

HEARING  
BEFORE THE  
CALIFORNIA ENERGY COMMISSION

In the Matter of: )  
 )  
Staff Workshop on the Electric }  
Program Investment Charge Program }  
\_\_\_\_\_ )

CALTRANS BUILDING DISTRICT 7  
100 SOUTH MAIN STREET  
LOS ANGELES, CALIFORNIA  
THURSDAY, AUGUST 09, 2012  
9:00 A.M.

Reported and transcribed by:  
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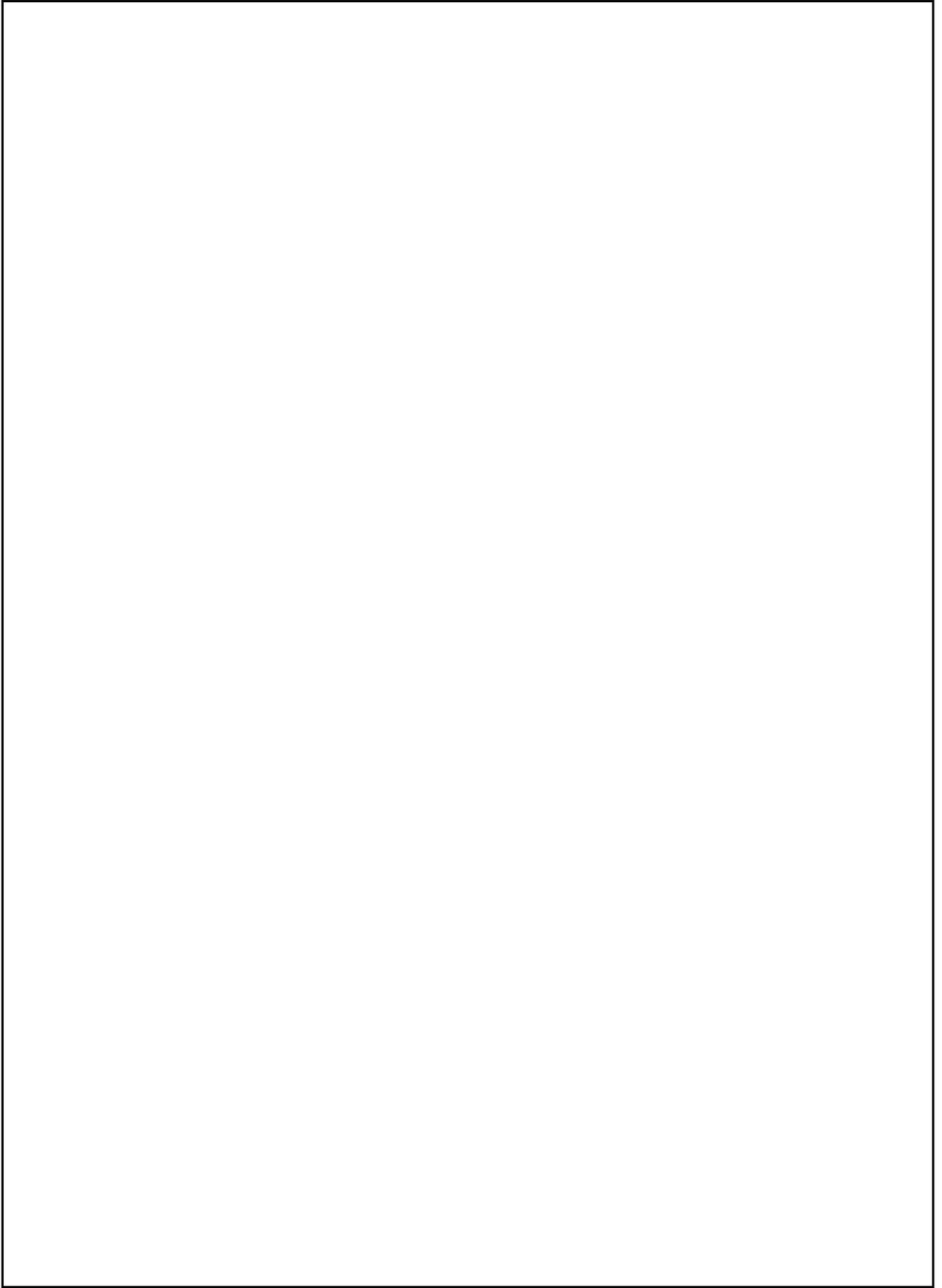
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PROCEEDINGS

9:05 A.M.

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MS. TEN HOPE: Good morning, everyone. I'm Laurie ten Hope. I'm the Deputy Director for Research at the California Energy Commission. And I want to welcome you here for our Electric Program Investment Charge Workshop. This is the second in a series of workshops. We had a workshop last Thursday and Friday in Sacramento. And we have today's -- today's workshop. We're convening a two-day workshop.

And before I go through the agenda I want to just let you all know that we are WebEx-ing this -- this meeting today and -- and recording it. So when -- when we have opportunities for public comment we'd ask you to come up to a microphone, state your name, state your affiliation so that people who are participating remotely have the opportunity to -- to -- to hear you.

We have -- participating remotely we have Commissioner Peterman. And she would like to make some welcoming comments for us today. Can we bring Commissioner Peterman up?

MR. SCHINDLER: She's up.

1 MS. TEN HOPE: Commissioner?

2 COMMISSIONER PETERMAN: Good morning.

3 MS. TEN HOPE: Good morning.

4 COMMISSIONER PETERMAN: Can you hear me?

5 MS. TEN HOPE: We can. But if you could speak up  
6 a little bit it would be helpful.

7 COMMISSIONER PETERMAN: Hello? Hello?

8 MS. TEN HOPE: Just tell her one moment.

9 COMMISSIONER PETERMAN: Hello?

10 MR. SCHINDLER: Hello?

11 COMMISSIONER PETERMAN: Hi. Can you hear me?

12 MR. SCHINDLER: Yes.

13 COMMISSIONER PETERMAN: Oh. Okay. Good morning,  
14 everyone. Just want to make sure I'm coming in clear, and  
15 please let me know if I'm not. I hope it's cooler where  
16 you are than Sacramento. It's going to be 104 degrees here  
17 today. So hopefully you're in a nice clear space.

18 Again, this is Commissioner Carla Peterman, and I  
19 bring you greetings from my fellow commissioners as well.  
20 I regret, and we generally regret that we can't be there in  
21 person today. But we have a business meeting this morning,  
22 and the work must go on. Thank you for being part of that

1 work with your participation today.

2 First, let me thank the California Public  
3 Utilities Commission for adopting the EPIC decision. This  
4 is a very important program that will position the state to  
5 develop cleaner, affordable, and more sustainable energy  
6 and reach our climate and energy goals.

7 These workshops are the primary form for the CEC  
8 to gain stakeholder feedback for the investment plan. This  
9 is the place to make the most influence in shaping the  
10 program going forward. During this two-day workshop and  
11 breakout sessions I ask that you roll up your sleeves and  
12 dig into the details, all of which, again, will be recorded  
13 and available remotely via WebEx.

14 As the commission engages in this process we have  
15 program experience to leverage in both research and  
16 renewables. The PIER Program has good experience with  
17 carving investment plans and designing them with  
18 stakeholder feedback. And the Renewables Program has  
19 managed incentive programs for small PEVs, wind fuel cells,  
20 and biomass. This experience positions us well going  
21 forward. However, as far as what will be funded with EPIC,  
22 this is a blank slate.

1           In the renewables space in particular, I'm  
2 looking at stakeholders to provide feedback on what are  
3 some of the best ways to incentivize renewables, and for  
4 feedback from local governments on types of assistance you  
5 need to better develop and site renewables.

6           Again, I encourage, as you work through the next  
7 two days, you keep in mind that the research should be  
8 paving the way for deployment through our renewables  
9 program. And the funding areas should speak to maximize  
10 ratepayer value.

11           Finally, thank you to the CEC and the PUC staff  
12 for their hard and excellent work to date and the efforts  
13 to come. I look forward to your feedback, and have a  
14 productive two days. I'll be able to participate until our  
15 business meeting starts at 10:00, and then I'm looking  
16 forward to staff's report back.

17           MS. TEN HOPE: Thank you, Commissioner.

18           I'd like to -- this morning we're going to first  
19 have an overview of the EPIC decision by the CPUC that sets  
20 the stage for the conversations that we'll have -- we'll  
21 have throughout the day. I'll then provide some context  
22 for the process that the Energy Commission will be

1 following to develop our portion of the investment plan.

2 And then we'll hear from the investor on utilities, who are  
3 also preparing investment plan.

4 So next up, I'd like to introduce Andy Schwartz  
5 and Cem Turhal from the CPUC, and they'll walk through the  
6 decision that frames -- frames today's discussion.

7 MR. SCHWARTZ: Thank you, Laurie. So my name is  
8 Andy Scwhartz, as Laurie said. I'm a supervisor of the  
9 Emerging Procurement Strategies section of the CPUC. I  
10 thought what I would do before we get into the specifics of  
11 the framework that the decision created for the  
12 establishment of the EPIC program is just a few, I guess  
13 sort of ground-rule suggestions, as well as discuss the  
14 role that the PUC has in the process.

15 So as was indicated, the PUC adopted a decision  
16 that established the EPIC program to fund primarily --  
17 well, focusing on pre-commercial technologies. And Cem is  
18 going to sort of get -- talk in much more detail about the  
19 specifics of the program. In addition to pre-commercial  
20 technologies, also facilitating sort of the deployment of  
21 technologies through permit streamlining and other  
22 activities that can enable those technologies, once

1 developed, to be deployed more effectively.

2           But I think it's important to just briefly talk  
3 about sort of the role that Cem and I have. So we are the  
4 key staff people at the PUC. So we would be a  
5 stakeholder's point of contact if you have questions about  
6 either the decision that established the framework, or once  
7 the investment plans are submitted to the commission, if  
8 you have questions about how the commission's deliberations  
9 work, and things of that nature.

10           I don't think either Cem nor I would claim to be  
11 subject matter experts on the broad scope of issues that  
12 the EPIC program is going to cover. We have more of, I  
13 would say, a coordination-facilitation role at the PUC. So  
14 to the extent there are specific questions about a given  
15 technology area that's proposed within the investment plans  
16 that will be submitted by the CEC and the utilities, we  
17 would work with the internal expertise of the commission to  
18 provide feedback.

19           In terms of the -- what I'm hoping we can do with  
20 today's presentation is have Cem go through it. If you  
21 have a specific question, if you can hold those until after  
22 his presentations, just to make sure that we have enough

1 time for him to go through the presentation in its entirety  
2 first.

3           And then second, in terms of the types of  
4 questions that, you know, we're happy to entertain, you  
5 know, if you have clarifying questions about what the  
6 decision meant by something or what, again, what the  
7 process is from going from the investment plan proposals  
8 through the PUC deliberations -- we have an answer to those  
9 -- I want to avoid getting into situations where we're  
10 essentially re-litigating issues that were decided within  
11 the commission decision. I think we recognize that certain  
12 aspects of the decision were highly controversial, as Cem  
13 will describe in a moment, that are certain areas that the  
14 commission decided not to continue funding or that had  
15 previously been funded via funds through the PUC, in  
16 particular some of the markets and core activities that  
17 were previously funded through those prior programs.

18           I know -- I know personally, I've heard from  
19 parties that there is some dissatisfaction within the  
20 development community on some of those decisions. But the  
21 decision stands as it is, and I don't want to get into a  
22 discussion about sort of why -- what the commission did was

1 correct or not, and would rather spend our time discussing  
2 how to move forward with what the decision currently says.

3           So with that, I will turn things over to Cem to  
4 give you an overview of the -- of the EPIC decision. Thank  
5 you.

6           MR. TURHAL: Thank you, Andy. Hello, everyone.  
7 I'm name is Cem Turhal, and I'm with the California Public  
8 Utilities Commission. And I'm here to provide you an  
9 overview, a detailed overview of the EPIC program.

10           In recent decisions the California Public  
11 Utilities Commission determined that the commission has a  
12 compelling interest in providing ongoing support for the  
13 development and deployment of the new and emerging  
14 technologies in California, despite the sunset of the  
15 public discharge. The basis for this viewpoint is rooted  
16 in a number of considerations.

17           To achieve the goals set forth by AB 32 and the  
18 cap-and-trade program, there will need to be a fundamental  
19 change in the technologies and the systems used to provide  
20 energy services in California. The degree to which new  
21 technologies will need to be relied upon grows more evident  
22 if one looks towards the 2050 timeframe where in order to

1 realize the goals of GHG emissions 80 percent below the  
2 1990 levels, the energy systems in California will have to  
3 almost be -- completely be decarbonized. The carbon  
4 emissions will become increasingly expensive, and as a  
5 result providing energy services at a reasonable cost  
6 strongly suggests the need to invest in tomorrow's  
7 technologies today.

8 California is an innovation leader. Programs  
9 like the EPIC program have a fundamental role in catalyzing  
10 the industries of the future and maintaining California's  
11 place as a center of innovation in technology, and the  
12 economic benefits associated with that leadership.

13 Oh, I didn't move the slide. My bad. So in this  
14 slide we're -- all these slides will be up online, as well,  
15 so you can -- you can always go back and review them if  
16 you'd like.

17 The -- the EPIC program is focused primarily on  
18 supporting pre-commercialized efforts, with some additional  
19 support for -- for more facilitation activities. And we'll  
20 discuss these in further slides.

21 The support for the EPIC program provides -- is  
22 largely intended to help fill in the gaps of funding that

1 exist between the technological -- the technology  
2 maturation curve, which you're seeing in this slide. This  
3 particular version has been developed largely by the energy  
4 finance, and there perceives to be significant funding gaps  
5 in areas of research development, technology,  
6 demonstration, and certain aspects associated with  
7 commercialization. In general, the EPIC program is built  
8 around filling these identified funding gaps to help move  
9 technologies or approaches from an early stage of  
10 development to commercial viability. We can take a closer  
11 look at these in the next slide.

12           So in considering what areas to fund with EPIC  
13 monies, the commission considered four potential areas,  
14 shown in this slide. Of the four areas, three, which were  
15 the applied research, technology, demonstration, and  
16 deployment, and market facilitation were -- were chosen.  
17 The CPUC decided not to fund market-support activities for  
18 various reasons. I want to spend a few minutes on the  
19 reasons why market supports was not chosen to be supported  
20 with EPIC monies, and the reasonings are varied.

21           Previously, the Public Goods Charge funded three  
22 market-support programs. These programs included the

1 Emerging Renewables Program, the existing Renewables  
2 Facilities program, and the New Solar Homes Partnership  
3 Program.

4           For the Emerging Renewables Program the  
5 commission determined that the -- consolidating this  
6 program with the Self-Generation Incentive Program was  
7 preferred to continuing funding for a separately  
8 administered program, given the similar objectives of the  
9 Emerging Renewables Program and the Self-Generation  
10 Incentive Program. For existing Renewable Facilities  
11 Program the commission determined that these facilities  
12 have ample market opportunities via existing procurement  
13 programs like the Renewable Portfolio Standards or RPS.  
14 Finally, the New Solar Homes Partnership Program at this --  
15 at the time that the decision was issued by the commission  
16 the commission's hands were tied in terms of providing  
17 incremental funding for the New Solar Homes Partnership  
18 Program because of the statutory cap on the amount of  
19 ratepayer monies for the -- for the -- for the California  
20 Solar Initiatives Programs, which the New Solar Homes  
21 Partnership Program is a part of.

22           However, with the recently approved budget's

1 trailer bill, Senate Bill 1018, it appears that it gives us  
2 some flexibility in this area, and we remain optimistic  
3 that future funding will be available to support the New  
4 Solar Homes Partnership Program.

5           The program -- the EPIC program has an overall  
6 budget of \$162 million annually, starting in 2013, adjusted  
7 every three years to account for inflation using the  
8 Consumer Price Index. I should note that in 2012 this --  
9 the EPIC program's budget is 143 million based on  
10 Commission's Phase I decision in the EPIC proceeding.

11           And the -- and the areas of investment are broken  
12 out into the four administrators, which we will cover in a  
13 bit. But the applied research area, the areas that we  
14 talked about briefly in the previous slide, 55 million will  
15 go to the CEC for applied research in technology,  
16 demonstration, and deployment; 45 million will also go to  
17 the CEC with -- with the -- with -- with a note that at  
18 least 20 percent of that money needs to be used for  
19 bioenergy projects. And another 30 million -- 30 million  
20 for the utility -- I mean, the technology, demonstration,  
21 and deployment area.

22           Under the market facilitation area, the CEC will

1 also administer \$15 million. And the program  
2 administrators will have an overall 10 percent; that's 12.8  
3 for the CEC, and \$3.4 million dollars for the utilities.  
4 The CPUC will provide program oversight and will -- will be  
5 -- will receive \$.8 million for that, which totals to an  
6 annual again of 162 million starting in 2013, and every  
7 year those are the monies that will be set aside.

8           So as I briefly discussed earlier, there will be  
9 four program administrators, the three utilities and the --  
10 and the CEC, California Energy Commission, Pacific Gas and  
11 Electric, Southern California Edison, San Diego Gas and  
12 Electric, specifically. Under the terms of the decision  
13 the IOUS are prohibited from using monies they're  
14 administering for generation projects. They may propose  
15 non-EPIC fund sources to support such projects, but utility  
16 administered EPIC funds cannot be used for this purpose.

17           The role of the administrator -- there are many  
18 roles to being an administrator on the EPIC program, but  
19 one of them is to submit investment plans to the California  
20 Public Utilities Commission for approval. Once that plan  
21 is approved the administrators will implement those plans  
22 and use them directly to fund individual projects. All

1 administrators of the EPIC funds will be subject to the  
2 same requirements as we discussed in the previous slide,  
3 including the administrative expenditure cap of ten percent  
4 annual reporting requirements. And also I should not that,  
5 additionally, one of the investment plans that -- that we  
6 have approved, administrators can shift up to five percent  
7 of the approved spending categories into another approved  
8 spending category at their discretion.

9           This slide provides an overview of the EPIC  
10 program schedule. As you can see, the EPIC program is  
11 divided into three investment plan cycles. The cycles are  
12 -- it begins in -- 2012 to 2013 is the first cycle, the  
13 second being 2015 to 2017, and -- and the third investment  
14 plan will be from 2018 to 2020. Each investment plan will  
15 have four elements to it.

16 (Background noise from WebEx.)

17           MR. TURHAL: If you could mute your phone, that  
18 would be great. Thank you.

19           As I was saying, the -- the four elements of the  
20 investment plans will be the -- the development of the  
21 investment plans by the administrators. So the CEC and the  
22 three utilities will develop an investment plan. And then

1 that proposed investment plan will be submitted to the CPUC  
2 for review. The CPUC will review and ultimately issue a  
3 decision on -- on the investment plans in May of 2013 for  
4 the first investment plan, and December of 2014 for the  
5 second investment plan, and December 2017 for the third  
6 investment plan.

7           The provisions of the electric ratepayer benefits  
8 is the overarching guiding principle for the EPIC program.

9       Every -- every project in the -- that would receive EPIC  
10 funding would need to have some sort of ratepayer benefit  
11 associated with it. The CPUC has a mandate to assure that  
12 any monies we -- we direct to the IOUS to collect for  
13 programs like this under our own authority provide benefits  
14 to the ratepayers. There are many components to what could  
15 be included in the notion of ratepayer benefits, as  
16 indicated in this slide. These types of benefits line up  
17 with a variety of state goals including GHG emissions  
18 reductions, advancing safety and reliability, reducing  
19 costs, etcetera.

