSIONER BYRON: So, in most cases with public  
10 installations, is someone giving the electricity away? Or  
11 is it being billed back to the recipient?

12 MR. LOWENTHAL: So, historically, it was free, part  
13 of it, that is what happened in the CARB exercise with zero  
14 emission vehicles, is I drove back - I was in Cupertino  
15 then, I drove the Toyota Rav4 because it was a perk of  
16 office when we used to have perks, but the car was free, the  
17 charging station was free, electricity was free, everything  
18 was wonderful. But then, you know, CARB ended their ruling  
19 and in 2002 they reversed and the cars all went away. We do  
20 not want that to happen again, and we think a key ingredient  
21 to that is to have a system here, a capital system where the  
22 driver pays for the value. We saw that import even with our  
23 first customer, the City of San Jose, where they thought it  
24 would potentially be, and probably be, a gift of public  
25 funds if they charged people's cars. They charged the lucky

1 Tesla drivers' car by making the other taxpayers pay for it,  
2 so they actually do want to allocate costs to drivers, and  
3 in condominiums and apartments, it is even more important  
4 because the other tenants do not want to pay for that one  
5 driver, the lucky Tesla guy with this \$110,000 vehicle. So,  
6 yes, there is a going to be an allocation of cost to  
7 drivers, and ultimately that is how we are going to pay for  
8 electricity and the capital and maintenance. We do not take  
9 that money, so the owners of our stations set pricing, and  
10 so if they want it free, they can make it free. You know,  
11 we sell it now to Apple and Netflix and Pixar and Dell for  
12 workplace charging, they all have kind of the same policy,  
13 which is their employees do not pay, but visitors pay, so we  
14 can split that, too, depending on which car drives up.

15 COMMISSIONER BYRON: Well, but we want to get away  
16 from this notion that electricity is free, also.

17 MR. LOWENTHAL: It is not.

18 COMMISSIONER BYRON: Yes, it is not free, and even  
19 when companies give it away, that does not help necessarily,  
20 but that is another issue. Let me just ask a couple quick  
21 questions because I think my fellow Commissioners may have  
22 some, as well.

23 MR. LOWENTHAL: Sure.

24 COMMISSIONER BYRON: This has not come up during  
25 last week's dedication and you probably do not know this,

1 but right next to where we dedicated this charger was an old  
2 charging station, and it had been there about 15 years ago.  
3 It was not maintained. How are these charging systems  
4 maintained going forward? Who pays for that?

5 MR. LOWENTHAL: That is very good. So, that is part  
6 of this cost, and so what we charge, it really comes out of  
7 the driver, for when the driver wants to pay. If the driver  
8 does not pay, then the station owner is subsidizing it, and  
9 we require the station owner, then, to pay for maintenance.  
10 So, one way or another, it has to be paid. We are very  
11 happy to bill the drivers and hand that money over to the  
12 station owner, but otherwise the station owner is  
13 responsible. We have a service because our stations are all  
14 networked, we have a service that we charge the owner of the  
15 station \$12.00 a month, and we completely take care of the  
16 station and the driver, too, so there is a toll-free number  
17 on every station, so if the driver has any trouble, they  
18 call that number, we have 24/7 service, at our operation  
19 centers we have in Texas, London, and Hong Kong, so you can  
20 always find one of us somewhere, and we completely take care  
21 of that if the owner of the station wants to pay us \$12.00 a  
22 month, and we take care of the drivers for life. In the  
23 cases of workplace charging, like with Apple, Netflix,  
24 Pixar, and the rest, that is very important to them because  
25 they do not want a disgruntled or troubled driver walking

1 into a receptionist and saying, "My car - how do I charge my  
2 car?" We take care of those drivers for life.

3 COMMISSIONER BYRON: Good. You thought of a lot of  
4 things. Just one last question and this one I have asked  
5 before, really. Obviously, you are a private sector company  
6 and you have indicated that this has been very helpful to  
7 your company, where would your company be if you did not  
8 have this ARRA funding at this point?

9 MR. LOWENTHAL: So it would be a very difficult  
10 time, actually, because what has happened is, because there  
11 are some grants that normal commercial businesses dried up,  
12 and as much as we like these grants, we see them as a way to  
13 get started, but we are anxious to get on with the normal  
14 commercial life. But, if you do not have one, and somebody  
15 else has one, or whatever, there is free infrastructure,  
16 that is a real problem, right? Because you cannot compete,  
17 and it would kill us. It would kill us to have some part  
18 subsidy, so we do not want to have that. But, really, for  
19 us what it has done is it has allowed us to scale up and  
20 make things cheaper, so, for instance, this home station is  
21 less than half the price of any station we have ever made in  
22 the past, and we designed the stations specifically for this  
23 program. So the best benefit of, I think, this subsidized  
24 funding, either from the federal government or the state  
25 government, is to help us get done the cost curve quickly,

1 so everybody can buy an EV that is affordable, and they are  
2 competitive with the gas cars. So that is what we like  
3 about it. We think it enables the industry. For us, it is  
4 a huge growth thing for our little company, but we more see  
5 it as enabling a big future by getting us down the cost  
6 curve, because otherwise the batteries in the cars are too  
7 expensive, and infrastructure is too expensive, and so we  
8 look at it as skipping a stage of the existence of this  
9 business where the volume would be low and the cost would be  
10 too high.

11 COMMISSIONER EGGERT: Actually, thanks for coming  
12 and good to see you again. That plays into my question. At  
13 the end of this program, or at the end of the funding, how  
14 do you sufficiently come down to a cost curve on the  
15 infrastructure side that you could be sustainable in a  
16 commercial sense?

17 MR. LOWENTHAL: Yeah, we absolutely think so, we  
18 absolutely believe that we are going to be profitable by the  
19 middle of next year, which is pretty good for a young start-  
20 up, and so we will be at the end of this program and turn  
21 profitable in that timeframe. So, you know, it depends on  
22 the take-off the vehicles. Ultimately, the size of this  
23 business depends on if, as they say, the dogs lead the dog  
24 food. The automakers are putting these vehicles out, they  
25 have wonderful properties, the wonderful properties of



1 electrified transportation, but people have to buy them to  
2 make our industry go well. And we will see. They have not  
3 really told us yet. The early indications are good. These  
4 cars sell out and people take advanced orders, and Tesla  
5 just went public and all that. So, the early indications  
6 are good, but the industry needs to grow through capitalism  
7 and, you know, if Honda sells a million cars in 2015, if  
8 that is right, we are in great shape.