20           However, some of these components done inherently  
21 result in ratepayer benefits. For example, not all clean  
22 transportation projects provide benefits to electric

1 ratepayers. To address this and further underscore the  
2 centrality of providing benefits that explicitly accrue to  
3 electricity ratepayers, the decision requires that the  
4 proposed funding activities are mappable to the utility  
5 value chain. And the utility value chain can be best  
6 described as -- as these four bullet points which are  
7 operations and market design, generation, transmission  
8 distribution, and demand-side management.

9           So in other words, the projects seeks EPIC  
10 funding would need to, A, provide ratepayer benefits, and  
11 should be also mappable directly to one of these, at least  
12 one of these, mappable to the utility value chain.

13           This slide shows the various components that need  
14 to be included in the investment plans. Also, in  
15 developing these investment plans the administrators are  
16 required to consult extensively with a broad cross-section  
17 of stakeholders via workshops such as this one, as well as  
18 through a common process. They -- they are continuously  
19 seeking stakeholder involvement. And another key exception  
20 to the CPUC is -- of the program administrators is that  
21 they will coordinate their efforts across not only their  
22 investment plans, but also in consideration of activities

1 that are taking place elsewhere, for example, at the  
2 federal level.

3           Lastly, the decision establishes annual reporting  
4 requirements. The program administrators shall file  
5 reports annually, starting on February 28th of 2013, to  
6 February 20th of 2020. Every year, starting in 2013,  
7 February 28th, until 2020 there will be annual -- annual  
8 reports filed by the administrators.

9           As I mentioned earlier, the CPUC will hire an  
10 independent evaluator to review the EPIC program by 2016.  
11 So at least one independent evaluator will be hired by the  
12 PUC by 2016. And -- yeah.

13           So that concludes my overview of the EPIC  
14 program. These are my contact information. So if you have  
15 any questions, please feel free to give us a call. Thank  
16 you.

17           MR. SCHWARTZ: Before we -- I don't know if  
18 people have questions. We're happy to take those now. But  
19 before we do that I was remiss earlier in not recognizing  
20 the efforts of the CEC in putting these workshops together.

21           I mean, I think as the timetable that Cem put up showed,  
22 we're operating under, particularly for the first

1 investment plan, very, very -- a very, very constrained  
2 schedule. And so kudos to the CEC and CEC staff for  
3 pulling these workshops together and working so quickly to  
4 pull these investment plans together.

5 I also want to thank the stakeholders who, as the  
6 CEC mentioned, are really a critical part of this process  
7 and are really helping to inform what the EPIC program  
8 ultimately focuses on.

9 So if people do have questions, I think we're  
10 happy to -- to take those now. No? Okay.

11 DR. PINCETL: I'm Stephanie Pincetl.

12 MS. TEN HOPE: Please go up to the microphone.

13 DR. PINCETL: Okay.

14 MS. TEN HOPE: I'm sorry. It's a little hard for  
15 us to hear you.

16 DR. PINCETL: All right. I get to address the  
17 audience here.

18 MR. SCHWARTZ: Yeah.

19 DR. PINCETL: Good morning. I'm Stephanie  
20 Pincetl. I'm at the UCLA Institute of the Environment and  
21 Sustainability. And in full honesty, I'm a recipient of  
22 PIER funding, and so I've been involved very closely with

1 these kinds of efforts. And I laud the PUC and the CEC for  
2 putting these hearings together and actually advancing the  
3 future of the state in terms of renewables.

4 Now that being said, I do have a question. Under  
5 ratepayer benefits, are you considering health benefits?

6 MR. SCHWARTZ: I think that's a really good  
7 question. You know, we -- we are largely deferring at this  
8 point to proposals by the CEC and the IOUS. So if there  
9 are things that they feel are specifically related to, you  
10 know, health benefits to specifically ratepayers, as  
11 opposed to sort of -- I mean, I guess it's sort of an open  
12 question. If broad-based sort of public health benefits of  
13 reduction of criteria pollutants, for example, I don't know  
14 whether or not -- I can't say with certainly right now  
15 whether or not that would be meet the requirement. I think  
16 that's a good question, and there's a meaningful discussion  
17 to be had if those are the types of projects that the CEC  
18 or the IOUS are interested in proposing.

19 So, you know, Cem laid out the schedule for  
20 developing investment plans. Once those investment plans  
21 are developed there will be a full deliberative process  
22 undertaken at the PUC. Those processes provide additional

1 opportunity for comment and involvement by stakeholders.  
2 And obviously, then the Commissioners will need to decide  
3 if, you know, sort of the definition of ratepayer benefit  
4 is satisfied by the program and eligibility requirements  
5 that are put in the plans. But I wouldn't say there's sort  
6 of a categorical kind of determination now that would say,  
7 no, those are -- those are off the table.

8 MR. SCHINDLER: Could you summarize the questions  
9 that are asked?

10 MR. SCHWARTZ: Oh, sure. So the question was  
11 whether or not public health benefits that a project may  
12 provide or advance would be consistent with the notion of  
13 providing electricity ratepayer benefits.

14 Are there any -- any other questions?

15 DR. PINCETL: This is Stephanie Pincetl again.  
16 I've given this a fair amount of thought, obviously. Some  
17 of the other areas that I'm wondering whether they'll be  
18 considered a full life-cycle analysis of the projects. So  
19 there are different ways of measuring benefit, of course.  
20 There's cradle to grave, or there's from the point of  
21 implementation forward. And I would argue if this is going  
22 to be a more comprehensive approach, particularly

1 considering greenhouse gas emissions and so forth, that  
2 since greenhouse gasses are a global program, full life-  
3 cycle analysis ought to be included in the evaluation of  
4 whether the project is providing ratepayer benefit. And I  
5 would be happy to provide written comments on several more  
6 details like that.

7 MR. SCHWARTZ: So summarizing for the question or  
8 comment was the -- the gist of it, as I understand it, is  
9 there would be -- there's -- there is a reasonable argument  
10 that in considering projects and ratepayer benefits that a  
11 life-cycle approach should be taken, evaluating benefits on  
12 a life-cycle basis.

13 Again, I don't think there would be -- there's  
14 nothing in the decision that would say that such an  
15 approach could not be proposed by the administrators if  
16 that was the direction that they wanted to go. So, yeah, I  
17 think  
18 there's -- there's some openness to -- to concepts like  
19 that within the framework the decision establishes.

20 MS. TEN HOPE: Thank you.

21 MR. SCHWARTZ: Thank you.

22 MS. TEN HOPE: Thank you, Andy and Cem. We --

1 people on WebEx are having a little trouble hearing. So  
2 I'm going to try to speak right into the microphone. And  
3 when anyone else comes up, please speak closely, otherwise  
4 we have to repeat the questions. And -- and it's a little  
5 awkward. I feel like I'm right there. All right.

6 I'm Laurie ten Hope. For those of you who came  
7 in a little bit later, welcome to the workshop. There are  
8 agendas over here. And we also have a two-pager overview  
9 of the EPIC program and schedule. On the back side of that  
10 handout is -- is the website. So for those of you who want  
11 to sign up to receive follow-up materials through this  
12 proceeding, sign up. You'll find a lot of materials there,  
13 and more as time goes on. Presentations will be posted at  
14 that site, and notices of future -- future workshops.

15 So as -- as you've heard, today we are here to  
16 take public comment on the -- the EPIC program. The Energy  
17 Commission, as I stated at the beginning and you heard from  
18 the CPUC, is one of the four administrators. We're -- we  
19 want to have a very public process to solicit stakeholder  
20 input on the elements of the investment plan that we submit  
21 to the PUC. We then need to craft an investment plan  
22 that's responsive to the criteria that's in the decision.

1 But getting input and ideas on what should be in that  
2 investment plan is, you know, is really the purpose of  
3 these forums.

4           We'll -- we'll have a series of workshops. And  
5 we also welcome written comments. Written comments are due  
6 as a follow-up to this workshop by the 17th. And you'll  
7 see a web address for -- for submitting those later on in  
8 today's presentation.

9           So as Andy and Cem outlined, the investment plan  
10 has a lot of elements to it. We basically have to define  
11 what the research initiatives should be in the investment  
12 plan. We need to provide a rationale for why those are the  
13 right initiatives in terms of, you know, tying back to a  
14 strong ratepayer benefit, and having an energy policy  
15 nexus. The administrators are expected to collaborate.  
16 And we have initiated that collaboration. And I appreciate  
17 the reach-out from the -- the three investor-owned  
18 utilities to collaborate in terms of schedules and  
19 initiatives so that when we put a plan forward the plans  
20 are non-duplicative and they complement each other.

21           I will mention, although you will hear it from --  
22 from Frank Goodman, as well, the utilities are holding

1 their own stakeholder workshops to seek input specifically  
2 on the initiatives that they're proposing.

3           We are also reaching out to Department of Energy,  
4 the Air Resources Board, and others who have energy-related  
5 research programs so that the program that goes forward  
6 here can complement the work that they're doing. And if  
7 there's an opportunity to provide some, perhaps, match  
8 funding through the EPIC program that helps pull more  
9 federal dollars into California, that's something we, you  
10 know, we want to be cognizant of. And we really want this  
11 program to compliment what the private sector and federal  
12 government is doing and not be duplicative. So again, you  
13 can be helpful in identifying some of the areas that you  
14 think are -- are real gaps or areas that we really don't  
15 need to be including because they're well covered by -- by  
16 others.

17           Basically, we want a robust plan that -- that  
18 accelerates clean energy innovation. And we think that the  
19 EPIC program gives -- gives a good opportunity to kind of  
20 take a pause, look at what's been done in the past, but --  
21 but start afresh with -- with a new program that has some  
22 opportunities for some -- for -- for new elements that were

1 really not a part of the public goods charge program.

2           So, so far, this is a quick a agenda review.  
3 We've heard the overview from the CPUC. I'm doing the  
4 process overview. And then Frank Goodman will be outlining  
5 the investor-owned utilities. And then we're going to have  
6 three discussion sessions. If some of you participated  
7 last week in the Sacramento workshops, we did these  
8 sessions as three separate breakouts. Today we're going to  
9 all be together in this room and we'll go session by  
10 sessions, starting with generation, and then grid ops, and  
11 then energy efficiency. So in that -- those discussions  
12 we'll tee up some topic areas. But what we really want to  
13 hear is -- is from you.

14           What I'd -- in this -- and then tomorrow we're  
15 going to have three panels that are in -- focused on the  
16 market deployment and market facilitation topic areas  
17 within the decision. So as you heard, there's an emphasis  
18 in the decision on an innovation pipeline, and including  
19 deployment activities, and maybe market support. So we  
20 have -- and there are some specific topic areas that are  
21 discussed in the decision as options. They're not  
22 necessarily, you know, saying that these are what should be

1 done, but there are some options for facilitating permit --  
2 permit assistance, particularly for renewables, working  
3 with local governments. That's one opportunity.

4 Innovation clusters to geographic focus on  
5 assistance to -- to clean-tech start-ups that may have a  
6 good idea, and with some help in their -- with their market  
7 plans and networking will really be able to facilitate some  
8 clean -- clean growth in -- in various parts of the state.

9 We have some exciting panels to talk about what is  
10 happening, and then solicit comments on whether this is a  
11 good fit with EPIC or where the gaps are, what -- what  
12 would really help bring these -- bring new technologies to  
13 market. And the third panel is on workforce development.  
14 So that's -- that's a peak at tomorrow.

15 We -- just quickly, because you saw this chart  
16 already, I want to just point out that after today we'll be  
17 working on a draft investment plan, which we will issue in  
18 early September. And then we'll hold another series of  
19 workshops in Northern and Southern California and take  
20 comments on the investment plan. If you can't participate  
21 in the workshop it will be posted online and you'll have an  
22 opportunity to -- to submit comments to us. And the rest

1 of the dates you have heard already.

2 I just want to, for a second, reiterate this  
3 innovation pipeline, because I think it's really important  
4 when we have the discussions a little later this morning  
5 and this afternoon is to think about, you know, not just a  
6 favorite project, but what a project -- what do  
7 technologies need. Do technologies need a breakthrough in  
8 terms of cost or materials that might fit more in the  
9 applied research area? Or is the, you know, is the true  
10 barrier a scale-up issue and really a need for  
11 demonstration to -- to share with potential users the --  
12 the value of a technology?  
13 So -- or is it, you know, is it more in the market  
14 facilitation area? And it is important to tell us what's  
15 not needed so that this money really goes to focus on the  
16 priorities where we're going to really make the biggest  
17 difference.

18 Again, here -- here is the -- our website for  
19 follow-up material. Our two leads at the Energy Commission  
20 are Erik Stokes -- if you could raise your hands -- and Pam  
21 Doughman. So if you have questions on process you can ask  
22 me or either one of them.

1                   With that I'm going to -- I think I stepped ahead  
2 here. We're going to go to -- to Frank Goodman with  
3 SDG&E&E, and he's going to do an overview of the IOU  
4 process.

5                   MR. GOODMAN: Do I have to bring up another  
6 presentation?

7                   MR. SCHINDLER: I'm bringing it up right now.

8                   MR. GOODMAN: Okay. Will it come up here as  
9 well?

10                  MR. SCHINDLER: Yes.

11                  MR. GOODMAN: Okay. Great. Well, I want to  
12 thank Laurie for bringing up the presentation, and thank  
13 Laurie and the CEC for giving me the opportunity to  
14 represent three IOUS; a rare opportunity. And I --

15                  MS. TEN HOPE: You're going to need to step  
16 closer to the microphone.

17                  MR. GOODMAN: Okay. All right. Can you hear me  
18 okay? All right. Thank you.

19                  And I will speak for the three IOUS. This  
20 presentation was put together as a collective action by  
21 Southern Cal Edison San Diego Gas and Electric, and PG&E.  
22 And we are working toward workshops. I'll give you more

1 information on those at the end of the presentation.

2           We, in -- in the course of developing our  
3 investment plan for EPIC we are looking to have high-  
4 priority activities, larger significant activities -- not a  
5 lot of small things -- and make wise use of the funds,  
6 target it toward the things that will really produce high  
7 value for our ratepayers, and at the same time achieve  
8 these three issues that were presented earlier, greater  
9 reliability, lower costs, and increased safety as targeted  
10 areas.

11           We like to see our projects have clearly stated  
12 objectives. For example, on a demonstration we don't want  
13 to say we're going to demonstrate technology X or product  
14 X. We want to put out the matrix and say what that  
15 demonstration will consist of in terms of measurement and  
16 evaluation, demonstrating technically -- technical  
17 viability, economic viability, or both. So we will work  
18 toward projects with specifically stated objectives, and at  
19 the same time consider the issues that Cem was showing you  
20 a little earlier.

21           This slide shows policy issues. I just came out  
22 of a two-day EPRI workshop in which all three IOUS were

1 participating in that as well. And there was quite a bit  
2 of discussion around policy. And most of our strategic  
3 drivers align with policy issues coming from the state  
4 level in terms of renewable energy, zero-net energy, and  
5 more recently the governor's program for 12,000 megawatts  
6 of distributed renewables. So those things are factored  
7 into our choice of projects that we will do. And this is  
8 true for all three IOUS. There was quite a bit of  
9 discussion around that at the workshop that we just came  
10 out of.

11           We have a full -- we have an interest in a full  
12 spectrum of R&D activities from basic research all the way  
13 through the commercialization processes. But we are  
14 focused more toward the final closing steps of a technology  
15 development cycle toward demonstration and deployment in  
16 the EPIC program. But the IOUS must continue to be  
17 involved across the full spectrum of the RD&D process. We  
18 have vendors, universities, and other stakeholders coming  
19 to us all the time with ideas and brainstorming with us.  
20 And they need utility input early on in their development  
21 process. And then they need us more than ever when they  
22 get down to the demonstration stage, which tends to be the

1 more expensive part of the R&D cycle.

2           So we want to continue and will continue that  
3 full spectrum. We need to -- it's -- it's not an option  
4 that  
5 we -- we focus only on one part of the spectrum. And the  
6 EPIC money is aligned with our work in the latter part.  
7 And we will be using other sources of funding as we  
8 identify them to keep us involved across the full spectrum.

9       But we don't intend to get heavily involved in things like  
10 basic research. The emphasis is towards the later end of  
11 the cycle.

12           We seek to collaborate with CEC. We have been  
13 meeting with them by phone and by face-to-face meetings to  
14 put these workshops together and have the workshops  
15 coordinated. And then hopefully the investment plans that  
16 come out of this whole cycle of planning will be aligned  
17 well to where their non-duplicative and they're balanced  
18 between the different stages of the R&D cycle, and the  
19 activities themselves, in some cases, are teamed between  
20 the IOUS, and in some cases the IOUS are also teaming with  
21 the CEC. So there can be individual stakeholder funding of  
22 a project, there can be collective IOU funding, or there

1 could be collective funding of all four stakeholders,  
2 including CEC and the three IOUS.

3 We want one program, is another way of saying it.  
4 We don't want the stakeholder, the -- the administrators,  
5 as we're called, going in separate directions.

6 Then here is a landscape view of the RD&D cycle,  
7 if you will. And there's two valleys of death represented.

8 The -- the role of the IOUS is presented in terms of  
9 helping cross the valley of death. And, in fact, it's the  
10 whole EPIC program that has that. So getting to where we  
11 have projects that do that will be our goal. And I should  
12 point out that the valley of death doesn't just mean in the  
13 commercialization stage; it means in the development stage  
14 as well. And I'll say more about that in a minute.

15  
16 We want to have a program collectively among the  
17 four administrators which cuts across the whole utility  
18 infrastructure and, if you will, generation to customer.  
19 And this slide comes out of a microgrid project we're  
20 doing. Think of it as an islandable circuit that can be  
21 interconnected, or it can be separated and operated  
22 standalone. But the control infrastructure that you need

1 to do that, what you see on the right -- the left side  
2 there, the microgrid controller, that could be a  
3 distributed controller that operates that portion of the  
4 power system when it's interconnected. And then it becomes  
5 a microgrid controller when island -- intentionally island  
6 the circuit.

7           So this slide shows the depth and the dimensions  
8 of what will be involved in the -- in the R&D plan, and --  
9 and it's a very broad spectrum of activities but again,  
10 trying to pick up and target what are the key needs in any  
11 one of these areas within the power system infrastructure.

12           Here is a view of the program budget. It's a  
13 three-year view. And the amounts there are what we would  
14 have for 2012 to 2014. And then there's two additional  
15 three-year cycles that would follow that. And again, we --  
16 we'll team where possible and try to leverage the money  
17 that the three IOUS have with what CEC has and other  
18 sources of sponsorship that we might bring in through  
19 federal procurements and the like.

20           And here are the investment areas. In terms of  
21 the IOUS, I put a green rectangle around technology,  
22 demonstration, and deployment, because that is what

1 specifically is called for by the EPIC decision as the IOU  
2 role. And then CEC has a broader role. But like I said  
3 earlier, we will be working together because utilities must  
4 be -- are asked to give input at all stages of the cycle.  
5 And the IOUS will -- in the bottom half of this you'll see  
6 in the value chain, those are the five areas listed in  
7 the -- in the decision itself, and the current vision. And  
8 at the point we are in the planning is that the utilities  
9 will focus on the three in the bold on the bottom, which  
10 are the grid ops, the transmission, and the distribution.

11           Now back to definitions, as I promised. Here is  
12 what is in the decision as far as the definition for  
13 technology development and demonstration. And you can see  
14 it -- it is -- it's words are in the pre-commercial realm.

15       So there's different definitions of demonstration out  
16 there. This is the one we will abide by. It's more often  
17 that you see demonstration associated with commercial  
18 systems as they're coming into the pilot stage. But we  
19 will go by these definitions as we put together our plan.

20           And then to compare between those five areas of  
21 the value chain as listed in the decision and as shown on  
22 this slide, and the requirements of our smart grid road-

1 mapping -- or, actually, it's our reporting activities.  
2 We've got our road maps in as of July of last year, and we  
3 report on those regularly now, annual reports. And these  
4 are the areas of reporting requirement in the smart grid  
5 deployment plans. And you can see, there's a good match  
6 between the areas we would emphasize in our use of EPIC  
7 funds.

8           We want to align the R&D programs with key needs  
9 to support the smart grid deployment. And that doesn't  
10 mean using EPIC funds for smart grid deployment. It means,  
11 for example, doing some penetration studies to look at the  
12 impacts of photovoltaics or electric vehicles, or some  
13 simulation work, or trying out something in the  
14 developmental stage that is not ready for wide-scale  
15 deployment, but it is maybe something that is targeted  
16 later in the deployment plan. So it's -- it's not intended  
17 to use EPIC funds for commercial deployment supported by  
18 other line items in our budget. It's intended to use the  
19 EPIC R&D funds as an enabling part of the process to bring  
20 the technologies to a level where they can be deployed in  
21 the smart grid.

22           And then finally, the workshops Laurie mentioned,

1 we have the two IOU stakeholder workshops on the ledger for  
2 next week, on Thursday and Friday. And the first one will  
3 be in San Francisco. It's the Northern California IOU  
4 Workshop on August 16th, hosted by PG&E and at their energy  
5 center, which is near Moscone Center. And there is a  
6 posting; a public notice went out on this about a week-and-  
7 a-half ago, I believe it was. And then August 17th is the  
8 second IOU workshop in Southern California. And that one  
9 will be in Westminster, which is Orange County. And  
10 Southern California has their new information system and  
11 simulation capabilities in laboratories there. So it will  
12 be at that site, again, posted in a public notice.

13           The two workshops are generally similar but not  
14 identical. And if anyone wants to come to both, they're  
15 encouraged to do so. The overall agenda flow is the same  
16 at both, but there are differences in who is on the panels,  
17 for example, in the panel sessions.

18           So that's basically it. And do we want to take  
19 questions for the whole group, or how do we do it this  
20 time, Laurie?

21           MS. TEN HOPE: You're welcome to take questions.  
22 We definitely have time.

1 MR. GOODMAN: All right. Yes?

2 DR. PINCETL: Should I stand up at the mike?

3 MS. TEN HOPE: Yes.

4 MR. SCHINDLER: Yes.

5 DR. PINCETL: Good morning again. It's Stephanie  
6 Pincetl. Thank you for your presentation. And I have  
7 three questions. One is I'd like further exploration of  
8 what is meant by lower cost. Lower cost can take many  
9 different forms: lower cost for equity consideration;  
10 lower cost overall; lower cost again for health impacts;  
11 lower cost for long term. So low cost is a very generic  
12 term but covers a lot of many details. So I think that's  
13 one area that would be worth exploring in much greater  
14 detail so that we understand what's meant because -- or  
15 maybe it means a lot of things, which would be even better.

16 The second question I have is about the emphasis  
17 on new technologies rather than behavior change, if I  
18 understood the presentation correctly. And I'd like to ask  
19 why there is that emphasis, particularly because I did note  
20 that there is the question of demand-side management, and  
21 whose responsibility is it to address the question of  
22 behavior change? We know that in the area of conservation

1 we're achieved many, many benefits through behavior change.

2 And so I'm curious to understand why behavior change seems  
3 to be left off the agenda. And there's a lot of work to be  
4 done in that area.

5 The third area I'm curious to have more  
6 explanation about is the way you're approaching key needs  
7 and power infrastructure. I have been working very  
8 diligently to try to understand energy use at a granular  
9 level across the Southern California region. And what we  
10 understand is that energy use varies tremendously according  
11 to location and income. And so I'm really curious to know  
12 what kind of information you're going to be using and/or  
13 needing for research purposes in the area of who uses how  
14 much energy where and to do what. And up until now I have  
15 the impression that there's not a lot of work being done in  
16 that area.

17 And finally, I just wanted to make a comment.  
18 Sixty percent of the population lives in Southern  
19 California and we're having one workshop down here.  
20 Perhaps we should think about several. So there's the  
21 Inland Empire, which has its own energy issues. The San  
22 Diego, which is the, what, second largest city in the

1 United States -- or region, and L.A. And I would suggest  
2 that maybe more than one would be useful. Thank you very  
3 much.

4 MR. GOODMAN: Okay. I'll recap what I heard.  
5 The first question was on --

6 DR. PINCETL: The definition of cost.

7 MR. GOODMAN: Yeah. Thank you. Lower cost; the  
8 definition of lower cost. The second one was on behavior  
9 change. And the third one was on energy use data.

10 DR. PINCETL: Correct.

11 MR. GOODMAN: And then there was a comment.

12 On lower cost, the bottom line for all benefits,  
13 and it's required in the decision, is that it -- it be  
14 shown how the project work flows through to ratepayer  
15 benefits. So ultimately lower cost means either keeping a  
16 lid on costs for the ratepayer and mitigating what would be  
17 larger increases by implementing improved system changes,  
18 and it is something that might be a system change up in the  
19 utility level, or it might be something that's closer to  
20 home with the customer. So lower cost means implementing  
21 measures out in the power system or at the customer level  
22 that cause the ratepayer to see an overall -- lower overall

1 cost of energy use.

2           And so there will need to be -- do -- need to be  
3 rigorous cost benefit studies done as a part of this --  
4 this planning phase. That's a requirement that there be  
5 these cost benefit analyses. But the decision specifically  
6 says cost to ratepayers or benefits to ratepayers need to  
7 be shown for project activity that's undertaken.

8           And then the next one on energy -- consumer  
9 behavior, or I think you meant consumer behavior. Yeah, we  
10 had a good discussion and I was asked a similar question  
11 two days ago at another meeting. In terms of something  
12 like zero-net energy, this came up in a scoping study we  
13 did last year, what does zero energy mean, was the first  
14 thing they had to grope with. And then once you know what  
15 it means and you -- you have some proposed solutions, those  
16 solutions will work or not work, depending on how the  
17 consumer in that building behaves.

18           And it's not only zero-net energy, but right down  
19 to a single-energy efficiency measure that is maybe a  
20 better way of air conditioning a building. All those  
21 things assume that the consumer will do certain things. To  
22 the -- to the degree they can be automated and taken a

1 level above the consumer's control, it probably increases  
2 the chances of them working the way they're intended. But  
3 if there's a high degree of consumer intervention,  
4 especially in a residence, then you -- you need to teach  
5 and educate the consumers on -- on what is expected of them  
6 if the energy efficiency measures are to be successful in  
7 their implementation.

8           And the scary scenario is that somebody puts in a  
9 zero-net energy system and thinks it means they can do  
10 anything they want now because they're zero-net energy.  
11 And because they're doing anything they want they won't be  
12 zero-net energy. So the two have to go hand in hand.

13           And then the third one was on data regarding  
14 energy consumption and use. And we have access to data.  
15 We have our own demand data utility by utility. And  
16 there's other sources of data a higher levels. If the data  
17 turns out to be inadequate for any of the R&D activity, or  
18 the R&D planning activity, that is, then we would probably  
19 seriously consider some additional studies to bring in  
20 additional data. So we don't rule out as -- as a need for  
21 some of the R&D activity that we do some studies to get  
22 smarter before we commit to a larger project.

1           And then on your comment, what was your comment  
2 again?

3           DR. PINCETL: Southern California has 50 percent  
4 of the population --

5           MR. GOODMAN: Oh, yeah.

6           DR. PINCETL: -- and we're having one hearing  
7 down here.

8           MR. GOODMAN: Yeah. And, in fact, we were only  
9 required to have one workshop, and we have -- we have two.  
10 We -- we were concerned that we not overdo it and have a  
11 lot of workshops that were poorly attended. We decided, at  
12 least in this first round of workshops, given the short  
13 fuse we had to put it together, which was once that  
14 decision was released in the end of May we had to move  
15 immediately to put these together, we -- we focused on to  
16 one in Northern, one in Southern. And as we go through the  
17 final stages of investment planning process additional --  
18 there will be additional opportunities for the stakeholders  
19 to give input. And whether that takes the form of another  
20 workshop or presenting our draft plan, and maybe that's  
21 done through webcasting, and or maybe it's done by a face-  
22 to-face workshop, or maybe by both, there's going to be

1 additional opportunities.

2 Other questions? I've already had three, and one  
3 comment.

4 MR. SCHINDLER: We have one online, Michelle  
5 Rodriguez.

6 MR. GOODMAN: Okay.

7 MS. RODRIGUEZ: Hi. This is Michelle Rodriguez,  
8 Planning Sustainable Communities consultant from the San  
9 Francisco-Bay Area. I'm also the former program manager  
10 for the development launch of Energy Upgrade California,  
11 which is a whole building approach to energy efficiency.  
12 And I did that for the eight counties in the Bay Area. And  
13 then I worked Los Angeles County, also, testing 22 pilots  
14 testing energy efficiency delivery mechanisms, financing,  
15 and marketing and outreach.

16 What I'd like to get clarification on regarding  
17 the investment plan schedule is what is your needs now? In  
18 other words, with Energy Upgrade California, and also with  
19 previous PIER proposals, I provided a laundry list of ideas  
20 for consideration. And the CEC and the utilities decided  
21 which ideas they wanted to go forward with. And a grant  
22 notice came out, and at that time I organized regional

1 government partnerships, nonprofits, stakeholders, utility  
2 partners to work on submitting a grant proposal along with  
3 great detail and -- on that proposal and budget. So I'm  
4 trying to get clarification on how that -- what you are  
5 going to need between now and September, particularly, I  
6 think my focus is going to be on smart grid. Thank you.

7 MR. GOODMAN: Okay. Thank you. And I'll repeat  
8 what I think the question was in case people in the back  
9 didn't hear it. The questioner had been involved in some  
10 of the PIER work. And she wants to know going forward what  
11 our process is going to be as far as what input we're  
12 looking for from the stakeholders right now and how that  
13 would influence what goes in the plan. Did I -- did I  
14 capture that correctly? Okay. So --

15 MS. RODRIGUEZ: What level of commitment and  
16 detail do you need between now and the end of September, or  
17 now and the end of August, I guess?

18 MR. GOODMAN: Okay. And the answer is we just  
19 need input between now and the end of August. We are  
20 focusing in on the plan writing, at least in the IOU  
21 portion, on projects areas. We're not drilling down to  
22 specific projects. We do have emphasis on smart grid

1 related activity. That's a collective aim of the three  
2 IOUS. And so what we need from the stakeholders is their  
3 inputs on areas of activity at the program or project area  
4 level, but not drilling down to a specific project.

5           For example, is work on distributed control for  
6 smart grid something that we need to focus on and come up  
7 with algorithms and hardware-software products or  
8 technology that can later be translated into products to  
9 move us to the next step in smart grid evolution. There's  
10 -- a lot has been done now to deploy pieces of the smart  
11 grid. But the next big step is integrating those pieces so  
12 you can control and operate them in a rational manner that  
13 actually achieves ratepayer benefits.

14           So that's an example of a project area to bring  
15 the technology of distributed controllers for smart grid  
16 operation to a state of readiness, just one example. And  
17 that could involve multiple projects when we actually move  
18 into the implementation plan.

19           Other questions? Yes, sir?

20           MR. ROCHE: Use this mike?

21           MR. GOODMAN: Yeah, please.

22           MR. ROCHE: Hi. My name is Neal Roche. I'm the

1 CEO of a company called Gridtest Systems. We work with EV  
2 and smart grid integration technologies.

3           And my question is about your comment about the  
4 IOUS focusing on larger programs rather than a lot of small  
5 programs. This seems to be a little at odds with building  
6 an innovation pipeline that was talked about earlier.  
7 Because a lot of small technology companies, they're  
8 looking for -- you know, to build a new software or  
9 hardware product, you know, \$1 million to \$2 million for a  
10 project. And so how -- what -- can you expand on what you  
11 -- why you want to lean towards larger programs only?  
12 Thank you.

13           MR. GOODMAN: It's twofold. One is the dollars  
14 are limited. We don't preclude doing something small if it  
15 really is deemed as an early step towards something that  
16 could blossom into a larger program. But we don't want to  
17 take the budget we have and fund 100 things that are so  
18 defused and so small that we -- we come out of it with  
19 little value to show for the money spent. So we're trying  
20 to target things that have apparent high value and are  
21 deemed to be essential to what needs to be done in the next  
22 five years to move forward with modernizing the power

1 system.

2           And then the other reason besides budget is we  
3 don't want -- well, the other reason is when you get into  
4 some of the energy efficiency and small programs that you  
5 were talking about we see the CEC who specifically said why  
6 aren't the IOUS going to do that. We see the CEC as taking  
7 the lead role there. They have a higher budget. And we  
8 might help with fielding something. But we don't have as  
9 much money that we can address all of those areas of the  
10 value chain. So we're trying to focus on -- on the three  
11 that are most important right now on the utility agenda.

12           Other questions?

13           MS. TEN HOPE: John, can you come up to the  
14 microphone?

15           MR. MINNICUCCI: More of a comment.

16           MR. GOODMAN: Go ahead.

17           MR. MINNICUCCI: I'm John Minnicucci from  
18 Southern California Edison. I wanted to make a couple of  
19 comments.

20           The -- there are different program administrators  
21 that are doing different roles. And right now utilities,  
22 as -- as per the decision, are mainly responsible for doing

1 demonstrations and deployment projects. And deployment in  
2 this sense is not capital deployment, as one would  
3 typically think, but is -- it's projects that directly  
4 connect to the grid.

5           So the way -- the way the decision is currently  
6 written it's not -- it's not that we don't want to do  
7 certain things, it's right now our -- our main role and  
8 main objective under this particular program is to do grid  
9 type projects. And I wanted to directly address Ms.  
10 Pincetl. It is Pincill or Pincilt?

11           DR. PINCETL: Pincetl.

12           MR. MINNICUCCI: Pincetl. Utilities do operate a  
13 fairly large scale energy efficiency programs and demand  
14 response programs. That is a separate program from EPIC.  
15 And in those programs they have emerging technologies and  
16 other -- and other opportunities to -- to -- to push  
17 technology further. But that, again, is a separate utility  
18 program, apart from EPIC.

19           So with respect to EPIC, the utilities by, you  
20 know, definition in -- in this -- in this proceeding are  
21 focused on grid activities. There are other utility  
22 programs, of course, that you could participate in.

1           Now the CEC has broader latitude. They -- they  
2 are allowed to do more of the -- the research, the front-  
3 end research, the applied technology work through the  
4 demonstration, all the way through the full spectrum. And  
5 that's where, you know, we're hoping to really partner with  
6 the CEC to help, you know, these important technologies  
7 move through the pipeline so that at some point they do get  
8 -- they get developed and into, you know, full operational  
9 deployment.

10           So there -- there are -- there are differences  
11 between the programs. Even though it is one EPIC program,  
12 the administrators have different roles within the broader  
13 context. So I just wanted to clarify that. It's not that  
14 utilities don't want to do that, we are actually doing it,  
15 but under different program umbrellas. Thank you.

16           MR. GOODMAN: Yeah. Thanks a lot, John. That  
17 actually came up last week, too, in the CEC workshop. We  
18 do have a separate activity called ENERGY EFFICIENCY,  
19 energy efficiency, that is funded through a different  
20 proceeding. And that continues. That's separate from  
21 PIER. So -- not from PIER, from EPIC. So in EPIC we are  
22 trying to fill out our R&D hand and compliment what's being

1 done through that other -- that other ENERGY EFFICIENCY  
2 program.

3           Was there another question here? Yeah. You want  
4 to come up?

5           MR. LYTE: Sure. Yes. Good morning. My name is  
6 Bill Lyte. I'm with Protean North America, which is an  
7 ocean wave energy firm. Essentially I'm speaking on  
8 behalf, not of -- not only of my firm, but the many other  
9 ocean energy firms around the United States and around the  
10 world that would like to come to California.

11           I support the broader large program emphasis here  
12 for a couple of reasons. One, you need -- you need a large  
13 program to draw all these companies to California and build  
14 the -- the new industry here. Much of this large program  
15 can be done by unifying existing resources. Specifically,  
16 if you had a single point of contact within the State of  
17 California for ocean wave technology, regulatory  
18 permitting, other issues, funding, that would be very  
19 valuable. And the California Ocean Protection Council and  
20 the Office of the Lieutenant Governor does a very good job  
21 in that regard.

22           What you really need is a test location here

1 and -- because California is losing out to other states.  
2 Hawaii is putting one in with the U.S. Navy. Oregon is  
3 putting one in. New Hampshire and North Carolina and  
4 Florida are all putting one in. And that's where the  
5 industry will go.

6 I think you can also weave together the  
7 universities through very strong faculty organizations that  
8 are already in place. I believe California State  
9 University has a group called COAST, which is about 300  
10 university marine researchers. You apply them, focus them  
11 on this industry and build a broad range of new  
12 technologies, and then grow them locally. And you can grow  
13 them in geographic locations with innovation clusters.  
14 There are core industries of California that used to be  
15 very strong -- the, you know, offshore oil industry -- that  
16 logically would fit right with the marine research industry  
17 and could sell right into it. And there's a good fit with  
18 what the U.S. Department of Energy is funding on this. So  
19 I support the larger program initiative.

20 MS. TEN HOPE: This is Laurie ten Hope with the  
21 Energy Commission. Just a point of clarification to an  
22 earlier question, which was the woman on the phone asking

1 for what information is -- is needed now. I wanted to  
2 clarify, if it wasn't clear, that in this first year the  
3 activity is around developing an investment plan. So when  
4 you were talking about responding to grants, the  
5 solicitation activity would be happening next fiscal year.

6           So what we really need now is input to the plan  
7 on the agenda that is -- is on the website there are  
8 specific questions in terms of what are the barriers to  
9 clean energy innovation? What are the major initiative  
10 areas that are needed? You know, what's -- what kind of  
11 benefits would accrue? How would those benefits be  
12 measured? Those -- responses to those questions are  
13 extremely helpful this month. And so I'd just urge you to  
14 take a look at those questions and submit written -- submit  
15 written comments or participate in the sessions we're  
16 having today.

17           The next thing that's going to be really useful  
18 is in the September timeframe is to review the investment  
19 plan and provide comments on the investment plan.

20           Following that, it's participate in the CPUC  
21 process. They'll have a rule making to consider the  
22 investment plans that are put before them. And, you know,

1 so it will be important for you to participate there, as  
2 well.

3           We will then, we, meaning the four  
4 administrators, will issue solicitations. You know,  
5 assuming the investment plans are approved by the CPUC, we  
6 will then issue solicitations, and that's when you have an  
7 opportunity to apply for, you know, apply for the funding.  
8       So that was one point of clarification.

9           And then if we could -- if there are any  
10 additional comments or questions on the process, we could  
11 entertain them now. If you have comments on specific  
12 initiatives, I ask you to hold them for the discussions  
13 that we're going to have -- have next. Any further  
14 questions on process of schedule for CPUC, Energy  
15 Commission or utilities? On WebEx?