9 COMMISSIONER EGGERT: So, at the beginning of the  
10 session today, I do not know if you were here, but somebody  
11 asked the question about the significance of AB 32, and I  
12 know this is a topic that came up at the summit, I do not  
13 know if you have any thoughts or comments on that in terms  
14 of -

15 MR. LOWENTHAL: Yeah, so I am crazy about AB 32 and  
16 I resent people - I resent people who say it hurts jobs  
17 because my jobs are created by when you come up with an  
18 issue or a problem like, we need cleaner air, we need to get  
19 off oil, or the Gulf is a mess, that is - Silicon Valley  
20 eats that stuff for breakfast, you give us a problem like  
21 clean up the air, or get off of oil, and it creates tons of  
22 jobs, and it created my company, right? And my company, you  
23 know, two years ago, we had two little boys, today we have  
24 64, by the end of the year we will have 84, and by this time  
25 next year, we will have 230. It is creating jobs, I

1 guarantee it, so it is disingenuous of people to say AB 32  
2 hurts jobs, it creates job. And frankly, this program would  
3 not exist without it either, and I have testified at the  
4 Senate in D.C. about this, I have testified at the House in  
5 D.C. about this, and I will testify every time because it is  
6 just not true. And it is being turned into a political  
7 football and in a way that just simply is not true because  
8 it creates jobs.

9 COMMISSIONER EGGERT: Thank you.

10 CHAIRMAN DOUGLAS: Thank you. Thanks for being  
11 here.

12 MR. LOWENTHAL: Thank you.

13 MS. KOROSEC: All right, I think we are going to  
14 skip our scheduled breaks, these were close to the end of  
15 the day anyway, and just try to power through if that is all  
16 right with everybody. So, next we are going to be talking  
17 to Michael Sinkula - am I pronouncing that correctly?

18 MR. SINKULA: Yeah. Just a moment while we load up,  
19 we had an error with the presentation.

20 COMMISSIONER BYRON: Maybe I should take that break.

21 MS. KOROSEC: I would hate to that because I think  
22 this will only take a couple of minutes. Well, would it be  
23 okay if we then skip to the last presentation while we are  
24 trying to locate this one? Okay, let's go ahead and proceed  
25 with SANBAG.

1 MS. KIRKHOFF: Good late afternoon. I am Michelle  
2 Kirkhoff from the San Bernardino Associated Governments, and  
3 I really appreciate your attention. And I talk very fast,  
4 so, if I go too fast, just say, "Michelle, slow down," and I  
5 am happy to do that. I am very pleased today to talk about  
6 our project with Ryder Truck Rental, Inc., which we think is  
7 going to be the largest single deployment of natural gas  
8 vehicles in the country when we are all said and done.

9 Just very quickly about the project, what it entails  
10 is it is the first natural gas truck deployment project in a  
11 commercial truck rental and leasing operation. We received  
12 \$19.3 million in a combination of state and federal funding,  
13 and that funding, along with the funding that Ryder is going  
14 to be providing, will help to convert 202 heavy-duty trucks  
15 over to natural gas. We are going to be purchasing new  
16 trucks, we are not converting. But we are going to be  
17 introducing into the fleet 202 heavy-duty natural gas  
18 trucks. We are going to be constructing two public access  
19 liquefied natural gas, as well as compressed natural gas,  
20 fueling stations. We are going to be upgrading three other  
21 maintenance facilities so that they can accommodate natural  
22 gas vehicle repair. We are also going to be doing  
23 personnel, as well as customer training. The project also  
24 includes project management administration, as well as  
25 public relations and marketing. So, this is a very all

1 encompassing project when it is all said and done.

2           About my agency, we are the Council of Governments,  
3 as well as the Transportation Planning Agency for two  
4 million residents of San Diego County. If you have never  
5 been in our lovely county, it is actually the largest county  
6 in the country. We go all the way up to Nevada, Arizona, as  
7 well as we border Kern, Los Angeles, Orange, Riverside  
8 Counties. We do planning for the entire county. We also  
9 build freeways in conjunction with Caltrans and we can do a  
10 lot of this because we administer a half cent sales tax  
11 called Measure I, that was approved by the voters in 1989,  
12 and then we had another 30-year extension of that sales tax  
13 in 2004.

14           Ryder Trucks? They are an amazing company. We have  
15 been working with them for the last six months. They  
16 provide leading edge transportation logistics and a supply  
17 chain, Management Solutions Worldwide. What is so  
18 interesting about Ryder, in Southern California alone, they  
19 have over 1,200 customers, and that includes 6,500 trucks in  
20 Southern California. And I know most folks think of Ryder  
21 as, you know, short term rental, but they actually have very  
22 long term relationships with large corporations such as LA  
23 Times, Toyota, Mazda, where they provide turnkey services to  
24 those companies with their trucking services, where they  
25 maintain, they also sometimes provide a driver, they provide

1 the fueling, but on the truck it says "LA Times." They also  
2 offer other shorter term rentals, or longer term leases like  
3 five to seven years, so they have a whole variety of heavy-  
4 duty truck renting in the Southern California Area, so they  
5 were just a prime partner for this type of a project. And  
6 this is a beautiful quote from their President, Tony - I  
7 believe it is Tegnalia - who said, "As an industry leader  
8 for almost 80 years, Ryder remains committed to leveraging  
9 its expertise and the latest technologies to deliver world-  
10 class transportation products and services that build long  
11 term value for our customers." I cannot even begin to tell  
12 you their support all through the top levels of the  
13 management for this project, we are very very pleased to  
14 have them as a partner.

15 As I said earlier, we are receiving \$9.3 million  
16 from the Energy Commission, almost \$10 million from the  
17 Department of Energy through their ARRA funding, and then  
18 Ryder is contributing \$17 million, so this is a \$36 million  
19 project when it is all said and done.

20 Lots of benefits to this project, and as Matt had  
21 said earlier, in Southern California, we have a huge air  
22 quality issue, and if you looked at the map in San  
23 Bernardino County, yeah, we were that dark area on that map,  
24 but where a lot of the toxic as well as the cancer risks are  
25 posted in Southern California. So, the diesel displacement

1 in this project is huge, being able to domestically produce  
2 low carbon LNG, we are looking at over 400 jobs that are  
3 created, lots of greenhouse gas emissions, NO<sub>x</sub> reductions,  
4 and, again, particulate matter eliminated. So, tons and  
5 tons of benefits as a result of this project. We are going  
6 to be purchasing CNG straight trucks to replace some of the  
7 Ryder fleet, as well as LNG and CNG tractors.

8           The three maintenance facilities that are going to  
9 be upgraded are located - there is going to be one in San  
10 Bernardino County in Rancho Cucamonga, there is one in LA  
11 County just south of Compton, and then one in Orange County  
12 in the City of Orange, so that is the three locations that  
13 their maintenance facilities are going to be upgraded. And  
14 then, the two fueling stations are going to be located in  
15 Orange and in San Bernardino and Rancho Cucamonga. Because  
16 in the Compton area there is existing LNG near the ports, we  
17 did not feel that we needed to build a fueling station in  
18 that area for this project.

19           This project is part of the Interstate Clean  
20 Transportation Corridor, Matt mentioned that also, earlier,  
21 the ICTC. At SANBAG for 15 years, we have been working with  
22 Gladstein, Neandross and Associates to help to implement  
23 fueling stations, "build it and they will come" once you get  
24 the fueling stations going, and then you can work with the  
25 trucking companies to convert over to LNG or CNG. And if

1 you are not familiar with the ICTC, go take a look on the  
2 Internet, they have done great work. We have worked with  
3 them for a long time. I know the CEC has worked with them  
4 before, and we are very pleased that GNA is a partner, as  
5 well, in this project.

6 Here are just some schematics of the Orange LNG-CNG  
7 station, what it is going to look like when it is all said  
8 and done, and constructed. And here are some examples of  
9 the Barstow LNG station, I was involved with that station  
10 construction, that is on the I-15 on the way to Vegas,  
11 worked with GNA on that project, and also used Federal funds  
12 for that project, Congestion Mitigation Air Quality Funding  
13 through the FHWA, and also the Tulare Station, GNA worked  
14 with as well, to help construct that station. So, as a  
15 team, we have lots of experience to bring this project to  
16 fruition.

17 The training side of this is critical, you know, to  
18 have the maintenance, the mechanics, the drivers, everybody  
19 trained so they are familiar, so that this project can be a  
20 success. And this is going to also be led by GNA, along  
21 with Ryder when we actually get the project up and running.  
22 The project management, GNA, is very involved in that, as  
23 well as I am, at my company, SANBAG, everything from  
24 planning to NEPA and CEQA clearances, the RFPs, the  
25 oversight of the construction, outreach and marketing, you

1 name it, we are doing it all. Marketing and outreach,  
2 because this was part of the Clean Cities procurement  
3 through the Department of Energy, we had to have a Clean  
4 Cities entity be a partner, and in Southern California, that  
5 is the Southern California Association of Governments, the  
6 Metropolitan Planning Organization, SCAG. And so they are  
7 going to be working a lot with their member jurisdictions,  
8 doing presentations at conferences, really getting the word  
9 out that, hey, natural gas converted in a large fleet, it  
10 can be successful, look at all the great work that we are  
11 doing. So, SCAG is going to be working with us very closely  
12 on this project, as well.

13           Timing - the funny thing, we actually executed our  
14 agreement with the Department of Energy back in January.  
15 For whatever reason, they were really excited to get our  
16 agreement executed, so that has been executed. We are in  
17 the process right now of working with the Energy Commission  
18 to get our agreement with you guys executed, you guys  
19 approved it on June 30<sup>th</sup>, so we are just now going through  
20 all the legal stuff. The biggest issue with this project  
21 is, because it truly is a public-private, I cannot execute  
22 an agreement with Ryder until the CEC contract is in place,  
23 and the DOE, and then I have to sit there and go, "Okay, are  
24 there any conflicting terms and conditions with both those  
25 contracts?" And then their attorneys, who never dealt with



1 any public funding have to go through it all, we have to go  
2 back and forth, back and forth with you guys, DOE, it has  
3 been really fun. So we are really really really hoping this  
4 can happen August 4<sup>th</sup>, early. Jennifer is my person here at  
5 CEC pushing it through on your end. So, if we can get this  
6 little puppy all approved August 4<sup>th</sup>, then we are going to  
7 release a purchase order for 70 trucks, we are going to  
8 start the RFP for the actual fueling stations, construction,  
9 as well as maintenance upgrades, we are going to get it all  
10 rolling and going. We are hoping by the late fall we can  
11 get those first 70 trucks in, start driver mechanic  
12 training, get the construction starting in the spring, get  
13 the station to open, the two stations opened, within a year.  
14 So, we are moving very aggressively and are very excited to  
15 start.

16 Keys to success - we have done this before, Ryder is  
17 an amazing company to work with, we are so happy to have  
18 this project partner, we communicate constantly. GNA and  
19 Ryder laugh about me being a government employee because I  
20 am there in the middle of the night, on weekends, we are  
21 working on this very very hard, and I think it is a really  
22 great team. Also, I think with Ryder's customer base in  
23 Southern California, this is going to be such a great  
24 project because they are going to be reaching out to so many  
25 different customers and giving them an opportunity to try

1 natural gas, where they might not have otherwise tried it.  
2 And so we really think the marketing and the outreach of  
3 this success is huge. And, also, Ryder has purchasing  
4 power, they buy a heck of a lot of trucks every month  
5 throughout the world, and so we are hoping this is going to  
6 be a very positive experience for them, that they can  
7 replicate it elsewhere. And, in fact, there was a recent  
8 call for projects in Southern California through the AB 2766  
9 Discretionary Committee, and Ryder just got awarded another  
10 15 vehicles for the Southern California area. So, they are  
11 moving forward, looking for other grant opportunities, as  
12 well.