16           MR. SCHINDLER: Yes.

17           MS. TEN HOPE: Okay.

18           MS. FALQUIER: Yes. This is Erin Falquier. I'm  
19 a consultant for the California Energy Efficiency Industry  
20 Council. Just to clarify, in terms of the comment process,  
21 there was a comment review August 17th. And are there any  
22 additional comments accepted after that time regarding

1 these sort of higher level input in terms of the draft  
2 investment plan?

3 MS. TEN HOPE: Comments can be submitted to the  
4 docket at any point. But if you really want to assure that  
5 your comments can be considered in the writing of the  
6 investment plan, they really need to be in by the 17th  
7 because we need to turn that plan out pretty quickly. It  
8 looks like we need --

9 MS. FALQUIER: Okay. And then there will be  
10 another comment period once the investment plan, the draft  
11 investment plan is released in September?

12 MS. TEN HOPE: That's correct. And there will be  
13 public workshops.

14 Could I ask you to state your name clearly and  
15 perhaps spell your last name? It was hard to hear.

16 MS. FALQUIER: Sure. My name is Erin Falquier.  
17 And the last name is spelled F-a-l-q-u-I-e-r. I'm a  
18 consultant with the California Energy Efficiency Industry  
19 Council.

20 MS. TEN HOPE: Perfect. Thank you.

21 MS. FALQUIER: Thanks.

22 MS. TEN HOPE: Other questions? Any WebEx

1 questions? Okay.

2 MR. GOODMAN: Yeah. This is Frank Goodman. And  
3 just to expand on what Laurie said regarding the IOU  
4 workshops, there will be a comment period, as well, and it  
5 will close one week after the second workshop, which is the  
6 24th of August. So we parallel in our plan what CEC is  
7 doing, but it lags by a week. And then everything else she  
8 said about additional opportunities in September and the  
9 like will apply to the IOU case as well. It's going to be  
10 one plan when we finish it off.

11 MS. TEN HOPE: All right. Let's take a short  
12 break. We will resume at 10:30 sharp, and we'll role into  
13 a discussion of the -- the specific topic areas that we'll  
14 be seeking your participation today. See you back at  
15 10:30.

16 (Off the Record From 10:18 A.M., Until 10:34 A.M.)

17 MS. TEN HOPE: Next up I'd like to introduce Gary  
18 O'Neill with the Energy Commission. And he's going to walk  
19 us through these three sessions on various topic areas,  
20 generation, energy efficiency, and grid ops.

21 MR. O'NEILL: Good morning, everybody. I'm Gary  
22 O'Neill with the Renewable Energy Office at the California

1 Energy Commission. I'll be stepping us through an overview  
2 of the breakout sessions for today. We're going to be  
3 breaking out into three sessions, one right after the  
4 other. The first session we'll be going over clean --  
5 clean energy generation technologies. The second will be  
6 grid operations, D&D, and electric vehicles. The third  
7 session will be energy efficiency and demand-side  
8 management.

9           And during all of those sessions we invite  
10 everybody to come up to the podium and provide comments on  
11 potential initiatives. And then we will have an additional  
12 public comment period after the close of all the sessions  
13 for general public comments, followed up by a summary at  
14 4:15 today.

15           So the purpose of these public discussions, of  
16 these sessions are to gather public stakeholder input on  
17 potential initiatives for the Energy Commission to consider  
18 putting into the investment plan. As Commissioner Peterman  
19 stated earlier today, we are starting with a blank slate,  
20 and we need public input about what to include in the  
21 investment plan.

22           In addition, we would also like public input on

1 justifications for these particular initiatives you would  
2 like in there. Things to keep in mind is we would like  
3 feedback on technologies, resources, and strategic topic  
4 areas. We also would like information and public input on  
5 how to prioritize these investments. What are the most  
6 important investments. Where should our money be going.  
7 What will give us the biggest bang for our buck.

8 Our expectations for these sessions is we would  
9 like the speakers to please introduce themselves, speak  
10 clearly into the mike. We will be asking that you come up  
11 to this podium right here. And also, please provide a  
12 business card for our court reporter.

13 If we start running short on time we'll be  
14 limiting comments -- but right now we probably won't do  
15 that -- to three minutes. And we would like comments to be  
16 limited to the scope of the CPUC EPIC decision. As was  
17 stated earlier today, we don't want to re-litigate  
18 anything. We just are looking for public input in  
19 potential initiatives to go into the investment plan. We  
20 will also be accepting written comments. They are due to  
21 the Energy Commission by August 17th. That's next Friday.

22 So an overview of the breakout sessions are as

1 follows. Clean energy generation systems will be covering  
2 topics such as energy smart communities, distributed  
3 generation, utility scale generation, environmental and  
4 public health, and market facilitation. We'll be going  
5 through each one of these topic areas one by one, and we'll  
6 be going through the questions that were submitted through  
7 the agenda a few weeks ago.

8           In grid operations we will be talking about smart  
9 grids and micro grids, electric vehicle charging and grid  
10 integration, electric vehicle efficiency and battery reuse,  
11 storage, renewable integration into the grid, grid system  
12 monitoring, HANs and related technologies. We're also  
13 looking for input on other types of topics we should be  
14 covering in the investment plan.

15           On -- for efficiency and demand-side management,  
16 the topics that are covered in this session will be  
17 building and use energy efficiency, net-zero energy  
18 buildings, industry and agriculture and water use -- end  
19 use energy efficiencies, demand response, demand-side  
20 storage, and other energy efficiency related environmental  
21 and public health impacts.

22           Again, in each one of these breakout sessions if

1 there's a topic that we have not included in these slides  
2 you are welcome to bring them up. This is not supposed to  
3 be the world that we're covering. We would welcome more  
4 and more input.

5           With that, I'm going to go ahead and switch over  
6 to the energy generation system presentation, and we'll go  
7 ahead and get started.

8           So the goals for the energy generation session,  
9 we're looking for initiatives that highlight IOU electric  
10 ratepayer impacts. Electric ratepayer impacts are those --  
11 are defined as promoting greater reliability, lower cost,  
12 and increased safety. Other goals are to increase the cost  
13 competitiveness of the technologies, mitigate variable  
14 renewable generation, reduce environmental impacts,  
15 streamline permitting, and help technologies overcome the  
16 valleys of death. The key policy drivers for the EPIC  
17 decision are the renewable portfolios standard, so 33  
18 percent by 2020, and Governor Brown's Clean Energy Jobs  
19 Plan

20           So these are the questions we would like to  
21 cover. They're very broad, overarching questions. We'd  
22 like you to answer them specifically for the clean air

1 generation systems during this first session. And then for  
2 the other two sessions, answer them there.

3           So we're very interested in what the barriers are  
4 to the development of these technologies. What -- what are  
5 the challenges these technologies are facing, and where  
6 should we be putting our money? What initiatives will  
7 overcome those barriers? How to maximize the deployment of  
8 clean energy generation technologies? Also, please define  
9 the need for the ratepayers for with the EPIC investment  
10 should be targeted. Prioritization; we really need to know  
11 what is the most important. Where should we put our money  
12 first?

13           We also need to know how to collaborate,  
14 compliment, and follow other existing programs. We don't  
15 want to duplicate other efforts, as well, so, for example,  
16 Department of Energy or other federal programs through USDA  
17 and such.

18           So the first topic area -- and before I move on  
19 to this, if you're going to have any comments or questions  
20 I would actually ask that you queue up, up here. It will  
21 be a little more efficient.

22           So the first topic area is going to be clean

1 energy generation investment topics, the energy smart  
2 communities. Potential initiatives that we have already  
3 identified are zero-net energy buildings and communities,  
4 community energy storage, community energy test beds, and  
5 micro grids. Are there other initiatives that we should be  
6 considering in this category? What are -- what are the  
7 barriers that we should be addressing for the investment  
8 topics?

9 Are there any comments or questions from the room  
10 in this topic area? Is anything on WebEx. We have one  
11 comment-question from the room.

12 DR. FISCHLIEN: Good morning. My name is Marian  
13 Fischlien. I'm with UCLA at the Institute of the  
14 Environment. I wanted to add a comment to you on the zero-  
15 net energy buildings and communities. My research group  
16 does behavior related research. And we are currently  
17 running a pilot on advanced metering and energy use  
18 feedback. And I wanted to suggest that in this area we  
19 should also add behavior related aspects. Because as  
20 somebody mentioned earlier, we cannot succeed with these  
21 zero-net energy buildings if we don't also address the  
22 behavioral component of this. Thanks.

1           MR. HOLMES: Hi. I'm John Holmes with San Diego  
2 Gas and Electric. And I wanted to maybe lend some  
3 discussion time to the topic of vehicle electrification and  
4 integration with communities of a charging infrastructure.

5       The ability for communities to be developing around  
6 intelligent charging and dispatch of energy from vehicles  
7 is coming on our horizon. And the ability for us to  
8 contemplate such research as part of that, I think it would  
9 be value added.

10          DR. PINCETL: Stephanie Pincetl. I think that  
11 one of the aspects of zero-net energy buildings and  
12 communities is really to understand the context in which  
13 they're developed. So recently there's been a new zero-net  
14 energy building built right outside of UC Davis. It's  
15 actually on the campus. But it's really a pod plunked down  
16 in an agricultural field. And it's kind of funny,  
17 actually, if you think that that's a zero-net energy  
18 building, but to get there and to -- to go to work is not  
19 anywhere near zero-net energy.

20          So I would urge that this kind of program really  
21 think about that urban context or the context in which  
22 these buildings or these initiatives are placed so that

1 you're not just plunking down buildings or communities that  
2 are far away from anything, and then require lots of energy  
3 to get to.

4           And also, they will need some kind of  
5 infrastructure. And so are you talking about simply the  
6 energy use of the building once it's built? Or are you  
7 also taking into consideration the kinds of materials that  
8 are needed to build those buildings?

9           And there should be cost-benefit analysis done  
10 relative to retrofitting existing buildings, compared to  
11 building new buildings that may not use energy much but  
12 require all of this infrastructure and building materials  
13 to build, hence they are not zero-net energy. The term is  
14 a misnomer.

15           And so I think we need to consider those factors  
16 pretty seriously going forward with this initiative. Thank  
17 you.

18           MR. O'NEILL: And just one quick reminder, if you  
19 are making a comment please provide a business card to the  
20 court reporter.

21           MR. GOODMAN: Yeah. Frank Goodman, San Diego Gas  
22 and Electric Company. I'd like to make two comments, one

1 on zero-net energy. And that it that we did a status and  
2 needs assessment late last year on zero-net energy and took  
3 a look at what is zero-net energy, and found that the PUC,  
4 the CEC, NREL, and others have different definitions. So  
5 we need to make sure that when we target zero-net energy we  
6 have an agreed upon definition. And my guru of zero-net  
7 energy, Chip Fox, has told me that we abide by the PUC  
8 definition as the prime directive, if you will. And so we  
9 are trying to move in that direction.

10           And a couple of issues with it. One is that as  
11 defined by the PUC, zero-net energy is probably going to be  
12 achievable only on two- to three-storey buildings or less  
13 because you have to generate your electricity from the  
14 renewable energy onsite. So you'd probably never get  
15 enough electric generations from renewables on the site of  
16 a high-rise building. So it's something to consider in  
17 going forward is what -- do we want to change the  
18 definition, or if we do want to stay with the definition we  
19 -- we have a very stringent definition -- I mean,  
20 requirement as far as high-rise buildings go.

21           And the second thing is measures you might use to  
22 achieve zero-net energy might have value in their own

1 right, so that even if you don't end up having them become  
2 a part of a zero-net energy you investigate them for that  
3 purpose. And if it doesn't pan out, they may be useful as  
4 an energy efficiency measure that lowers demand but doesn't  
5 compute to zero-net energy.

6           And then my other comment is on community energy  
7 storage. And I probably said this last week, but it's  
8 worth repeating. The -- the community level takes you up  
9 in size in storage. And you can either start thinking in  
10 terms of pad mount batteries and things like that, or you  
11 can think in terms of non-battery options. And down at the  
12 residential, single-residence level it's almost certain  
13 that you only have one choice; batteries. But as you get  
14 up into these larger systems, the community level or a  
15 substation level, you can explore compressed air storage,  
16 liquid air storage, and other non-battery options which may  
17 make more sense at the larger system level economically.  
18 Thank you.

19           MR. O'NEILL: Thank you. Are there any other  
20 comments or questions from the room?

21           DR. PINCETL: Do we have time for more comments?

22           MR. O'NEILL: Yes.

1 DR. PINCETL: I will summarize my comments in --  
2 in a written document. This is Stephanie Pincetl, again,  
3 for the record.

4 One of the interesting aspects of community  
5 energy storage that probably should be examined is the land  
6 use capacity for storage. So how big an area is going to  
7 be needed for storage? Are we thinking about distributed  
8 storage in individual buildings with their own electric  
9 generation, for example? Are we thinking of neighborhood  
10 level storage capacity. And there's a lot of, I think very  
11 important questions to be explored relative to the land use  
12 planning side of it, the zoning side of it, and the actual  
13 space available in the urban fabric. Because you can  
14 develop storage technology, but if you don't have any place  
15 to put it then you're asking for a little problem.

16 So I think it should be a parallel area of  
17 investigation, in coordination with the different types of  
18 storage technologies being examined.

19 MR. LYTE: Yes. Bill Lyte with Protean Energy  
20 again. Just on the subject of storage, I thought I would  
21 mention that a lot of -- a lot of organizations are looking  
22 at different kinds of storage. The Department of Defense

1 right now has a solicitation out for energy storage, but  
2 storage in terms of fresh water or ice or hydrogen or other  
3 kinds of methodologies. So we shouldn't just be limited to  
4 thinking of battery storage or other conventional means.

5 MR. O'NEILL: Thank you. I'm going to go ahead  
6 and start stepping through the questions to make sure we  
7 cover everything.

8 So are there any other major barriers to  
9 developing or commercializing community technologies under  
10 these potential initiatives or similar initiatives in this  
11 category?

12 MR. SCHINDLER: Remind them to use the raise-hand  
13 feature.

14 MR. O'NEILL: For those of you on WebEx, if you'd  
15 like to ask a question or provide a comment please use the  
16 raise-hand feature. Are there any comments on WebEx?

17 So on the second question, where should funding  
18 be placed to maximize deployment of clean energy  
19 technologies, that is where is technology innovation needed  
20 versus support for commercial scale-up for critical need?  
21 And what specific initiatives are recommended to advance  
22 innovation for energy technologies and benefits -- that

1 benefit ratepayers? And define the ratepayer need for  
2 which EPIC investments should be targeted.

3 Are there any additional questions from the room?  
4 Comments? Initiatives?

5 DR. PINCETL: (Off mike.) (Inaudible) for  
6 funding.

7 MR. O'NEILL: Okay. On the question of priority,  
8 how should be prioritize these initiatives? So we've heard  
9 some comments, but nothing specifically identifying which  
10 one of these initiatives should be the priority. So now is  
11 your opportunity to identify anything that you think should  
12 be a priority for public funding.

13 Frank?

14 MR. GOODMAN: Frank Goodman, San Diego Gas and  
15 Electric. The thing I'm thinking of is what my guru, who I  
16 mentioned, my zero-net energy guru mentioned to me, that in  
17 terms of investment it may be that it would be wiser than  
18 investing in zero-net energy as a goal to -- to invest in a  
19 change in the efficiency standard at a level below zero-net  
20 energy. And that should give more bang for the buck on  
21 your R&D investments and -- and seeking to push up the  
22 standards for efficiency. And you'd hit more buildings

1 than zero-net energy, which may just hit a few.

2           So there is a mandate in the state to have a  
3 certain percentage of buildings -- it's all new  
4 construction -- by certain dates be zero-net energy. What  
5 I'm proposing is one initiative might be to have the CEC do  
6 an intensive look at bang-for-the-buck issues on whether  
7 zero-net energy or some other energy efficiency standard  
8 would be more productive in saving energy, basically.

9           MR. O'NEILL: Thank you.

10           MR. HOLMES: This is John Holmes, again, from San  
11 Diego Gas and Electric. I think that one of the other  
12 areas that prioritizing needs to focus on, the integration  
13 of these energy communities, these energy generation  
14 opportunities at communities into grid operations, not only  
15 at the IOU and municipal utility basis, but also at the  
16 CAISO level. For example, our communications  
17 infrastructure for managing integration renewables is not  
18 fully developed, and that's an area that I think is  
19 consistent in terms of need throughout the state. And I'd  
20 suggest that that's an area of priority.

21           DR. PINCETL: Stephanie Pincetl again. I think  
22 that the Energy Smart Community Initiative needs to take

1 into account the context in which these new strategies are  
2 deployed, and as I mentioned earlier, relative to storage  
3 of energy, whether it's batteries or other technologies.  
4 They need to be placed somewhere.

5           And it's important to couple the work of Energy  
6 Smart Community's R&D with thinking about what -- the  
7 context, the people who will be impacted by these new --  
8 new changes in land use, who they are, what the  
9 environmental impacts of those technologies, a the life-  
10 cycle analysis of these tradeoffs, to support my colleague  
11 from SDG&E&E, are there better ways to do this or more  
12 efficient ways to do this or lower cost ways to do this.  
13 But you really have to have the ability to look at the  
14 larger context in which to ask those questions.

15           So it's not technology by technology or building  
16 by building that you're going to be able to achieve the  
17 best long-term benefits. You have to have the broader  
18 context of land use and people as part of the research.  
19 Thank you.

20           MR. O'NEILL: Thank you. We have one more  
21 question from the room, comment.

22           MR. ANDER: Good morning. Gregg Ander, Southern

1 California Edison. I just want to make a couple of  
2 observations regarding zero-net energy buildings in  
3 community. There's a number of issues and initiatives that  
4 are -- that are affected by some of these policies that are  
5 coming up at the CPUC.

6           Zero-net energy residential 2020, commercial  
7 2030. And they really interact with each other. So to the  
8 extent, you know, you're dealing with issues on the  
9 customer side of the meter, whether it's renewable  
10 generation, inverters, you know, how the various  
11 technologies interact with each other, the behavioral  
12 implications of in-home displays, and some of the  
13 technologies that are helping customers reduce load and  
14 reduce peak are all really critical.

15           But it all comes down to a very key integration  
16 issue. So at the building level, at the distribution  
17 circuit level, you know, how -- you know, end-use devices,  
18 smart meters, distribution circuit control impact to  
19 transformers, and so forth is really critical.

20           Many of us in this room have been intimately  
21 involved with some of the definitional discussions that  
22 were brought up earlier on, you know, what -- you know, is

1 this zero-net energy? Is it source energy, site energy,  
2 peak energy? And so forth. The leadership of the PUC is  
3 thinking very carefully about how this might pan out going  
4 forward, as is Martha Brooks and others, your colleagues  
5 from a codes and standards perspective here.

6 But a lot of this has to do with integration, and  
7 ultimately impact to grid -- grid ops and grid reliability.

8 I think that's really key and fundamental to -- to some of  
9 these issues too. So it may not be specific customer side  
10 of the meaning, but more broadly how you tie the stuff  
11 all -- all together, you know, whether it's building scale,  
12 storage, or community, or utility scale, and all -- all the  
13 pieces that make this stuff work together. So it's -- it's  
14 a very complex problem.