13 And to answer some of your questions you have asked  
14 of others earlier, without the CEC and the DOE funding,  
15 Ryder would not be buying this volume of vehicles, not  
16 testing it on this large of a scale. This absolutely would  
17 not have happened. They might have, you know, dabbled with  
18 10 vehicles here, or 10 vehicles there, but we are really  
19 hoping that, on this large of a scale, that we can  
20 demonstrate something that has not been demonstrated before.  
21 And I would be happy to answer any other questions you might  
22 have.

23 COMMISSIONER EGGERT: Thank you very much for  
24 coming, participating and staying until the end of the day,  
25 and providing us this great presentation. And I think you

1 have got an excellent team here, and glad to see SANBAG  
2 taking a leadership position. Do you know, has Ryder  
3 mentioned anything about, again, assuming sort of a success  
4 scenario in which these trucks and the infrastructure  
5 basically are successfully deployed, are they looking to  
6 expand this to the rest of their fleet?

7 MS. KIRKHOFF: Absolutely.

8 COMMISSIONER EGGERT: And along that, kind of, have  
9 they mentioned the timing associated with that decision?

10 MS. KIRKHOFF: They have not.

11 COMMISSIONER EGGERT: But they are looking at this  
12 as sort of a test?

13 MS. KIRKHOFF: Yes, and I absolutely think the fact  
14 that, even before contracts have been inked, they went and  
15 got some other grant funding to expand. They actually put  
16 in a grant for 50-year goals, but there was only enough for  
17 them for 15. So, they absolutely are looking at this and I  
18 know they have got in the works some projects in other  
19 states, but I cannot divulge that. But, yes.

20 COMMISSIONER EGGERT: And I think you had mentioned  
21 some of the challenges of dealing with Government agencies,  
22 and particularly with the public-private, and I think we can  
23 appreciate that. Yeah, I think we will look forward to - if  
24 you have any sort of further thoughts about, in the future,  
25 as we structure these solicitations and contracts, to make

1     that process smoother.

2                 MS. KIRKHOFF:   About a year from now, I will have  
3     some great, you know, once we get going and we actually  
4     start invoicing and reporting, you know, there may be some  
5     other words of wisdom down the road, but we are so excited  
6     to get started and actually start buying stuff.

7                 COMMISSIONER EGGERT:   Thank you.   We appreciate it.  
8     Thanks.

9                 COMMISSIONER BYRON:   It is great that you are as  
10    excited as you are, and I have heard people say that working  
11    to get money out of the state is like, you know, walking an  
12    unmarked path with landmines.   And I am concerned about the  
13    terms and conditions issues, it is almost as if we are set  
14    up to not make public-private partnerships work.   And so, I  
15    am quite concerned about this when you say that you are  
16    going to have to match up all these different contract  
17    conditions and you are not quite there yet.   Do you see the  
18    light at the end of the tunnel on this?

19                MS. KIRKHOFF:   I am seeing the light.   You know, and  
20    let me just give you a quick example.

21                COMMISSIONER BYRON:   Please.

22                MS. KIRKHOFF:   In your terms and conditions, you  
23    have some great language that, for some reason if the money  
24    goes away, this is how you would handle it, you would look  
25    at the expenses that were incurred to date.   And, for

1 example, with this type of a project, it is not professional  
2 services where you stop work, you get paid up until that  
3 point. If they are in the middle of fueling station  
4 construction, they have turned dirt, and all of a sudden you  
5 say stop, or DOE says stop, it is not that easy, you know,  
6 you may have equipment on order, you may have to do some  
7 work to bring the project to closure. And so, it is not  
8 real clear in the DOE contract what would DOE reimburse you.  
9 And in your agreement, there is some great language that I  
10 would like to incorporate into their agreement, but trying  
11 to get, you know, some clarification out of the DOE, it is  
12 tough, they refer you to circulars, and it is not that  
13 clear. If it is a professional services contract, it is  
14 very clear. So, it is challenge and I am feeling very  
15 hopeful, and I hate to say that part of it is Ryder as an  
16 entity, are they willing to kind of trust this whole  
17 process? And are they okay with your language, and that is  
18 sufficient from the DOE, as well? It is tough, it is really  
19 tough. I think they are the type of a corporation, that  
20 they have got enough going on for them that they are willing  
21 to take this risk and there may be some parts of it they are  
22 still not real clear about, but they are willing to move  
23 forward. But, we should know in a few weeks.

24 COMMISSIONER BYRON: All right, well, managers like  
25 Ms. Allen are expert at this, and I am sure that if

1 [inaudible] worked out, she will, but I am still quite  
2 concerned and I suspect all three Commissioners here would  
3 be very interested in knowing if you come up against any  
4 what seem to be insurmountable problems, so we can help  
5 resolve.

6 MS. KIRKHOFF: Absolutely. You know, the other  
7 thing I could say, just real quick, when we applied to the  
8 Stimulus program, the Feds, it was supposed to be shovel-  
9 ready, with the private sector, I mean, this is about as  
10 shovel-ready as it can get, but then you still have to go  
11 through CEQA and NEPA and permits and, you know, RFPs, and  
12 so I am getting a lot of questions from the DOE, "Where is  
13 the money? Why haven't you spent it?" I mean, I had to  
14 fill out paperwork for the DOE for NEPA clearance on  
15 administration. I mean, seriously. So, this is just where  
16 I think everybody is learning and everybody is going through  
17 growing pains, and for Stimulus funding, I just do not think  
18 you can keep the same requirements that you would on a five-  
19 year project. Yeah, you want the money out the door, you  
20 have got to go lightly on some of these other requirements.  
21 And I am not saying ignore NEPA, but, you know, there has  
22 got to be some give and take here, and they were not set up  
23 to do that. So, you know, we are all learning, and we have  
24 a great contact on the Federal level, we are giving them  
25 feedback constantly, so we are learning and we will continue

1 to give you feedback.

2 CHAIRMAN DOUGLAS: I do not have a question, I just  
3 wanted to say I appreciate your comments and appreciate your  
4 being here. This entire day has been, I think, very helpful  
5 for the three of us Commissioners sitting here.