15 MR. O'NEILL: Thank you. Any other comments from  
16 the room? From WebEx? No?

17 How about areas that are already covered by DOE  
18 or private funding or other federal and state programs that  
19 we should be complimenting or avoiding duplication?

20 Frank?

21 MR. GOODMAN: Yeah. This will be quick. But  
22 it's -- it's something that we all need to get the

1 intelligence on just what is being covered by DOE and other  
2 private funding, and make sure we're not reinventing the  
3 wheel or duplicating. So perhaps as we move forward with  
4 the investment planning, the four administrators can pool  
5 at least our knowledge. And if any of you have knowledge  
6 of things going on that are major and that we should either  
7 compliment or not duplicate, please make us aware of those  
8 through the commenting process.

9 MR. O'NEILL: Any other comments from the room?  
10 Come on up.

11 MR. WALLACE: Yes. I'm Joe Wallace with the  
12 Coachella Valley Innovation Hub. And we -- we foster and  
13 try to attract and help entrepreneurs, and in particular in  
14 the renewable energy base. And DOE and several other  
15 federal programs are pushing right now for what they call  
16 concept proof centers, where people that come in with an  
17 idea can have a place and possibly some money to put  
18 together what their idea is, to prove it on a small scale  
19 before we run out and do things for hundreds of millions of  
20 dollars, see if we can prove it with \$1 million.

21 MR. O'NEILL: Thank you.

22 MR. MCLAUGHLIN: My name is Larry McLaughlin.

1 I'm with the College of the Desert. And I direct one of  
2 the seven centers that the chancellor's office has  
3 designated for advanced transportation and energy  
4 technology support in workforce development. And I'd like  
5 to point out the fact that the Department of Energy has  
6 national laboratories that develop new technologies. And  
7 they license those technologies and make them available and  
8 try to deploy those technologies through small business  
9 development programs, and so forth. And the State of  
10 California has the benefit of having several of those  
11 national laboratories here in our state.

12 And I think that this program should look at the  
13 deployment efforts of the DOE with respect to the licensing  
14 of patents and these new technologies and to try to  
15 dovetail wherever possible with those -- with those federal  
16 efforts, specifically for small business.

17 MR. O'NEILL: Thank you. Are there any other  
18 comments from the room. I'm going to go ahead and move on  
19 to the next topic.

20 The next topic, same questions, but now we're  
21 looking at distributed generation specifically. So what  
22 are the major barriers to developing distributed energy

1 technologies? This includes customer side, community  
2 scale, distributed energy generation technologies,  
3 utilities side of the meter. Anything under 20 megawatts  
4 is what we're encompassing here.

5           Would anybody like to provide any comments on  
6 this? Frank?

7           MR. GOODMAN: Yeah. Not wishing to abuse the  
8 privilege of coming up here, but this is an area that's  
9 very dear to my heart. And I think, whether it's customer  
10 or utility-owned distributed generation it needs to get to  
11 where we can plug and play them. And we want not only to  
12 use them as a kilowatt hour source, as is done now -- let's  
13 call out the traditional function of distributed  
14 resources -- but we also would like to use them for  
15 regulating functions like voltage, participating in -- in  
16 your VAR management on a circuit, along with coordinating  
17 with capacitor banks and other regulating devices.

18           So to get to that point where you can use it,  
19 whether it's a customer resource or a utility-owned  
20 resource, and do it without a lot of custom engineering for  
21 every distributed generator, you'd like to be able to talk  
22 to it easy, meaning have a standardized communication

1 interface. And that boils down to using a standard.

2           The standard that is there is IEC 61850-7420.

3 Those are the object models for distributed resources. And  
4 I think that going forward, amongst the programs that the  
5 four stakeholders put together we definitely should have  
6 trial use of those object models. It is the fastest way  
7 available to us to getting to a plug-and-play process. And  
8 anything else is going to involve starting all over with a  
9 standard-writing effort. And the 61850-7420 took eight  
10 years to develop.

11           So I put in a request that shame on us for --  
12 administrators if between us somewhere we don't have trial  
13 use of the 7420 standards.

14           MR. BLATCHFORD: Thanks. Hi. I'm Jim  
15 Blatchford. I'm with the California ISO in the smart grid  
16 area. And specifically I focus on renewables, but let me  
17 speak a little about a couple of topics that have been  
18 brought up already, distributed energy.

19           We already have, right now in the state, over  
20 1,200 megawatts of distributed energy on rooftops. One of  
21 the things that we need to -- to integrate into the grid  
22 and to help us control is visibility into that. So I've

1 heard it mentioned here earlier about looking at cost  
2 effective ways for metering and telemetry so that we can  
3 all see that data. So I think that would be something that  
4 would be very good for us to focus on.

5 And as you said, a plug-and-play, as Frank said,  
6 a plug-and-play system where we don't have to reinvent the  
7 wheel every time a new technology comes on.

8 So that's a couple things I'd like to -- that we  
9 at the ISO would like to see.

10 And then one other question here, the -- what was  
11 already asked about the DOE and private funding, we brought  
12 up in a Sacramento a centralized database, maybe dedicating  
13 some funds to CEC or to set up a centralized database so  
14 all of these projects that are going on at the DOE, ARPA-E,  
15 all the other research is -- is put into this database  
16 where we all can see it and we can track it, and we don't  
17 duplicate what's already being done, but we can tag onto  
18 that and take that research maybe to another step, or to  
19 integrate it into the -- into the grid or into the  
20 utilities. So thank you.

21 MR. O'NEILL: Thank you. Any other comments from  
22 the room? Okay. Just -- oh, yes. Go ahead.

1           MR. MCLAUGHLIN: Larry McLaughlin, College of the  
2 Desert. I may be addressing one of the previous questions,  
3 but I think with respect to commercializing clean energy  
4 technologies for distributed generation and smart  
5 communities, we need to make sure that the people who are  
6 out there developing land, who are putting in the projects,  
7 the next, you know, the next planned communities, the next  
8 shopping districts, and so forth have familiarity with  
9 these technologies and giving them information about some  
10 of the opportunities that exist for them to integrate these  
11 new technologies as they go forward would be a good  
12 investment. Thank you.

13           DR. PINCETL: Stephanie Pincetl again. I think  
14 we should do this as a roundtable of something.

15           One of the questions I have about distributed  
16 generation is whether there's any -- been any work on  
17 business models for encouraging the adoption of rooftop  
18 solar distributed generation systems. We know that there  
19 are experiments springing up in different places with  
20 community groups, basically, pooling their resources in  
21 order to put solar on roofs because they can't afford to do  
22 it individually.

1           And I would suggest that perhaps to encourage  
2 more distributed generation on residential, and even on  
3 commercial, one aspect that ought to be looked at in a very  
4 thorough manner is new business models for doing so,  
5 whether it's having the utilities rent rooftops or the -- I  
6 have no idea. It's not my area of expertise. But I would  
7 encourage that to be part of the research in order to be  
8 able to facilitate this being -- this happening.

9           MR. O'NEILL: Any other comments or questions  
10 from the room? Anyone? Yes?

11           MR. ZURETTI: Good morning. Steve Zuretti with  
12 the Solar Energy Industries Association. I'm here on  
13 behalf of SEIA to request that the commission consider the  
14 inclusion of the New Solar Homes Partnership funding within  
15 the EPIC plan.

16           As background, this was launched in January of  
17 2007. It was intended to be a 10-year, \$400 million  
18 program to encourage the solar adoption and energy  
19 efficiency in new homes. Over the past five-and-a-half  
20 years it's proven to be a critical driver in adoption of  
21 both by builders, and specific program benefits for  
22 homeowners do include providing immediate cash flow,

1 positive investments, shielding homeowners from utility  
2 rate increases, and lowering the cost of electric to a  
3 broad set of utility ratepayers, which includes affordable  
4 housing, which is low to moderate income, first-time home  
5 buyers, ethnically and geographically diverse communities,  
6 and seniors.

7           In addition, the program has helped increase the  
8 value of California homes. A 2011 study by the Lawrence  
9 Berkeley National Laboratory found that California homes  
10 with solar systems sell on average with a premium of  
11 \$17,000 more than homes without solar. So there are real  
12 tangible benefits to this program.

13           Over the past year we're seeing several of the  
14 state's largest production-style builders starting to  
15 incorporate solar PV as a standard feature, not just an  
16 optional one. So hundreds and hundreds of single-family  
17 homes are being built right now with solar as a standard  
18 feature. This means the designers, contractors, building  
19 officials involved with these projects are really becoming  
20 more familiar with the technology. And this is greatly  
21 important in helping California achieve its efficiency  
22 goals.

1           But without this leverage funding these companies  
2 would not have incorporated solar as a standard feature.  
3 But, however, further progress may stall as the funding for  
4 the program was recently eliminated as part of the public  
5 good's charge, which is SEIA is here to urge that the New  
6 Solar Homes Partnership be included as part of the EPIC  
7 plan.

8           As noted earlier today, budget for the new solar  
9 homes partnership was not included at the time of the  
10 decision, not from a policy standpoint but rather from the  
11 statutory language that was interpreted as being too  
12 constrained to simply being California Solar Initiative  
13 Budget. With the passage of SB 1018 this should not longer  
14 be a problem. So thanks for your consideration of the  
15 comments.

16           MR. O'NEILL: Thank you. Are there any other  
17 comments in the room? Anything from WebEx?

18           So on question three, keeping in mind that  
19 current administration, Governor Brown's Clean Energy Jobs  
20 Plan calls for 12,000 megawatts of distributed generation  
21 be developed by 2020, what specific initiatives should we  
22 be -- should -- should be recommended to ensure that

1 ratepayer benefits are maximized? How do we maximize  
2 ratepayer benefits by the development of these  
3 technologies, the applied research, and integration of  
4 these renewables?

5 Come on up.

6 MR. HOLMES: So collocation of generation in  
7 proximal location for use is very important. We have  
8 tremendous reserves in California to do generation at areas  
9 of high insulation and wind. But those depend on  
10 infrastructure to take that -- that generation, that power  
11 to the -- the users.

12 So in terms of being able to locate and serve the  
13 population of California, developing infrastructure support  
14 for the integration of renewables at the locations that  
15 they're living or in proximity to the locations they're  
16 living is, to me, a very high, important -- high level of  
17 importance.

18 We're seeing, through our sustainable communities  
19 programs, lease opportunities being exploited to put solar  
20 on facilities that are currently not able to fund that  
21 themselves. And it's a great opportunity for us to also  
22 explore community energy storage integration as well. In

1 general, the integration of storage and renewables should  
2 look at it as complimentary and collocate it.

3 MR. O'NEILL: Thank you. Any other comments?

4 Okay.

5 We'll move on to prioritization. How do we  
6 prioritize these initiatives? Which initiatives should be  
7 the priority for the Energy Commission in our investment  
8 plan, speaking to distributed generation projects?

9 Frank?

10 MR. GOODMAN: Frank Goodman, San Diego Gas and  
11 Electric. And in terms of the 12,000 megawatt goal, one of  
12 the things that will help achieve the goal is getting more  
13 functionality out of the DER, beyond the traditional  
14 function as I mentioned a minute ago. And there's two  
15 needs in that area. I've already mentioned the plug-and-  
16 play for communication infrastructure.

17 The other is extension of 1547, the electric  
18 standard around interconnection of DER, which is embedded  
19 in Rule 21. And that standard is being expanded through  
20 Working Group 1547.8 to liberalize, if you will, what you  
21 can and cannot do in the way of interconnecting right now.

22 And that eventually will have to flow through to rule

1 making, and Rule 21 will have to be updated once the  
2 standard evolves from IEEE 1547.8.

3           So I would make it a priority to support that  
4 standard development through actual R&D projects which try  
5 out some of the things that are being considered for the  
6 standard and help provide a basis around, yes, this is a  
7 safe practice or, no, it is not to help fuel the standard  
8 writing. The standard -- I've been on these working groups  
9 and chaired them, in fact, and the working group loves any  
10 real fieldwork they can get their hands on to support what  
11 they should and should not put in the standard.

12           So I would make that a priority, is R&D activity  
13 that supports the evolution of the 1547 standards.

14           MR. O'NEILL: Thank you. Anything from WebEx?

15           So how should EPIC funding address ratepayer  
16 needs? Are there ratepayer needs in the realm of  
17 distributed generation, consumer side, energy, other  
18 distributed generation technologies, energy upgrades?  
19 Anything?

20           DR. PINCETL: Could you elaborate on that a  
21 little bit?

22           MR. O'NEILL: So I'm -- I'm trying to rephrase

1 question four as far as define the ratepayer need. So is  
2 there anything in the scope of distributed generation that  
3 ratepayers need to be addressed as far as on the technology  
4 side, integrating renewables? Is there anything on the  
5 solar side, customer side generation you can bring up?

6 DR. PINCETL: I have a silly question. Sorry.

7 MR. O'NEILL: Okay. So in the plan there's \$9  
8 million set aside for community-scale bioenergy and the  
9 development and deployment of bioenergy technologies. I  
10 haven't heard anything today on initiatives focused on  
11 that. Is there anything that we can add regarding  
12 bioenergy technologies that should be addressed by the  
13 investment plan?

14 DR. PINCETL: So this is Stephanie Pincetl again.  
15 But I think in the area of bioenergy there really could be  
16 a lot of collaboration with sanitation districts across the  
17 state. And it serves a number of different purposes. One  
18 is that the solid -- the sewage sanitary waste is no longer  
19 treated as a waste product but is actually an input into  
20 the energy capacity of a region. Secondly, it makes  
21 sanitary districts re-look at the way they treat what is  
22 considered waste. And I think it is a very important area

1 going forward in terms of rethinking how water is treated  
2 generally in the states.

3           So I don't know if there's room in that program  
4 area for reaching out to sewage treatment districts. But I  
5 think that would be a very interesting area to explore, at  
6 least do research on.

7           MR. O'NEILL: Thank you. Is there anything else  
8 from the room on bioenergy technologies? Anything from  
9 WebEx?

10           I'm going to go ahead and move on to utility-  
11 scale generation. So utility-scale generation, we're  
12 talking about large wind farms, solar farms, solar thermal  
13 technologies, and other types of technologies. What types  
14 of utility-scale generation technologies needs EPIC funding  
15 to achieve commercialization? What technologies are needed  
16 on the back end of it to help it integrate better with the  
17 grid in general? This also covers utility-scale energy  
18 storage, offshore renewables, and other integration  
19 technologies and strategies.

20           So we'll go ahead and start with question one on  
21 the major barriers of developing and commercializing these  
22 technologies, what barriers should we be addressing? Are

1 they -- is this list of initiatives comprehensive enough to  
2 address those barriers?

3 Do I have a question from WebEx? Hell, on WebEx?

4 MR. FORTUNE: Hello.

5 MR. O'NEILL: Hi.

6 MR. FORTUNE: This is Jon Fortune. I'm doing  
7 some work right now. And the question that keeps rising is  
8 with school districts, reliability can tend to be a high  
9 priority since they tend also to be meeting locations. And  
10 I think that the school districts and the communities as a  
11 whole would benefit from having reliable clean energy of  
12 the -- of the solar or renewable energy and energy storage  
13 co-located at school districts. And it would be nice to  
14 some funding go toward that and to support periods when  
15 reliability is needed at those locations.

16 MR. O'NEILL: Thank you. Any other comments,  
17 questions? Okay.

18 Where should funding be placed to maximize the  
19 deployment of these large scale renewable technologies?  
20 What should the priority be, and how do we maximize the  
21 ratepayer benefits from these technologies?

22 Come on up.

1           MR. MCLAUGHLIN: Larry McLaughlin, College of the  
2 Desert. I think for maximizing the deployment of clean  
3 energy technologies and utility-scale generation, and  
4 ensuring that it results in the greatest economic benefit  
5 to the State of California, we need to inform small  
6 businesses as to what the value chain opportunities are  
7 with the large-scale systems. We have a number of utility-  
8 scale generation plants being constructed in the desert  
9 region of California, the area that our college serves.  
10 And we would like to see more businesses within the local  
11 communities benefit from those projects.

12           And I think the way for them to do that is for  
13 them to be aware of what point in the value chain they  
14 might be able to tap, and to perhaps put a new product or  
15 service in place in order to serve this growing industry.  
16 I think it could be technology oriented or it could be  
17 level service oriented. But nevertheless, there are many  
18 opportunities and it would benefit the -- the industry  
19 itself and how it is deployed, and certainly benefit the  
20 local communities if small businesses could be educated as  
21 to what that value chain looks like, what supplies, what  
22 manufacturing, what service opportunities exist in support

1 of this new industry.

2 MR. O'NEILL: Thank you. Any other comments?  
3 WebEx? Okay. Any other comments on where we should  
4 prioritize our funding for EPIC with regards to large-scale  
5 renewables and clean energy generation technologies? Okay.

6 And we've already covered this before, but are  
7 there any other DOE or other private funding sources that  
8 we should be complimenting, avoiding duplication? Okay.

9 Let me move on to -- oh, one more comment.

10 MR. HOLMES: So with specific reference to other  
11 funding sources, we have a large presence of military  
12 installations in California. And looking at the Department  
13 of Defense as a financial collaborator and research  
14 opportunities is strategic.

15 In addition, the U.S. Department of Agriculture  
16 offers funding opportunities as well. And then beyond that  
17 the ability for us to develop concerted efforts with the  
18 EPA, who also have research activities underway.

19 MS. TEN HOPE: Would you mind stating your name  
20 for those people on WebEx?

21 MR. HOLMES: Sorry. John Holmes, SDG&E&E.

22 MR. LYTE: Bill Lyte. One more. On offshore

1 renewables, we're echoing Mr. Holmes comment. There is  
2 the opportunity to work very closely with the U.S. Navy.  
3 The U.S. Navy has been a leader in ocean renewables. They  
4 have put on a major conference in Hawaii in March to  
5 showcase their wave energy test site, working closely with  
6 the U.S. Department of Energy and International Renewable  
7 Energy Laboratory, but they would like to roll out a  
8 gigawatt of wave energy by 2025. It's tremendously  
9 ambitious. California has a unique opportunity, because  
10 much of the wave energy research for the U.S. Navy is done  
11 in Port Hueneme. It's the engineering service center which  
12 oversees all of the navy's operations worldwide.

13           So that's certainly something we should be  
14 looking at. And the Department of Energy has had a very  
15 active solicitation on offshore wind. It was -- the due  
16 date was about three months ago, and they should be making  
17 a decision shortly. And there are firms that have proposed  
18 offshore wind projects off of California coast. So there  
19 is a great opportunity to weave all these initiatives  
20 together.

21           MR. O'NEILL: Thank you. Any other comments or  
22 questions? All right.

1 I'll move on to environment and public health.  
2 So with regards to clean energy generation technologies,  
3 what potential initiatives should we be considering? Our  
4 list includes climate change impacts on the energy  
5 infrastructure, environmental benefits to deployment,  
6 supply chain issues, public health impacts, energy  
7 generation in disadvantaged communities. Are there any  
8 other initiatives that we should have on this list? And  
9 we'll also step through the questions.

10 Did you have a comment?

11 MR. GOODMAN: No.

12 MR. O'NEILL: Okay. So what are the major  
13 barriers to developing? What major barriers should we be  
14 addressing through this initiative, through this topic?  
15 Anything?

16 DR. PINCETL: Stephanie Pincetl. So I think that  
17 this raises some of the questions I asked earlier about how  
18 you define ratepayer benefit. Because, clearly, if you are  
19 looking at deploying renewables across the landscape there  
20 will be a cost. Let's not delude ourselves that you can do  
21 all of this and maintain really low rates of electric for  
22 everybody all the time.

1           And I think that one of the scary things but  
2 really, really important questions to ask is who should  
3 bear the burden of these kinds of shifts? And it has  
4 enormous environment and public health implications for all  
5 kinds of people living in communities. And I would urge us  
6 to couple a little bit better the question of ratepayer  
7 benefit as has been described in terms of dollars per  
8 kilowatt used. And to think about it a little bit more  
9 broadly relative to questions of public health and impacts.

10          And so what -- I don't think it's useful to look at all  
11 ratepayers as equal under the ratepayer burden side of it.

12           And so this may be a little bit of a tangent, but  
13 I think that if you're looking at climate change impacts,  
14 energy infrastructure, public health impacts, energy  
15 generation in disadvantaged communities and trying to  
16 maintain the same price per kilowatt hour for everybody,  
17 you're going to come into a real kind of train wreck.

18           And so I think that one of the ways that one  
19 could begin to look at this question of environmental  
20 public health and equity is also to open up a little bit  
21 our thinking about ratepayer benefit, because there's a  
22 clear connection there in terms of how we're able to do

1 things. And so maybe we have to think about tiered pricing  
2 in order to address the question of energy generation in  
3 disadvantaged communities so that you can have a broader  
4 implementation of distributed energy in those communities.

5 Or, again, the funding question that I raised earlier  
6 about innovative ways to finance distributed energy  
7 generation.

8 And I would reiterate the point I made much, much  
9 earlier about tradeoffs between greenhouse gas emissions  
10 and criteria of pollutants in looking at climate change  
11 impacts, because there's not just greenhouse gas emissions.

12 So we should really revisit what we think of or define  
13 better what environmental impacts encompass. Thank you.

14 MR. O'NEILL: Any other questions or comments  
15 from the room? Anything from WebEx?

16 So I'm going to combine two and five, questions  
17 two and five about funding. Where should funding be  
18 placed, and how should be prioritize that funding? And  
19 we're talking about the environment and public health,  
20 these types of initiatives. What should be the greatest  
21 priority for EPIC, under EPIC for these initiatives?

22 Any comments? No? No takers? Are there any

1 comments or questions about what other funding sources are  
2 out there that are providing that -- this type of research,  
3 demonstration, funding available for this type of -- these  
4 type of initiatives? Okay.

5 I'm going to go ahead and move on to the next  
6 topic. So this will be covered broader tomorrow. This  
7 will be an all-day event discussing market facilitation.  
8 But we wanted to include this in here if we had time to  
9 discuss, how do we facilitate the market for clean energy  
10 generation technologies?

11 So some of the potential issues that we are  
12 considering are creating a performance data clearing house,  
13 provide various types of data that is needed to permit and  
14 site these types of technologies. The resource assessments  
15 and planning tools; this is something more on the lines for  
16 local governments, to assist them with their planning  
17 processes. Permitting and deployment facilitation; this is  
18 also on the local government side, and they also have  
19 aspects that could reach over to the developers, new  
20 technology. Innovation clusters, and workforce  
21 development.

22 Are there any other initiatives that we should

1 have on this list to consider for market facilitation?

2           And what are the major barriers that we should be  
3 addressing with these initiatives? Okay. Where should  
4 funding be placed to maximize deployment of clean energy  
5 generation technologies? So when we're looking at market  
6 facilitation, where should -- what initiatives should we be  
7 funding through market facilitation to get the biggest bang  
8 for our buck, to get the most clean energy generation  
9 technologies sited I place with the least amount of  
10 environment impact, greatest ratepayer benefit?

11           MR. HOLMES: This is John Holmes from SDG&E&E  
12 again. We saw a great penetration of solar through the  
13 California Solar Initiative. It was an exemplary program  
14 for other states to be able to emulate. Going forward I  
15 think it would be appropriate to consider energy storage  
16 for similar type of funding effort. And EPIC may  
17 facilitate some research to explore opportunities for such  
18 a program.

19           MR. O'NEILL: Any other comments? Frank?

20           MR. GOODMAN: Yeah. I was -- Frank Goodman, San  
21 Diego Gas and Electric. I was in the facilitation sessions  
22 last week. And there was one thing that I couldn't quite

1 phrase, so I left it, figuring I'd write it up. But now  
2 I'm going to say it today, then I don't have to write it  
3 up.

4           When you look at innovation clusters and the  
5 various three concepts that were described there, one of  
6 them is around your Silicon Valley type of entity. I'm not  
7 sure just what the name of that entity class was. But what  
8 I wanted to say is those that are sustainable and have been  
9 around a long time, like Silicon Valley, have reinvented  
10 themselves many times. I lived there for 30 years, and  
11 it's not about silicon anymore. It started out in the  
12 early '70s. Some of my grad school buddies were saying,  
13 you know, they're calling the Santa Clara Valley, Silicon  
14 Valley now.

15           Well, that name is still there and it's used as a  
16 clever marketing thing around high tech in general, in a  
17 more general sort of way. And it's moved through various  
18 machinations from integrated circuits, which is legitimate  
19 silicon, to a variety of things including networking and  
20 software are now probably the biggest industries there.  
21 And your semiconductor manufacturers may have headquarters  
22 or R&D there, but they're moved their production outside of

1 the area.

2           So my point is this, that in going out and  
3 looking for where you might find these clusters to develop  
4 into that type of a capability around power systems and  
5 smart grid, look at not only new starts, brand new  
6 clusters, but also reinventing some of the ones that are  
7 dying in other areas and getting them realigned with this  
8 area.

9           MR. O'NEILL: Come on up.

10           MR. LYTE: Yes. Bill Lyte, Protean Energy. I've  
11 had a lot of involvement with innovation clusters and --  
12 and have tried to interface them with ocean wave energy. I  
13 -- I bootstrapped a very major technology cluster in  
14 Pasadena, California with Cal Tech and JPL, and we had 200-  
15 plus companies come out of it, and then took the model to  
16 the ports, Port of L.A. and Long Beach and -- and did it  
17 there, too, working with the universities, and began  
18 looking at how California's coast could be a series of  
19 innovation clusters geared toward renewable energy.

20           And, candidly, you've got a perfect situation all  
21 the way from Humboldt to San Diego because you've got the  
22 cities with the ports which are high energy users, plus

1 coastal facilities like prisons or airports or military  
2 bases, they have good wave energy. But at those locations  
3 you've also got universities. And almost every one of  
4 those locations are, at least the Cal State system, a lot  
5 of community colleges, and the U.C.

6           So if you can weave those together and -- and  
7 then apply the research out of the universities to develop  
8 the technologies, harvesting the energy from the ocean and  
9 then directing it to the large energy using entities,  
10 you've got a very good opportunity for innovation clusters.

11           MR. O'NEILL: Thank you. Come on up.

12           MR. WALLACE: Joe Wallace from Coachella Valley  
13 Innovation Hub. And that's precisely what we're trying to  
14 start is an innovation cluster around renewable energy, and  
15 particular it's the energies from the sun, the wind, and  
16 geothermal. And no matter how much money and cash there is  
17 in Silicon Valley, you can't outsource the sun and the  
18 wind.

19           So those kinds of clusters with renewables have  
20 to happen in places like Coachella Valley and, is it  
21 Livermore, the -- the wind areas up north. There's natural  
22 places inland that are just as applicable to other

1 renewable technologies as the coastal ones are to -- to  
2 wave motions.

3           And so I think this guy is right on target. And  
4 Silicon Valley happened with private money. Hollywood  
5 happened with private money. But, you know, there's no  
6 reason that if you have public-private partnerships that  
7 you can jumpstart some of these things the way they did  
8 down in Raleigh with Research Triangle Park.

9           MR. O'NEILL: Thank you. I just want to ask a  
10 follow-up question to those last two comments.

11           How can EPIC initiatives be developed to leverage  
12 private investment in California, private and public  
13 investment in California so that we maximize the amount of  
14 jobs and maximize the amount of these technologies that are  
15 developed in California? Any ideas?

16           MR. WALLACE: Are you asking everyone or --

17           MR. O'NEILL: Everyone or you.

18           MR. WALLACE: The energy hub under  
19 Schwarzenegger.

20           MR. O'NEILL: Energy hub under Schwarzenegger?  
21 Okay. Any other comments? Okay.

22           MR. WALLACE: I'll tackle it.

1           MR. O'NEILL: You want to tackle it? All right.  
2           You've got 20 minutes.

3           MR. WALLACE: I won't take that long. Joe  
4           Wallace once again, Coachella Valley I-Hub. There -- there  
5           are twelve I-Hubs in the State of California. It's -- it's  
6           a wonderful idea. It came from Sacramento. And the logo  
7           came and the name came, and even some of the local  
8           initiatives came, but not a red cent came with it. And  
9           it's even to the point that when I go to Sacramento I have  
10          to buy my own plane ticket and my own lunch. They don't  
11          even have money up there to buy a lunch.

12          So if there's some program that at the state  
13          level we can leverage the I-Hubs and -- and groups like --  
14          like this gentleman have so to where we can collectively  
15          market the talent base that still is in California, the --  
16          the natural gifts of the earth that we have in California,  
17          to bring private money -- whether it's American money or  
18          not really doesn't matter, because most of our  
19          entrepreneurs don't necessarily want to move somewhere else  
20          -- and not only that, with so much cash available in  
21          Silicon Valley, if there's anything that can be done at the  
22          state level to encourage that private investment to be

1 willing to go beyond 50 miles from where their offices are  
2 off of Sand Hill Road, that could -- could -- I don't want  
3 to use the term spread the wealth around, but it could  
4 enable innovation in other parts of California to -- to  
5 equal what's gone on for the last 50 years in the Silicon  
6 Valley.

7 MR. O'NEILL: Any comments or questions from  
8 WebEx?

9 Frank?

10 MR. GOODMAN: Yeah. I'll comment on that  
11 comment, because it was an excellent comment. The Sand  
12 Hill equity investment firms, what do they call them,  
13 venture capital firms, there's this cluster on Sand Hill  
14 Road in Menlo Park in the heart of Silicon Valley that has,  
15 I forget what it is, but it's a very large percentage of  
16 all the venture capital in the country is controlled by  
17 those groups, and if it can be spread around more a lot of  
18 companies will set up a shop in Silicon Valley just to have  
19 access to the venture capital, even though they -- they may  
20 be geographically disbursed everywhere but Silicon Valley.

21 So that would be something that is good, is to try and  
22 encourage the venture capital to go to these other clusters

1 that are associated with the energy industry.

2 MR. O'NEILL: Any other comments or questions  
3 from the room? Does anybody have any comments or questions  
4 on clean energy generation system technologies in general,  
5 overarching comments, anything about cost-cutting  
6 initiatives? Any comments or questions from WebEx? Okay.

7  
8 So written comments; we encourage written  
9 comments. We submit it -- submit it to the Energy  
10 Commission by August 17th, next Friday. You can send those  
11 via email to docket@energy.ca.gov. Please include the  
12 docket number in the subject line of the email. Or you may  
13 submit comments in writing to the Energy Commission to the  
14 email address that's on the screen.

15 If you have any other comments or questions  
16 before we sign off for the session please raise your hand  
17 now, either online or in the room. If not, then I think we  
18 will adjourn for lunch. All right. We'll start back at 1  
19 o'clock or 1:10?

20 MS. TEN HOPE: It's listed on the agenda as 1:15.

21 MR. O'NEILL: 1:15.

22 MS. TEN HOPE: But I think promptly 1:15.

1           MR. O'NEILL: Okay. We will start back promptly  
2 at 1:15. Have a good lunch.

3 (Off the Record From 11:43 A.M., Until 1:20 P.M.)

4           MS. TEN HOPE: We are ready to reconvene this  
5 workshop. For those of you who are the other end of the  
6 football field, you are welcome to -- to join us down here.

7       If you prefer it back there, that's fine. But it makes  
8 the conversation -- it makes it a little more  
9 conversational if we're a little closer.

10           I'm Laurie ten Hope. I'm the Deputy Director of  
11 Research and Development at the California Energy  
12 Commission. I appreciate those of you have returned, and  
13 are on WebEx. The next session that we're going to talk  
14 about is grid operations. And I just -- before I introduce  
15 Jamie I just wanted to mention a couple of things.

16           We heard from the presentation this morning that  
17 the investor-owned utilities are going to be doing project  
18 initiatives in the grid operations and transmission and  
19 distribution area. And, you know, at the end of the day we  
20 don't want our plan to be duplicative of the plans that are  
21 submitted by the investor-owned utilities. But for today's  
22 discussion I think you just put our your ideas. We have

1 participation from the utilities. If it makes more sense  
2 in that program, it fits, it will be heard. If it makes  
3 more sense in the Energy Commission's program it's heard.  
4 So rather than worry about boundaries, give us your ideas.

5           If anybody just joined us, we're in the middle of  
6 our conversation, possible initiatives that fit into the  
7 investment plan for the Electric Program Investment Charge  
8 program. We're taking comments today, and welcome written  
9 comments as well. And there will be another -- another  
10 shot for comments when the draft plans come out in mid-  
11 September.

12           We are going to run this one just slightly  
13 differently so that we can try to get more comments more  
14 quickly. So when it comes to comments, Jamie is going to  
15 be roaming with the microphone. Feel free to come up front  
16 or queue up in the -- in the middle row, indicating that  
17 you do want to speak on a particular item. We -- we  
18 welcome your participation on every question. And it's  
19 also going to be closer to the satellite phone, because  
20 WebEx folks were having a hard time hearing comments in the  
21 room. So we're hoping this will facilitate everybody's  
22 participation.

1           So with that, Jamie Patterson is the Energy  
2 Commission staff and he's going to facilitate this next  
3 session on grid operations.

4           MR. PATTERSON: Hello, I'm Jamie Patterson. And  
5 we're going to be looking at grid operations, transmission  
6 and distribution systems, and electric vehicles.

7           We've seen this slide. This is the purpose of  
8 our discussion. Again, I'd like to remind you to try to  
9 limit to about three minutes at a time. Make sure you  
10 identify your names and affiliations, and give a business  
11 card to the reporter over here who is off to my right.  
12 Okay.

13           These are primarily the benefits that we're  
14 looking for, and the key policy drivers. You've seen many  
15 of the same key policy drivers. Here is the governor's  
16 Clean Energy Job Plan. I'd like to highlight the State  
17 Alternative Fuel Plan because we will be talking a little  
18 bit about electric vehicles today. And in the State  
19 Alternative Fuel Plan the idea to display 376 million  
20 gallons of gasoline with electric.

21           Next slide. So these are the questions that  
22 we'll be answering. I won't go through them now. They're

1 also on the slides that we are going to see coming up. And  
2 these are some of the potential technology areas within the  
3 fields of grid operations, transmission, distribution  
4 system and electric vehicles. You'll be seeing these again  
5 on various slides where they're appropriate, primarily  
6 smart grid microgrids is one of the technology areas. It's  
7 been said that the smart grid may consist of a series of  
8 microgrids interconnected together to share resources  
9 across the greater grid. We have electric vehicle charging  
10 grid integration of those vehicles.

11 As Commissioner Peterman mentioned back on June  
12 14th in San Diego, California leads the way in electric  
13 vehicles. And San Diego, by the way, leads California in  
14 the adoption of electric vehicles. Okay.

15 Let's go into grid operations. Okay. In the  
16 field -- what I would like you to do is we know that we  
17 want to map most of our initiatives to the utility  
18 technology area, which are operations, transmission,  
19 distribution, and demand-side management. That's one of  
20 the areas -- that's one of the requirements of EPIC to try  
21 and do. So on these slides I've tried to group them along  
22 those lines.

1           And the first one we're going to hit is grid  
2 operation. So giving your vision of grid operations,  
3 basically, and looking at the potential initiatives of  
4 smart grid microgrids, electric vehicle charging grid  
5 integration, storage, renewable integration, grid monitor  
6 and controls, and analysis, or home area networks and  
7 things, anything else that you might have. What are the  
8 major barriers to developing and commercializing some of  
9 the clean energy technologies that we could address through  
10 research?

11           Here you go.

12           MR. TORRE: Thanks. Bill Torre from San Diego  
13 Gas and Electric Company. One area that I think is a  
14 barrier right now is to do technology standards, actually,  
15 for interoperability, and also for control of renewable  
16 generation like solar voltaic, PV inverters and all. So I  
17 think we need some new technology standards. And, also,  
18 even regulatory standards, like Rule 21, things like that.

19           So I think that needs to be changed to allow us to -- to  
20 integrate more renewables.

21           MR. PATTERSON: That's good. What other  
22 barriers? Anybody else?

1 MR. BLATCHFORD: I have my notes.

2 MR. PATTERSON: Yeah. You've got your notes?

3 MR. BLATCHFORD: Yeah.

4 MR. PATTERSON: Okay. Good.

5 MR. BLATCHFORD: Jim Blatchford, California ISO,  
6 again. Along with what we've just heard with regulations,  
7 looking at the physical side, and we spoke about -- about  
8 this a little bit earlier is looking at the cost-effective  
9 telemetry and metering behind the meter grids, behind the  
10 meter generation. Also, we -- we spoke of it up in  
11 Sacramento, is forecasting. How do we forecast what we  
12 need? If we forecast what is happening behind the grid or  
13 behind the meters, then we don't have to buy so much on the  
14 grid and save all the ratepayers money. Okay. So that's a  
15 couple of them.

16 We also need to look at -- I had a third one here  
17 too. Oh, you got it. Let me make sure I got it. Those --  
18 that's on the work side, on the grid side. Let me not talk  
19 about that now.

20 But -- and -- and we've talked about this, this  
21 is the one I wanted to hit again, was DER -- DER  
22 penetration data. Looking at the data, how do we know that

1 how we, the grid, knows what the IOUS have put in behind  
2 the meter. So, again, we need a centralized database, I  
3 feel, to collect this information so that we know what's  
4 going on. And anybody can use this information. We'll  
5 need it for studies. The CEC will do studies on this  
6 information. The CPUC will do studies on the information.  
7 So to bring that all together in one centralized database.

8 MR. PATTERSON: Okay. Information sharing then?  
9 Okay.

10 What other barriers do people -- can people  
11 identify to some of these?

12 There you go.

13 MR. HOLMES: So John Holmes, San Diego Gas and  
14 Electric. One of the things that we're really taking a  
15 strong forward-looking view toward this integration is  
16 weather data in -- in the integration of renewables. And  
17 we've got research activities that are advancing, weather  
18 predictive patterns to dispatch the stored energy from  
19 renewables generation into grid operations. And so the  
20 ability for us to look at a broader scale, outside of our  
21 service territory on a state level and a national level,  
22 capitalizing again on other forms of data specific, and

1 maybe farm the data from the PMU networks that are forming  
2 across the country to be able to look at, for example, what  
3 level dispatch of energy based on criteria.

4 MR. PATTERSON: Good. Frank?

5 MR. GOODMAN: Frank Goodman with San Diego Gas  
6 and Electric Company. Like I said, I was in a EMPRY  
7 workshop the last couple days. And one of the things we  
8 just started working on at San Diego Gas and Electric a  
9 couple months ago was an architecture for smart grid. And  
10 this means how do you organize your system and how do you  
11 overlay the communication and control infrastructure on the  
12 electrical system? And we are now in the process of  
13 designing an architecture.