6 COMMISSIONER BYRON: Absolutely.

7 CHAIRMAN DOUGLAS: And hearing about your  
8 experiences on the ground. So thanks for being here.

9 MS. KIRKHOFF: Thanks for listening.

10 MS. KOROSEC: All right, now we will move on to our  
11 final presentation.

12 MR. SINKULA: Members of the Commission, ladies and  
13 gentlemen, thank you for having me and thank you for staying  
14 until the end, I guess. We are a young company in  
15 California and so I thought it would be good to first  
16 introduce our company and what we do. It is a good  
17 framework for what we are doing under the ARPA-E and the CEC  
18 funding. You know, we are a battery company, I guess, by  
19 nature, but we are not just making batteries and turning  
20 them out, there is a unique technology behind it that is  
21 good to share with you and introduce our company.

22 I am one of the co-founders of the company, myself  
23 and Sujeet Kumar founded it in 2007. We started the company  
24 with kind of the fundamental premise of creating a better  
25 battery for Electric Vehicles. We saw the industry just

1 kind of in the early stages and we saw companies like Tesla,  
2 or even GM, other small EV companies, using batteries that  
3 were for laptops, or batteries that were for power tools,  
4 and not really finding a battery out there on the market  
5 that was intended, really, for Electric Vehicles. We saw  
6 them also as really expensive, and we saw an opportunity, I  
7 guess, to create a battery that was both appropriate for  
8 Electric Vehicles, and it was also less expensive, so car  
9 makers can make cars that are less expensive, and then we  
10 can all buy them without government subsidies. So, we  
11 incorporated in 2007, we started in Hayward, California. We  
12 have since expanded to a new facility in Newark, California.  
13 There, we have a materials pilot plant and we do all of our  
14 materials innovation. We have business headquarters in  
15 Detroit, where a lot of our automakers are there, obviously,  
16 with Ford, GM, and Chrysler. There is also a new battery  
17 company emerging in the Detroit area, so we thought it would  
18 be good to have a presence there. We do cell phototyping in  
19 China, it is a facility that we own and operate. But I  
20 should probably back up a little bit. We make the material  
21 that goes inside the battery, we do not make batteries, per  
22 se, we make a unique material called a cathode material, it  
23 is the positive electrode in the battery, and so that is,  
24 when we talk about a materials pilot plant, that is what we  
25 do in California.



1           And just a little background on our financing. We  
2 have been financed by three venture capitalists thus far in  
3 2007, Redpoint Ventures, Bay Partners, and Pangaea Ventures,  
4 all of which hold Board seats on our board. I would also  
5 like to point out that we have recently added a former CEO  
6 of General Motors to our Board, that we feel like having him  
7 on our board really kind of creates a conduit between the  
8 Silicon Valley, which is where we operate, and kind of the  
9 bureaucratic nature of Detroit and the big auto companies.

10           So, when we started the company, we looked at the  
11 market and many of the forecasts were very bullish on EVs  
12 really taking control. A lot of the reports like this one  
13 from Deutsche Bank saw a market surpassing \$30 billion by  
14 2020, just for batteries, alone. And just to put this in  
15 perspective, consumer electronics like laptops and cell  
16 phones are merely like \$6 or \$7 billion a day, so this is  
17 really a much bigger market than even cell phones and  
18 laptops are today, which is quite impressive. We also saw  
19 kind of a flaw in these projections. These projections  
20 assume that the cost of the batteries will come down  
21 significantly, so that automakers can sell them at cost that  
22 are competitive with gas card cars. And we did not see  
23 anything on the horizon that was actually going to make that  
24 happen. And in talking with a lot of the big automakers,  
25 they see the battery as the biggest cost component of these

1 electric vehicles and the biggest bottleneck for them to  
2 make them less expensive, I guess. Even like the Volt today  
3 is going to be, I do not know, \$35,000 or \$40,000, and the  
4 battery is going to be \$10,000 to \$15,000 of that total  
5 cost. Tesla, their battery pack is \$25,000 to \$30,000, of  
6 that \$110,000 sticker price on their Roadster, so it is a  
7 significant portion of the cost. And, you know, you cannot  
8 depend on government subsidies, I guess, to make this whole  
9 industry happen, and you need to make this industry organic  
10 and grow economically.

11           So we started with the thought that the materials,  
12 the cathode and anode materials, are where you can make the  
13 most constructive improvement. You know, companies will do  
14 redesigns of the pack, or redesigns of the cell, but that is  
15 only going to make incremental improvements in the overall  
16 cost of the pack, or the cost of the battery. You have to  
17 really change the fundamental building blocks of the battery  
18 cell, and this is kind of where we started our company, was  
19 materials innovation. And our goal was to produce batteries  
20 with the highest capacity in the world, so with high  
21 capacity, you can have more energy in a battery and have  
22 less batteries to produce a given pack, I guess, which would  
23 reduce the total cost of the car. And we have since  
24 developed the lithium battery materials with the highest  
25 energy density in the world.

1           So, just to kind of show you, this is my only  
2 science-y graph in the whole presentation, but this is going  
3 to show you how it relates to other battery material today.  
4 Ours is the green curve there, the gray curve, which is kind  
5 of hard to see, is lithium cobalt oxide, which is what is in  
6 your cell phone or laptop, and then the red curve is what is  
7 going to be in the Chevy Volt, and to kind of calculate  
8 energy, you want to look at the area under each curve, so  
9 the area under the lithium cobalt oxide is very small, and  
10 so is the Chevy Volt material, but ours, being the green  
11 one, it is about twice as much as the lithium cobalt oxide,  
12 so we are doubling the capacity of what is in your cell  
13 phone or laptop batteries. And so, some numbers that you  
14 need, half as many batteries, I guess, to upgrade yourself  
15 on a laptop.

16           The other knock on high capacity batteries like your  
17 cell phone or laptop is that they do not last very long,  
18 like you charge and recharge them, and after a year they are  
19 pretty much dead. You cannot put that type of battery into  
20 a car, which the Tesla is eventually going to experience,  
21 but you want to have your car battery last five to 10 years,  
22 and for that, you need the battery that cycles, recharges  
23 and charges back and forth many many times. And that is  
24 something that we have done, so we have maintained high  
25 capacity in our batteries, and we have also been able to

1 cycle it very flat, and this is just 500 cycles, but most  
2 laptop batteries will begin to die after 200 or 300 cycles,  
3 and, so this is another unique feature of our batteries that  
4 we maintain that high capacity and can cycle for a long  
5 time.