14 But what we learned in that workshop the last few  
15 days, and all three California IOUS were represented there,  
16 is not only the California IOUS but utilities elsewhere  
17 around the country have gone about smart grid deployment by  
18 deploying smart devices and hoping the architecture and  
19 networking of those things together would catch up. And  
20 many now, like the three California IOUS, are at the point  
21 where we got to catch the architecture -- architecture up.  
22 And some would say maybe you should do the architecture

1 first. And some very good points were made to count that,  
2 that really to get going on smart grid, it was okay to  
3 evolve it the way we did. But now we are at that point  
4 where we need to develop architecture.

5           And we would -- we would welcome some support  
6 from EPIC funded -- EPIC funded work on principles for  
7 architecture development, what can be done uniformly by all  
8 utilities, and what will be utility specific because of  
9 some quirk in the design of their system, and each of us  
10 has our own quirks. So architecture development in a  
11 unifying approach would be a good -- a good area of  
12 endeavor.

13           MR. PATTERSON: Good. Okay. Your name

14           MR. ROCHE: My name is Neal Roche. I'm CEO of  
15 Gridtest Systems. We work on vehicle grid integration.  
16 One of the challenges we see with integrating electric  
17 vehicles to the grid is actually getting fair pricing  
18 information for ratepayers. And so there's a new -- the  
19 PUC is supporting a sub-metering protocol so that third-  
20 party electric vehicle service providers could actually do  
21 billing or metering in their charging station. And so --  
22 so when buyers have to essentially test a surge volume,

1 those -- those sub-meters in the charging stations have --  
2 have also verified the data, the communications between  
3 these third-party providers and the utility. So I think  
4 that's a challenge that has to be solved together, you  
5 know, the ratepayers, you know, fair and consistent pricing  
6 when -- when they're charging their cars.

7 MR. PATTERSON: Thank you. Okay. In the area  
8 of --

9 DR. BUNJE: I'm sorry, one more. One more.

10 MR. PATTERSON: -- grid ops -- my -- my apology.

11 DR. BUNJE: Just one question. Paul Bunje with  
12 UCLA. With respect to particular to grid stability issues,  
13 the -- the distribution of uptake of novel technologies,  
14 including EVs on demand-side, as well as distributed  
15 generation, as you note that the -- the adoption by -- by  
16 customers is -- is differential in random parts of the  
17 state, and we need to ensure through both behavioral and  
18 economic research that we have an understanding of how that  
19 will be -- be pulled up.

20 In a related thing on EVs, there is continuing  
21 interest in electric vehicle battery storage of -- of  
22 excess electricity, which raises a number of legal issues

1 that -- that, in addition to economic issues, that should  
2 be at least addressed or recognized as one of these  
3 programs. Thank you.

4 MR. PATTERSON: Thank you. Does anybody else  
5 have barriers that they would like to mention here to, say,  
6 smart grid, microgrid, or grid ops, electric vehicles,  
7 storage, renewable integration, monitoring, home area  
8 networks in the area, grid operations? Okay.

9 Well, let's go to question two. Where should  
10 funding be placed to maximize the deployment of clean  
11 energy technologies?

12 Okay. Any ideas? Are there any preferences out  
13 there? Do we have anything on the web? Oh, we have one.

14 Here you go.

15 MR. GOODMAN: Thank you. Frank Goodman, San  
16 Diego Gas and Electric. When we say HANs, I think we  
17 really mean CPMs, customer premise networks. And that  
18 generalizes it from residential home to all classes of  
19 customers. And, indeed, some of the more sophisticated  
20 interoperability systems between the utility infrastructure  
21 and the customer premise I think will be around commercial  
22 and industrial systems first, because it's a bigger system,

1 more options for taking direct control of demand and things  
2 of that nature.

3           So I would say a good area to place funding is  
4 interoperability systems to move us in the direction of  
5 direct control, which means demand management, not demand  
6 response, of big loads by utilities with prearranged  
7 agreements with the customers.

8           MR. PATTERSON: Okay. Thank you. I learned  
9 something.

10           Bill?

11           MR. TORRE: Bill Torre from San Diego Gas and  
12 Electric Company. And one of the areas I think that we  
13 need to consider for a fair amount of funding is to help  
14 meet the state mandated goals from RTP renewable  
15 integration. And the 12,000 megawatt EG goal that the  
16 governor has established, you know, I think there's quite a  
17 bit that needs to be done on distribution systems and maybe  
18 on transmission systems and grid operations to -- to help  
19 us accommodate these increased levels of goals. And we can  
20 talk a little bit more about that later. But that --  
21 that's an area that I think we need to focus on.

22           MR. PATTERSON: And we will be getting to

1 transmission and distribution systems in a minute. That  
2 will be our next slide. So we will have one on that, I  
3 hope. Let's see. So funding point number two. Any ideas  
4 for where funding should be placed? Keep in mind that we  
5 do have this goal for 2020. And one of the priorities  
6 would be that some things need to be started now to be  
7 ready then, because it will take the whole six or seven  
8 years that we have.

9 MR. SHERICK: Robert Sherick, Southern California  
10 Edison. I think this is playing off a bit on Frank's  
11 comment about the architecture. But I think we really do  
12 need, on the grid operations side, to take a look at the  
13 model of how much do we want to have distributed control  
14 versus how much do we want to have centralized control. I  
15 think that issue is, to -- to get into Frank's point about  
16 being able to manage and have direct control over things  
17 like commercial buildings, I think that's an ongoing  
18 concern as to who should have the control and what would  
19 be, again, bringing the most value to our customers, and  
20 what business model makes sense from a control standard.  
21 These are our questions.

22 MR. PATTERSON: Okay. Thank you. That's an

1 interesting idea.

2 Oh, we have one from the back. Could you please  
3 come up here. It makes us possible for all the microphones  
4 to hear you.

5 MR. WALLACE: Okay. Joe Wallace, Coachella  
6 Valley I-Hub. And addressing an issue that was brought up  
7 this morning by a lady -- I don't see her in here, maybe  
8 she  
9 left -- but it has to do with storage. And she was talking  
10 about the difficulty with storage and high rises and large  
11 buildings, the same thing exists at the home level.

12 So behind the meter, storage opportunities, maybe  
13 it's batteries, maybe it's a passive thing, but it's  
14 something that will allow all of these solar panels to --  
15 to store the energy, and maybe they're even storing it from  
16 the grid during off hours. You know, we've got two  
17 companies in our incubator that are working on solutions  
18 for that, and some of them are installed. They're not very  
19 expensive. They add value to the home. And they take away  
20 the -- the waste of -- of both wind and solar energy that  
21 goes on every day.

22 MR. PATTERSON: Good observation.

1 MR. LYTE: Thank you. Bill Lyte, Protean Energy.

2 One of the obstacles to deployment of ocean wave energy is  
3 the cost of the cable. It's a very major obstacle. It's  
4 frequently more than the actual system. I've suggested to  
5 the California State Lands Commission that -- who oversees  
6 all coastal facilities, that they do an inventory of cables  
7 that may even be unused at the present time. They might  
8 have been laid in for something else and that use is gone.

9 And those cables could then be made available to marine  
10 renewable energy facilities.

11 MR. PATTERSON: Good. Any more comments on this  
12 question or -- okay.

13 MR. HOLMES: Good. Well, just -- this is John  
14 from San Diego Gas and Electric. And I think very clearly,  
15 as he stated, where? That's the first part of this  
16 question. And in parentheses you talk about technology  
17 innovation versus commercial scale.

18 One of the things I think is important to  
19 recognize is that there will be a preparedness component  
20 that Frank alluded to in terms of integration for the  
21 utility system. It really needs to be solidified in place.  
22 This is not done solely by the utilities. There will be

1 commercial enterprise development efforts to -- to advance  
2 this technology. But I think there needs to be a  
3 forwarding approach towards this integration development  
4 that is essentially is utility centric. And secondly,  
5 CalISO Centric.

6 MR. PATTERSON: Okay. Any more on this? Okay.  
7 Let's move on to --

8 MR. SCHINDLER: Jamie -- Jamie, we've got one.

9 MR. PATTERSON: We have one. Okay. Go ahead.

10 MR. SCHINDLER: John, are you on line?

11 MR. PATTERSON: John, are you there?

12 MR. SCHINDLER: John, go ahead.

13 MR. PATTERSON: Is he there? Okay. Well, we'll  
14 see if we can't get back to that person over there -- out  
15 there.

16 Let's move on to question three, unless we have  
17 any more comments. I don't want to cut anybody off. Okay.

18 Question three: What specific initiatives are  
19 recommended to advance these energy technologies that will  
20 benefit the ratepayer?

21 Okay. We're looking for some good ideas here  
22 that will help us meet those energy goals that we covered

1 earlier. Any ideas?

2 MR. COLBURN: Mike Colburn, San Diego Gas and  
3 Electric. It's one thing to take a level two charger and  
4 install it in the garage of every single family home. It's  
5 very much more difficult to provide that same functionality  
6 for multi-family, apartment houses, condominiums. And if  
7 some effort could be aimed towards standardizing an  
8 approach that works across the state for that I think it  
9 would really open up the viability of electric vehicles for  
10 a lot more users.

11 MR. PATTERSON: Okay. Thank you. Do we have any  
12 other initiatives anybody would like to propose? How are  
13 we doing out on -- oh, Bill.

14 MR. TORRE: (Off mike.) Assuming electric  
15 vehicles are part of this, smart charging would be an area  
16 to have an initiative and an area where we can pull, you  
17 know, vehicle to grid, and also demand response and  
18 behavior, and using it for ancillary services, and also  
19 support the grid during high-peak load periods, things like  
20 that.

21 MR. PATTERSON: Okay. We have research on smart  
22 charging to support grid operations.

1 (Colloquy Between Jamie Patterson and Court Reporter)

2 MR. PATTERSON: We have a request that we speak  
3 up over here, because we have, yet, a third mike that needs  
4 to pick you up. Multiple, multiple mikes. Yes.

5 So -- but to recap, that was on -- that was an  
6 initiative to explore the use of smart charging by Bill  
7 Torre, to support grid operations. And he mentioned that  
8 it could be used for, say, ancillary services, vehicle to  
9 grid, and a number of other operational issues. Good.

10 So any other initiatives for anybody out there?

11 Then let's move to question four. Define  
12 ratepayer need for which EPIC investment should be  
13 targeted. Any ideas in the area of grid operations?

14 Well, then let's move on to five. And let's look  
15 at some of these initiatives to see if we have any  
16 priorities and how we can identify the benefits. This  
17 should be anticipated measure, energy cost saving, improved  
18 reliability, job creation, economic benefits. Anything for  
19 question five under that goal? What should be started now,  
20 first? If you think of anything --

21 MR. SCHINDLER: Jamie?

22 MR. PATTERSON: Yes? We have one person the web?

1 MR. SCHINDLER: Yeah. We got John's mike working

2 MR. PATTERSON: Oh, good. John, can you hear us?

3 John, are you there?

4 MR. SCHINDLER: No.

5 MR. PATTERSON: No.

6 MS. DOUGHMAN: Maybe he can send the question to  
7 you via WebEx.

8 MR. PATTERSON: Okay.

9 (Colloquy Between Staff Members)

10 MR. PATTERSON: Are there any other questions?

11 MR. TORRE: Oh, yeah, I --

12 MR. PATTERSON: You have a comment? Good.

13 MR. TORRE: Yeah.

14 MR. PATTERSON: Come on up to --

15 MR. TORRE: I'll come on up here. Okay.

16 MR. PATTERSON: -- the mike here --

17 MR. TORRE: All right.

18 MR. PATTERSON: -- this is the one we want you to  
19 have, right there.

20 MR. TORRE: It's okay. Bill Torre from SDG&E&E.

21 You were looking for us to comment on prioritization of  
22 these different benefits. And, you know, from my

1 perspective, from a utilities perspective, grid reliability  
2 is incredibly important. So as we go into higher and  
3 higher levels of renewable penetration, you know, that's  
4 more and more of a concern, and that's something we should  
5 definitely address.

6 Job creation right now, you know, with the high  
7 level of unemployment, is also a concern. So I think  
8 you're going to have a session tomorrow on workforce  
9 development.

10 MR. PATTERSON: Yes, we are.

11 MR. TORRE: So I think that's a good thing to  
12 address.

13 Energy, cost savings, definitely. The more we  
14 can identify benefits for these high technology projects  
15 that we'll be looking at through EPIC I think we'll be able  
16 to get more value for ratepayers that way. So I would  
17 encourage that. Thanks.

18 MR. PATTERSON: Good comments. Okay. Frank?

19 MR. GOODMAN: Yeah. Just one thought. In  
20 reading the list there it occurred to me that there's a lot  
21 of uncertainty yet as what is the best way to do cost  
22 benefit analyses for purposes of developing these

1 investment plans. So maybe more than an initiative for  
2 what goes in the plans is to back up a step and see how  
3 best to do consistently amongst the four administrators are  
4 cost benefit analysis that will support the investment  
5 plans.

6 MR. PATTERSON: So are you recommending maybe a  
7 more common way of doing the cost benefit analysis?

8 MR. GOODMAN: Well, given the tight timeframe we  
9 have to get these investment plans in front of the public  
10 in September, and the final form in November, I think what  
11 we have to do is take a look at what each of us have done  
12 in past cost benefit analysis work and -- and pick out what  
13 we think is the best of all worlds, of all these different  
14 approaches. And it will cut across all of those different  
15 attributes mentioned in that list.

16 MR. PATTERSON: Good comments. Any more on  
17 prioritizing initiatives and identifying the benefits.  
18 Here we go.

19 MR. SCHINDLER: One of the comments we have  
20 online is that energy efficiency products work with home  
21 area networks, should be a priority, as well as research  
22 into energy measurement to prove out-products.

1           MR. PATTERSON: Okay. Good comment. Do I have  
2 any more comments, advice?

3           MR. GOODMAN: Yeah. This may actually apply to  
4 more than -- Frank Goodman, again, San Diego Gas and  
5 Electric -- to more than just the grid ops area, but I  
6 might as well at least interject it now.

7           Business case development. Some of the  
8 initiatives we might launch we'll need to have a business  
9 case. Sometimes you have a two-phase process in getting  
10 the business case; one before you do phase one of the  
11 project, and phase one produces information to where you  
12 can fine tune your business case or redo it and come up  
13 with a better answer than you could before you have that  
14 first data.

15           So I guess the point is for this and other areas  
16 phasing the work so that you come in with a business case,  
17 and if you don't have it you make that one of the key  
18 objectives in your work.

19           MR. PATTERSON: The establishment of business  
20 case. Good comments.

21           Oh, we have another one from the web?

22           MR. SCHINDLER: Yeah. Another one from the web.

1 Along the lines of reliability, the defense of the system  
2 from cyber attack should be part of the scope.

3 MR. PATTERSON: Cody, could you identify who said  
4 that?

5 MR. SCHINDLER: And that was Ed Becker.

6 MR. PATTERSON: Security. Defense from cyber  
7 attack. Any -- oh.

8 MR. HOLMES: Final comment, I promise.

9 MR. PATTERSON: Come over here.

10 MR. HOLMES: So increasingly the world is  
11 becoming more -- a lot more similar than it is different.  
12 And the issues that are facing us are not that different  
13 than -- than other areas of the globe. And I would suggest  
14 that grid operations could benefit from international  
15 collaborations, such as with -- for example, EDF has a very  
16 forward-looking research program. Same thing in Korea.  
17 Same thing in Japan. And those governmental organizations  
18 behind their research activities are often knocking on our  
19 doors for collaborative opportunities. So maybe that could  
20 be done at a state level.

21 MR. PATTERSON: Something worth considering. Any  
22 more comments or questions or --

1 MR. BLATCHFORD: I do have one more thing.

2 MR. PATTERSON: Okay, Jim.

3 MR. BLATCHFORD: It's Jim Blatchford from the  
4 California ISO. I want to make sure everybody knows that I  
5 really beat up on forecasting. I think it's something that  
6 we really have to do. And then how do you value grid  
7 reliability? Okay. So -- and then, to me that's a  
8 holistic view if you look from forecasting to reliability  
9 throughout all these projects. And I think we have to look  
10 at this with the IOUS and not -- not piecemeal this, look  
11 at end to end of these projects. Now I just want to remind  
12 everyone, we need to do that so that we can see everything,  
13 so we don't have something that starts in bits and pieces.

14 MR. PATTERSON: So coordination from end to end.

15 MR. BLATCHFORD: Right.

16 MR. PATTERSON: Good. Okay. Are we ready to go  
17 to the next question? Do we have another one?

18 MR. SHERICK: No. We can move to the next  
19 question. I've -- I've --

20 MR. PATTERSON: Next question then. What areas  
21 are already covered by DOE and private funding? Because we  
22 want to avoid duplicate research or unnecessary research.

1           MR. SHERICK: Robert Sherick from Southern  
2 California Edison. On this one I think it's very important  
3 not to have duplicative work. But also I think it should  
4 be considered in part of the prioritization process, if  
5 there's opportunities to partner with the DOE and get  
6 funding, like we did the with stimulus package and the ARRA  
7 funds, I think that would be something that should be  
8 considered as part of the criteria for making investments  
9 in the state, that we have some possible federal matching  
10 funds. And we talked about that a little bit this morning.

11           But I think there's certainly the aspect of not  
12 wanting to have duplicative work, but also wanting to -- to  
13 do this collaborative work, just as San Diego is reaching  
14 concerning international opportunities. It's something the  
15 DOE is very interested. We are a very welcome contributor  
16 to a lot of those DOE projects because we are so much  
17 forward thinking in this space. And I think it's a great  
18 opportunity for the state to be able to continue funding  
19 those efforts.

20           MR. PATTERSON: Great. So we should look to  
21 leverage federal funding, and other funding, as well.  
22 Okay.

1           MR. ROCHE: One area that DOE has invested some  
2 funds in the last year is for some areas that were  
3 mentioned, smart charging and meters imbedded in smart  
4 chargers. So DOE has funded four companies to develop  
5 smart charges and reduce the cost by 50 percent.

6           So one area that might be complimentary to the  
7 EPIC program would be to -- to do some demonstration and  
8 deployment to compliment the smart chargers being developed  
9 such as, you know, testing and certifying them in -- in  
10 some pilot networks. So that would be an area that we  
11 could leverage.

12           MR. PATTERSON: Thank you.

13           MR. ROCHE: That's Neal Roche with Grid Test.

14           MR. PATTERSON: Thank you. Okay. Any more, or  
15 are we ready to move on to transmission and distribution?  
16 Okay.

17           Let's move on to transmission and distribution.  
18 As you can see, these are some of the potential  
19 initiatives. They're somewhat familiar. We have smart  
20 grid microgrids, electric vehicles charging grid  
21 integration, storage, renewable integration.

22           And in putting on your transmission and

1 distribution hats, what are the major barriers to  
2 developing and commercializing these from the transmission  
3 and distribution systems' side? Any ideas for smart grid  
4 microgrids?

5 MR. GOODMAN: I'll put on my Bill Torre hat.  
6 Bill has had a lot of work going to look at the impacts of  
7 distributed resources, in particular photovoltaics, which  
8 we're seeing very high penetrations of, and -- and PEV now.

9 So I think there is a need to intensive that work, the  
10 penetrations. We used to speak of don't worry about it  
11 until we get to 25 percent. Well, in some cases we are  
12 seeing high penetrations up to that range now. So it's  
13 time to really intensify the effort on system impacts,  
14 meaning distribution system impacts of distributed  
15 resources in PEV, and what mitigative measures might be  
16 done to -- how to put this -- make everybody's life easier,  
17 both installer and utility.