6           And so we have put these unique cathode materials in  
7 the batteries of different cell sizes, this is 120, which  
8 would be intended for like the Chevy Volt, and since it was  
9 the highest capacity in our Chevy Volt type battery in the  
10 world, we won the R&D 100 Award for that, in conjunction  
11 with Argonne National Laboratory.

12           And now, to finally get to the ARPA-E/CEC funded  
13 grants. So, we have talked a lot about the cathode that we  
14 have created thus far, for the past three years, the grant  
15 with the CEC and ARPA-E is to focus more on the anode side,  
16 so cathode being the positive side, anode is the negative  
17 side, we have such a high capacity of cathode that we need a  
18 much better anode to kind of balance it out, and that is  
19 what this project is going to help produce. And the goal of  
20 this project is to produce a battery that is 400 watt hours  
21 a kilogram in the battery itself, and just to put that in  
22 perspective, the Chevy Volt battery is going to be 130 watt  
23 hours per kilogram, so this is going to be three times as  
24 high a density as the Chevy Volt battery. So, presumably,  
25 that will reduce the cost by at least two-thirds. And just

1 - I do not know how familiar you guys are with the ARPA-E  
2 Program, but there were 400 applicants for an ARPA-E grant -  
3 or 4,000 Applicants, sorry - for an ARPA-E grant this year,  
4 and we were one of the 37 recipients in the first round, so  
5 highly selective group, and we were very lucky to get that  
6 grant.

7           And just a little bit more on the cost side of  
8 things. I talked a lot about how we are going to decrease  
9 the cost, some of that, but this really shows you  
10 comprehensively of where the industry is at and where we are  
11 targeting for our current battery and for our next one with  
12 the ARPA-E grant. So, typically batteries are measured on a  
13 cost per kilowatt hour, or cost per unit of energy. The  
14 industry trend is that line decreasing, so right now in  
15 2010, we are still well above what we consider to be the  
16 threshold for economic viability of Electric Vehicles; this  
17 is not my prediction, this is what many of the industry  
18 analysts have predicted for the threshold that the companies  
19 need to get to in terms of battery cost. Our first  
20 generation of batteries are the green dot right there, will  
21 be used in major OEMs, U.S. OEMs, plug-in hybrid electric  
22 vehicles, we have not announced which one that is, but you  
23 guys could probably guess which one. And this is why they  
24 have chosen our battery material, because it is going to  
25 reduce their total battery cost by \$5,000 per car, and so it

1 is an extremely significant amount of money just by using  
2 our cathode material.

3 And then, the one that is funded through this  
4 program, which is the ARPA-E dot down there, further reduces  
5 the cost and we hope that the same automaker will be using  
6 that in their next generation plug-in hybrid electric  
7 vehicle.

8 And this is actually a little bit more information  
9 on that one program that we have with this major OEM. This  
10 describes kind of how we helped not only reduce the size of  
11 the battery pack, but everything that is after that, so the  
12 interconnects, the cooling system, all the safety  
13 mechanisms, the software, and all those that can be reduced,  
14 as well, so it is kind of a domino effect by using this  
15 higher energy batteries that you reduce other components of  
16 the car, as well. And just to summarize our company and  
17 where we are headed, we have a battery with the highest  
18 energy density material in the world, and that helps reduce  
19 the battery weight, the battery cost. We also have  
20 batteries that have extremely long cycle lives, so you do  
21 not need to replace it. We have a huge IP portfolio, and we  
22 are focused on the EV and PG applications. We could easily  
23 put this in the laptops and sell, but we are much more  
24 excited about the potential of the EV market. So, thank you  
25 for your time.

1           CHAIRMAN DOUGLAS: I will just make a brief comment  
2 and then I have actually got to run upstairs for a 4:30  
3 meeting, but I see that both of my fellow Commissioners have  
4 written down notes of questions that they have for you. I  
5 just wanted to thank you, this is an extremely impressive  
6 presentation, it is great to see you, it is great that you  
7 have helped get your company to this point, and are in a  
8 position to make a very significant contribution to our  
9 energy needs in the transportation sector. So, thank you  
10 for being here, and I will pass this on to my fellow  
11 Commissioners.

12           COMMISSIONER EGGERT: Yeah, again, I will echo that,  
13 I really appreciate the presentation. I think I have seen a  
14 version of this presentation in the past. I guess, yeah, to  
15 the extent that you are able to hit those numbers,  
16 especially - well, even just the first gen value which is  
17 250 or 300, somewhere between there, is a game changer in  
18 terms of the costs, and then your second gen would really be  
19 transformative. I guess, in the context of sort of this  
20 project - two questions - one is, are you able to share  
21 enough information to be able to make an evaluation of those  
22 costs? Because I think, in terms of policymakers, it would  
23 be really useful to have some - whether it is third-party  
24 assessment, to show that that is kind of where we are at, I  
25 assume those are high volume manufacturing estimates?

1 MR. SINKULA: Yeah.

2 COMMISSIONER EGGERT: Okay.

3 MR. SINKULA: Yeah, and we are a cathode maker,  
4 first of all, so the subsequent cost, I guess, to making a  
5 battery pack, we rely on the OEM and other battery makers, I  
6 guess, for estimating those costs, but for producing the  
7 cathode material, which actually is 40 percent of the cost  
8 of the cell, it is so significant, we are very in control of  
9 those costs, I guess.

10 COMMISSIONER EGGERT: Did the milestone points to  
11 those represent the full battery cost? Or just the system -

12 MR. SINKULA: Just the system cost. Full system.  
13 So, we work with this major OEM to determine how much the  
14 system costs would be using our cathode material.

15 COMMISSIONER EGGERT: So, I guess my next question  
16 is, given that will require scale-up, and volume  
17 manufacturing at the conclusion of this project, do you see  
18 going to high volume manufacturing, serious production?

19 MR. SINKULA: Yes, that is the next step for us.  
20 You know, we have a very clear roadmap with this one OEM, so  
21 we know when we need to begin building a plant that would  
22 produce certain amounts of cathode material, and we would  
23 like to have that happen in California. But we are working  
24 with DOE right now in establishing hopefully a loan program  
25 for us to do that.



1           COMMISSIONER EGGERT: And then, in terms of - do you  
2 see participation in any of these battery second life  
3 projects and activities, so subsequent to the use of the  
4 vehicle, bringing it into distributed energy storage  
5 applications?

6           MR. SINKULA: We would like to, but we are too small  
7 of a company to be focused on things outside of the  
8 immediate vehicle applications.

9           COMMISSIONER EGGERT: Yeah, very impressive work and  
10 appreciate your coming here.

11          MR. SINKULA: Absolutely.

12          COMMISSIONER BYRON: Mr. Sinkula, thank you very  
13 much. We saved the best for last, it seems. I mean, I  
14 would like to correct you in one regard, it was not luck, I  
15 do not think, that you won the ARPA-E Award, this is really  
16 impressive. I note that we are in for about a quarter of  
17 the funding in our match. Did that have much influence, do  
18 you think, in your winning this? Or is it primarily your  
19 technology that won this?

20          MR. SINKULA: Well, I think it was luck. No. We -  
21 I think - well, so this project was focused on the anode as  
22 opposed to the cathode, the ARPA-E project with the CEC, and  
23 we would not have been focused on the anode this early in  
24 our lifetime, I guess, had it not been for this program and  
25 this funding. So, we would have kept going with the cathode

1 and made the battery, and then maybe moved onto the anode,  
2 but this ARPA-E provides us an opportunity to focus on the  
3 anode now, as opposed to later, which is going to really  
4 push the energy that is being caused [phonetic].

5 COMMISSIONER BYRON: Well, I am ready to place my  
6 wager. If you could leak to me who the OEM is, I will bring  
7 it by.

8 MR. SINKULA: You can probably guess.

9 COMMISSIONER BYRON: Okay, but, you know, a \$30  
10 billion a year market opportunity here and you are, my  
11 guess, a pretty small company?

12 MR. SINKULA: Yeah, so we have 25 people here in  
13 California, and then we have 10 in China, and three in  
14 Detroit.

15 COMMISSIONER BYRON: You need less than two years,  
16 you will be bought. And that is not all bad, either. But I  
17 am really impressed with the technology and what you have  
18 done so far. I hope you have tremendous success, and this  
19 is just another great project that obviously demonstrates  
20 great potential here. This is the perfect example of why an  
21 ARRA investment in these kinds of technologies was a good  
22 thing. Don't you agree?

23 MR. SINKULA: Yes, absolutely. No, we appreciate it  
24 very much. Yeah, we started that program, the ARPA-E  
25 project, I guess, last January, so we have been making a lot

1 of progress already with the anode, and we will probably get  
2 close to our goal before the two-year allotment, I guess,  
3 for the program.

4 COMMISSIONER BYRON: Well, I see Commissioner Eggert  
5 wants to go at it again, too. We are both engineers that  
6 really like this, so....

7 COMMISSIONER EGGERT: I was just going to suggest  
8 that last one was a bit of a leading question.

9 COMMISSIONER BYRON: Sure, absolutely.

10 COMMISSIONER EGGERT: No, actually, you just  
11 reminded me with respect to, you know, some of the potential  
12 benefits of these programs, is creating these new companies  
13 that will then, you know, sell product outside of the state,  
14 and it sounds like you have already got connections back,  
15 not just to Detroit, but even outside of the country.

16 MR. SINKULA: Yeah, but we have been working with a  
17 lot of, well, fortunately, but unfortunately, a lot of  
18 foreign automotive companies that are also very interested.

19 COMMISSIONER EGGERT: In terms of, as you sort of  
20 move towards that decision of scaling up on the  
21 manufacturing side, do you have any sense of where that  
22 would occur? And we have quite a number of manufacturing  
23 sites here in California, and whether or not those will  
24 weigh on the decision of location?

25 MR. SINKULA: Yeah, my priority would be to keep

1 everything as centralized as possible via - we already have  
2 three different locations, I guess, for our small little  
3 company, and so it is already kind of a strain, I guess, to  
4 have that many facilities. And so I prefer to have it right  
5 down in Newark or in the East Bay where we are currently  
6 located, if possible. There are a lot of empty buildings  
7 there near - NUMI, too, is actually there.

8 COMMISSIONER EGGERT: That is right, you could share  
9 with Tesla.

10 COMMISSIONER BYRON: Well, thank you very much.

11 MR. SINKULA: Of course, thank you.

12 MS. KOROSEC: All right, I think we have just a few  
13 minutes left, if we have any public comments in the room.  
14 Is there anybody who would like to pass any final questions  
15 or make any comments?

16 MR. KRIEGER: Forgive me, you know, living in a  
17 chicken coop as long as I have, I have a chance to get out  
18 once in a while. I just really appreciate the opportunity  
19 to have been here today and meet you folks and see what you  
20 are really doing, and the difficult job that the Commission  
21 really has in energy efficiency systems. I know that the  
22 mission of the CEC is the management of the state's energy  
23 needs and resources, and I guess you might say that your  
24 vision would be to have zero emissions and total energy  
25 independence some day as a grand vision. I just have a

1 question insofar as adding this figure of a million vehicles  
2 plugging into the grid, perhaps half of them from  
3 California. Has the Commission considered what the impact  
4 that would have upon the grid insofar as additional energy  
5 being needed for that grid, electricity? I know that the  
6 state, in general, imports approximately 25 percent of its  
7 energy needs from the Northwest, I guess, and 10 percent in  
8 the Southwest, maybe another 15 percent. What impact that  
9 number of vehicles would have upon the system? Is there any  
10 research as to how that would impact the system, the grid?

11 COMMISSIONER EGGERT: Yeah, if I may, I think the  
12 answer is there is some research, including some of the  
13 research that is being conducted by some of the projects  
14 that presented earlier, looking at localized impacts,  
15 because it is both the systematic impacts and some of the  
16 local distribution impacts like our local transformers.  
17 Part of the analysis also includes looking at different  
18 charging strategies to encourage better use of the grid, so  
19 again, as was previously mentioned, the idea of scheduled  
20 charging because, you know, if you for example are charging  
21 your home, you only care that you have a full charge when  
22 you get up in the morning to go to work, that allows for  
23 some flexibility to manage that charge. I think, even with  
24 a million vehicles, if you can manage the load properly and  
25 push a majority of that to the off-peak, it actually

1 provides two potential benefits, it allows you to fill in  
2 the load trough, make better use of generating capital,  
3 which actually makes the system more efficient and more  
4 cost-effective, and you can, you know, once we really get  
5 these smart charging systems and Smart Grid systems in  
6 place, you can start to manage the load with intermittent  
7 renewables, again, because you have a scheduled load, the  
8 ability to take advantage of when the wind blows, as a  
9 further advantage. So, I guess the rather long answer to  
10 your question is, yes, there are a lot of studies going on.  
11 Each of the utilities has projects underway. There are a  
12 number of research institutions that are studying this.  
13 EPRI has a program that has looked at this, and it is being  
14 sliced and diced in many different ways to look at that  
15 particular question.

16 MR. KRIEGER: Has the Commission looked at a EV  
17 system that is a non-plug-in? Has that ever crossed the  
18 Commission's -

19 COMMISSIONER EGGERT: Well, we do actually also have  
20 programs looking at hydrogen electric vehicles, which are  
21 not plug-in, they are basically using on-board hydrogen to  
22 generate the electricity for electric drive, so that is one  
23 example.

24 MR. KRIEGER: Okay. Thank you.

25 COMMISSIONER BYRON: Mr. Krieger, it is fair to say

1 that is not the subject - I should say, this is not the  
2 purpose of the workshop, but we are very concerned about  
3 these issues that you bring up, they are very good  
4 questions. The rate at which - the time of day and the rate  
5 at which these would charge could be a serious problem for  
6 the grid, so that has to be managed, as well, and that is  
7 why it is not just an energy and a technology issue, it is  
8 also a management issue that we have to deal with. So, good  
9 questions, but we did not really delve into them in much  
10 detail in today's workshop.

11 MS. KOROSEC: And we are looking at that, also, as  
12 part of our demand forecasting activities at the Commission  
13 on expected electricity demand. It is going to be under  
14 different scenarios, going forward. All right, do we have  
15 anyone online, Lynette? Or should we just open the lines?  
16 Okay. All right, the lines are open on the WebEx if anyone  
17 has a question or a comment, now is the time. All right,  
18 the sounds of crickets chirping, maybe a bird. We have no  
19 one there, we have worn everyone out. All right, I think if  
20 you have any closing comments, Commissioners?

21 COMMISSIONER EGGERT: I will start it, I will just  
22 say that I have learned quite a bit today. This has been a  
23 great opportunity to learn about how our investments through  
24 our various programs, especially those that were successful  
25 in partnering with the Federal Government through ARRA, are

1 generating significant activity here within the state, that  
2 are helping to establish activity that is going to allow us  
3 to meet our energy and environmental goals, it is creating  
4 industries that are going to provide for new jobs, and  
5 economic activity that will sustain us well beyond the end  
6 of the Stimulus funds coming from the federal government, in  
7 particular, as currently scheduled. So, it was very  
8 worthwhile. I think we also heard a number of issues and  
9 concerns, areas where we might improve our processes, and  
10 perhaps reduce administrative and reporting burdens, so I am  
11 very interested in following up on those suggestions, as  
12 well. So, appreciate everybody who stayed until the final  
13 end, including those on the phone, and with that, I will  
14 turn it back over to Commissioner Byron.

15 COMMISSIONER BYRON: Well, thank you. I will just  
16 finish up with a couple of observations from the workshop  
17 today. First of all, I cannot thank the project presenters  
18 enough for being here, at least one was on WebEx, and  
19 presenting and sharing your projects. Obviously, they put  
20 together tremendous projects that have, for the most part,  
21 acquired their funding based upon their merits, and if we  
22 helped in any way, of course, that is just a bonus, that I  
23 think what we have discovered today, there are some  
24 excellent projects. I was struck by the contrast, though,  
25 and I am not sure if everybody would characterize it the



1 same way as I would, but between the first half and the  
2 second half, early on, we got all the Smart Grid  
3 presentations, which are pretty much in the context of the  
4 utility model and serving the needs of the grid, and our  
5 policy needs from the state's perspective, but we certainly  
6 picked up in the afternoon that transition to the importance  
7 of the private sector, or let's just say - yeah, that is a  
8 good way to put it, yeah, the private sector and the non-  
9 monopoly utility model. That is where the big job creation  
10 is going to take place and we need to certainly be thinking  
11 that way with regard to the Smart Grid, as well. It would  
12 be difficult to imagine what the Internet would look like  
13 today, or if it would even exist, if we did not deregulate  
14 Telecom a number of years ago. Now, I am not suggesting  
15 that we deregulate the utility industry, just that we think  
16 about the Smart Grid from the customer perspective and the  
17 opportunity for the third-party contractors to be involved  
18 in that. And that was somewhat missing. But, in the  
19 afternoon, we got that in spades. I took a number of  
20 messages from the workshop today, obviously the CEC funding  
21 or co-funding was helpful in most of the companies in  
22 winning their proposals, it is certainly also a Brave New  
23 World out there, that we have investor-owned utilities and  
24 municipals that are taking federal money, and I do not think  
25 it is new to many of them, using state money for funding

1 some projects. We have certainly accelerated or advanced  
2 the programs and it has advanced our understanding and  
3 knowledge base around a lot of these technologies. But,  
4 again, we are beginning to see that these projects open up  
5 new markets for private sector companies, and that is where  
6 the real growth is going to be. ARRA funds represent a  
7 significant investment in California, they provide jobs,  
8 they are helping to accelerate our energy policies, they  
9 obviously are intended and are saving customers money, but,  
10 again, the biggest growth opportunity is going to be those  
11 new markets for technologies and companies. I think this  
12 was an excellent workshop. I would like to thank staff in  
13 putting this one together, I certainly learned a lot, and I  
14 thank you all for being here. We will be adjourned.

15 MS. KOROSSEC: Thank you.

16 [Adjourned at 4:51 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.

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 2nd day of August, 2010.

A handwritten signature in cursive script, reading "Peter Petty", is written over a horizontal line.

PETER PETTY  
CER\*\*D-493  
Notary Public