18 MR. PATTERSON: Good. Okay. Any others? Oh,  
19 Bill Torre.

20 MR. TORRE: Put my own hat on. Bill Torre here  
21 from SDG&E&E. What major barriers? I was thinking about  
22 this. It think that one of the areas that -- that is a

1 barrier right now is -- is the pricing on our commercial  
2 and retail rates for customers. It doesn't take into  
3 account the realtime pricing. And I think with -- with  
4 eventually getting to realtime pricing and the right price  
5 incentives we can better integrate renewables into the  
6 system and make demand response more effective, and the  
7 energy efficiency. So I think that's one of the areas that  
8 I see as a barrier is -- is the -- is a pricing mechanism.  
9 So maybe we could do some research into looking at new  
10 technology that would enable, you know, more -- more  
11 accurate pricing --

12 MR. PATTERSON: Okay.

13 MR. TORRE: -- for customers.

14 MR. PATTERSON: Looking at pricing mechanisms,  
15 realtime pricing being one of them. Okay.

16 What are some other major barriers? Anybody?

17 MR. SHERICK: Robert Sherick from Southern  
18 California Edison. We have a major problem in how we  
19 allocate costs for distribution and transmission upgrades.

20 So essentially it's whoever causes that. And it might be  
21 that you've got six people putting in, say, a renewable  
22 project, and then the seventh person actually triggers an

1 upgrade requirement. And that seventh person is the one  
2 who is going to get allocated those costs. I think we  
3 could do some research, possibly, on new and different ways  
4 to allocate costs for transmission distribution upgrades.

5 MR. PATTERSON: Okay. Thank you. Cost. Any  
6 other barriers, real quick? And then we'll move on.

7 Where should be funding be placed to maximize to  
8 the deployment of these technologies? What should be the  
9 emphasis?

10 Any ideas?

11 MR. BLATCHFORD: Okay. Jim Blatchford,  
12 California ISO. We have deployed throughout the West,  
13 throughout California synchrophasors. We don't have a  
14 standard for the synchrophasors throughout the country and  
15 to put it into the control room. So to develop a standard  
16 we've got very -- a lot of vendors that come in and say we  
17 can do this and we can do that, but there's no interface  
18 and no standard for that. So put some standardization  
19 behind that, starting to do that.

20 MR. PATTERSON: Standardization for  
21 synchrophasors --

22 MR. BLATCHFORD: Yeah.

1 MR. PATTERSON: -- then looking forward.

2 MR. BLATCHFORD: Yeah.

3 MR. PATTERSON: Okay.

4 MR. BLATCHFORD: Well, no, for every -- everybody  
5 around.

6 MR. PATTERSON: For everybody around?

7 MR. BLATCHFORD: So that the same signal comes in  
8 and it's at the same time and everyone sees the same view  
9 of what's going on in the -- in the -- with the  
10 synchrophasors.

11 MR. PATTERSON: Oh. Okay. Bill?

12 MR. TORRE: Hi. Bill Torre, again, from San  
13 Diego. I think what Jim just mentioned triggered a thought  
14 in my mind, too, that's been a barrier, and that is the  
15 issue of cyber security and the cyber security standards,  
16 maintaining cyber security while at the same time allowing  
17 us to implement these new technologies, the smart grid,  
18 particularly synchrophasors, and maybe even using it for  
19 close-loop control, active control on our system. So  
20 that's an area that really needs to get resolved is the  
21 whole issue around NERC standards and maintaining cyber  
22 security. So if there's something we could do in that area

1 of research to help resolve some of the technical issues  
2 related to maintaining cyber security while still allowing  
3 us to fully utilize the capabilities of new technology.

4 MR. PATTERSON: Cyber security issues. Okay.  
5 Thank you.

6 MR. SCHINDLER: Jamie?

7 MR. PATTERSON: Yes? We have one from the web.

8 MR. SCHINDLER: Yeah.

9 MR. CARRIERI: John Carrieri. (Inaudible) has  
10 created a statewide central server system to rebroadcast  
11 realtime pricing from all ISOs.

12 MR. PATTERSON: Okay. Thank you for that  
13 comment. Okay. Here we go.

14 MR. HOLMES: John Holmes, San Diego Gas and  
15 Electric. The synchrophasor network is managed today by  
16 PNNL. And the ability for that data being collected  
17 currently by PNNL to influence decision making in the  
18 algorithm development for large categories of loads, such  
19 as corridors of vast charging equipment for vehicles across  
20 the web, it's an opportunity for us to look at, you know,  
21 statewide, as well as, you know, beyond our -- our state  
22 borders.

1 MR. PATTERSON: Okay. Thank you.

2 MR. LYTE: Yes. Bill Lyte, Protean Energy.

3 There may be opportunities where other state agencies are  
4 implementing programs that yield a tremendous amount of new  
5 electrical generation that the renewable energy or new  
6 technologies could dovetail with. For example, the  
7 electrification of the ports, cold ironing, where it's now  
8 mandatory to hook up the ships to the electrical grid at  
9 most California ports when they come in. So there's this  
10 enormous amount of new electrical infrastructure being put  
11 into the ports. And also tremendous -- tremendous emphasis  
12 on sustainable technologies at those same ports. But I'm  
13 not sure that the renewable energy technologies folks knew  
14 that much about the -- the cold ironing program.

15 MR. PATTERSON: Okay. Good comment. Any more  
16 initiatives?

17 Process. How much time do we have, about 30  
18 minutes?

19 MR. SCHINDLER: 2:30 is the next.

20 MR. PATTERSON: 2:30 is the next one. Okay.

21 Well, we'll go on to the next question. Let's see, I  
22 just -- did we just do question two?

1 MR. STOKES: Yeah.

2 MR. PATTERSON: Okay. So we're on what specific  
3 initiatives then?

4 MR. STOKES: Correct.

5 MR. PATTERSON: Okay. What specific initiatives  
6 are recommended to advance innovative energy technology to  
7 benefit ratepayers?

8 Sorry about losing -- trampling the questions,  
9 your comments are getting me thinking.

10 But what specific initiatives have you got to any  
11 of these that could advance this? Any ideas? Bill?

12 MR. TORRE: I've got a couple of initiatives.  
13 One is the area of energy storage. I think we need to  
14 really look to energy storage as an initiative that might  
15 help us to accommodate more renewable generation. And the  
16 other is volt power control on our system, fast-acting volt  
17 power control.

18 MR. PATTERSON: Okay. Good initiatives. What  
19 other good initiatives? I know you have probably a lot of  
20 ideas. Anybody? Everyone saving them up for comment to  
21 dockets? Okay. Yes?

22 MR. GOODMAN: Yeah. Just one -- I don't know,

1 maybe it's a comment and a question at the same time. But  
2 this is Frank Goodman with San Diego Gas and Electric. I  
3 was sitting there contemplating why distributed energy  
4 resources aren't in the potential initiatives. It would  
5 seem that in D&D realm, even though we talked about them  
6 under generation this morning, there's so many issues  
7 around integrating distribution generation. And some of  
8 the same things Bill said about storage would apply to  
9 distributed generation, as well, and having initiatives  
10 around making sure it's assimilated into the distribution  
11 system in a way that is beneficial and there's no  
12 deleterious effects.

13 MR. PATTERSON: Good. That's why we have others  
14 up there.

15 MR. GOODMAN: Oh, there you go.

16 MR. PATTERSON: Yeah. If you have ideas of  
17 things that are not up there that should be up there we do  
18 want to hear about them. And put them in the comment, too,  
19 if you like and submit them to dockets. We will consider  
20 that.

21 MR. COLBURN: Mike Colburn from San Diego. One  
22 of the concerns that the early adopting of EV community has

1 is what is my cost of charging going to be going forward?  
2 A common price point we see, at least in San Diego, is a  
3 \$1.00 an hour, regardless of a demand, \$1.00 a hour. So  
4 it's simple. It probably makes sense at 1:00 or 2:00 in  
5 the afternoon in the middle of August. It doesn't make a  
6 lot of sense at 1:00 or 2:00 in the morning.

7           So some way to -- and this needs to be  
8 standardized -- bill-to-your-home electric account,  
9 regardless of where you are charging your vehicle in the  
10 state. Give customers more price certainty.

11           MR. PATTERSON: More price certainty for electric  
12 vehicles.

13           Any other initiatives? Anything out there on the  
14 web? Okay. So basically there are no other initiatives  
15 for transmission and distribution that we would like to  
16 see?

17           Then we'll go on to question four -- four:  
18 Define the ratepayer need for which EPIC investment should  
19 be targeted. Any ideas? Comments?

20           MR. ROCHE: Hi. Neal Roche from Gridtest. The  
21 ratepayer need is -- kind of another way of stating the  
22 comment that we just had -- the ratepayer need from an EV

1 driver point of view is I always want to charge at the  
2 lowest price. So I want pricing signals to go to my car or  
3 my charging station so I know when to charge. That's the  
4 biggest, I think, ratepayer behavior, you know, we can  
5 influence, by giving them price signals.

6 MR. PATTERSON: Good idea. You know, it's more  
7 than that, actually. It's also pricing signals. Gasoline  
8 went up 6 cents in the last 24 hours here in Los Angeles.  
9 I've never seen that before. Okay.

10 What other ratepayer needs would you like to  
11 comment on?

12 MR. MINNICUCCI: With respect to T&D -- I'm  
13 sorry, John Minnicucci from Southern California Edison.  
14 With respect to T&D, I think in the area of transmission  
15 and distribution it's -- it's really looking at safety,  
16 reliability, and affordability. Those are the things that  
17 I think we ought to target in -- in this specific area.  
18 And the way to really target those things is, you know, how  
19 do you integrate all of the different types of systems that  
20 are going to be, you know, connecting with the system, and  
21 that includes electric vehicles, all forms of generation,  
22 you know, whatever types of markets might, you know, evolve

1 out of these -- these different interconnections.

2           And, frankly, it's -- it's -- it's a key --  
3 it's -- I guess this is kind of the nexus of, you know,  
4 what we're trying to do with state policy, and then also  
5 what we're trying to do with -- with the grid. There's a  
6 bit of a disconnect in that, you know, state policy is way  
7 ahead and the grid is trying to catch up. It's going to  
8 take investment. It's going to take a lot of different  
9 things.

10           So I really think safety, reliability, and  
11 affordable are the things you've got to look at.

12           MR. PATTERSON: So safety, reliability, and  
13 affordability are the -- are the ratepayer needs that  
14 you've identified. All right.

15           MR. WASHOM: Sorry I'm late. Byron Washom from  
16 U.C. San Diego. On -- on this particular point I think  
17 there's going to be a need for equitably identifying the  
18 cost for increased penetration of photovoltaics and DER,  
19 and how do you equitably distribute that between  
20 beneficiary ratepayer versus the base. So I think on that  
21 -- on that it's going to be complex and we'll need a lot of  
22 stuff.

1 MR. PATTERSON: Well, thank you. Okay.

2 Anybody else have any comments on ratepayer need?

3 Come on up.

4 MR. WALLACE: Joe Wallace, Coachella Valley  
5 Innovation Hub. Have any of you ever seen a 24-hour time  
6 lapse of the rate change for electrical? Chairman of the  
7 FERC gave a presentation in Palm Springs in February. And  
8 in a 24-hour period -- and he was doing this for most of  
9 the Midwest -- the rate for electric went from zero in the  
10 middle of the night to a little over \$1.00 at the peak in  
11 the middle of the hot July day. People around the grid,  
12 ratepayers, don't know that exists. They don't know it's  
13 there.

14 Why wouldn't there be some mechanism to take  
15 advantage of the fact that I'm going to cool my  
16 refrigerator down at two o'clock in the morning and run my  
17 fuel pumps when -- when it's readily available for two  
18 cents a kilowatt hour because the utility can buy it for  
19 one. It doesn't exist, and it doesn't exist anywhere. The  
20 airline industry does it. I fly at midnight, I pay less.  
21 Why doesn't it happen at -- at our -- our electric meters.

22 MR. PATTERSON: Good observation. All right.

1 Frank.

2 MR. GOODMAN: Yeah, the last few comments are  
3 kind of headed in this direction, and maybe it could be  
4 generalized that the -- the ratepayer, we -- we -- so far  
5 when this question has come up in other areas we've talked  
6 about how the projects might flow through to the ratepayer.

7 But direct information to the ratepayer is something that  
8 is a need in its own right, and that is to help a ratepayer  
9 with tools that they can make decision on whether or not to  
10 buy a distribution generator or an energy efficiency  
11 measure, storage, etcetera. And a lot of ratepayers who  
12 are buying their own stuff and trying to make themselves as  
13 independent of utilities as they can are actually, in some  
14 cases, increasing their price of electricity and they don't  
15 even know it.

16 So tools and knowledge to help ratepayers make  
17 informed decisions before they rush down to Home Department  
18 and -- and buy something that they think is going to save  
19 them money, but they don't have all their facts right.

20 MR. PATTERSON: Good comment. Any others on this  
21 area?

22 DR. BUNJE: Thank you. Paul Bunje, UCLA. Two

1 other elements of ratepayer need that I think we should not  
2 forget here, number one is equity issues associated with  
3 investments in these -- in these other elements to ensure  
4 that you have both -- both good security, as well as access  
5 to novel technologies and such in an equitable manner for  
6 California.

7           Secondly, and not in a related way, we should  
8 consider the investment elements of T&D that will result in  
9 incentivizing some of the technologies and economic benefit  
10 strategies that exist in other parts of the EPIC -- the  
11 EPIC strategy. And those two things I think should be  
12 considered through a part of the ratepayer need definition.

13           MR. PATTERSON: Thank you. Okay. Are we -- do  
14 we have any more comments about identifying ratepayer  
15 needs?

16           If not, we'll move on to the next question, which  
17 is question five, to prioritize initiatives and identify  
18 the benefits in transmission and distribution, what  
19 basically should be done first, and identify the benefits  
20 that should be measured such as energy and cost saving,  
21 grid reliability, job creation, economic benefits, as you  
22 see before you.

1           Any comments on this?

2           MR. SHERICK: I think -- I think we capture this  
3 in energy cost savings. But one area I think that's  
4 important as we go forward is that there's a lot of  
5 emerging technologies, like synchrophasor, that we talked  
6 about that are being put onto the grid for monitoring  
7 purposes. But as Bill Torre mentioned, there's  
8 opportunities for possibly closed circuit control, being  
9 able to use those synchrophasors in a new and different  
10 way. So right now we've got quite a few special protection  
11 schemes on our system, an opportunity to maybe revisit  
12 those and whether or not those are optimized, and take a  
13 look at how synchrophasor data could feed into those  
14 systems to make them better than they are right now.  
15 Robert Sherick.

16           MR. PATTERSON: Okay. Yes, come on up.

17           MR. LYTE: Bill Lyte on -- Protean Energy. On  
18 the subject of economic benefits, I've spent 25 years with  
19 major consulting engineering firms. And you learn to watch  
20 the big capital projects, highways, water, etcetera. When  
21 that money is being spent, that's the time to deploy the  
22 new technologies if you can get the engineering firms to

1 spec them.

2           And I think that one way to -- to jet stream the  
3 entire renewable energy industry in California is to show  
4 them where the money is going to be spent. The cold  
5 ironing at ports was one idea. The tunnel under the delta  
6 is going to be another huge pumping. So, you know, you  
7 just -- you -- you go to them and you say bring us your  
8 technologies that will work with this project.

9           MR. PATTERSON: Okay. Any other ideas on what  
10 initiatives should be prioritized here first to meet the  
11 goals of 2020 and beyond?

12           MR. GOODMAN: Yeah. When we visited the Southern  
13 Cal Lab reasonably -- this is monetary -- our tour guide,  
14 if you will, mentioned that they are going to be  
15 implementing 61850. This is the substation 61850 that IEC  
16 produced, not the other piece of 61850 I was talking about  
17 this morning. And I think it's an industry need because  
18 right now the DNP3 is the legacy information system that is  
19 used. And it also came out of IEC and has an IEC number.  
20 But 61850 is a more robust smart-grid oriented alternative  
21 that has engineering tools built into it.

22           So all of the utilities, not only California but

1 elsewhere, are struggling with should I change from DNP3 to  
2 61850, but I've got a big investment in DNP3 and -- and I  
3 don't want to waste an investment and just throw it away.  
4 So is there a rational migration process where maybe I  
5 start turnkeying new substations that are 61850, and  
6 eventually transition the others over?

7           So I think this is an area where a lot of good  
8 work could be done to -- to help the whole industry, the  
9 whole IOU industry in California, understand the pros and  
10 cons of moving to -- to 61850 from DNP3, and what is an  
11 orderly rational process for doing it if you want to take a  
12 look and say, no, in five years I still need to be on DNP3.  
13       But in 20 years I probably should be on -- moving to  
14 61850, or something of that nature.

15           MR. HOLMES: Frank, could you cover that from an  
16 international perspective?

17           MR. GOODMAN: Yeah. Thank you. John has  
18 suggested that I mention that DNP3 is well ingrained in  
19 North America, meaning U.S. utilities. It's not as well  
20 ingrained elsewhere in the world. And in some of the South  
21 American countries, for example, where there's a green  
22 field situation, they're just moving right to 61850. And

1 the big vendors like ABB or Siemens, they are now offering  
2 dual platforms where it could -- a substation could be  
3 operated on either -- either one to help you with the  
4 migration process. So the U.S. and North America, in  
5 general, may end up being the slowest to move to 61850,  
6 just because we're the ones that have this big legacy  
7 investment.

8 MR. PATTERSON: Okay. So one of the initiatives  
9 you'd like to see prioritized is the migration from DNP3 to  
10 IEC 61850. Okay. Good. Any other initiatives people  
11 have?

12 If not, then we'll go to question six. What  
13 areas are already well covered by DOE and private funding?

14 Any thoughts in the areas of these initiatives that you've  
15 heard, plus the additional ones, like distributed  
16 generation of a product in the other category?

17 John Minnicucci.

18 MR. MINNICUCCI: I just have more of a cautionary  
19 comment. If you look at the DOE and you look at their  
20 broad based research programs you'll see that they have  
21 initiatives that are very similar to the initiatives we  
22 have here on the board. And, frankly, they're similar to

1 the initiatives that we pursue in the utilities. But at  
2 the end of the day it comes down to the actual projects.  
3 And, you know, initiatives are going to be similar. There  
4 are  
5 going -- there are going to be pieces that the DOE might  
6 focus on that -- that we won't focus on.

7           And, you know, we've got some rather large ARRA  
8 projects that are ongoing right now. And they touch into  
9 some of these -- these initiatives, but there's -- there's  
10 -- plenty of room is left. And I would caution against  
11 looking at one initiative against another initiative and  
12 saying, well, they're already doing that, because it's  
13 just -- it's not the case. There's plenty of room to do  
14 more.

15           MR. PATTERSON: Well, thank you. Yeah,  
16 cautionary comments are welcome under here.

17           MR. TORRE: Yeah. Bill Torre again from San  
18 Diego Gas and Electric. Along the same lines, I think  
19 there's a lot of room for collaboration with the DOE and  
20 other federal agencies where the CEC compliment the work  
21 and maybe cross-share with some of these agencies.

22           MR. PATTERSON: Okay. Frank?

1           MR. GOODMAN: Frank Goodman. And as long as  
2 we're in the cautionary realm I want to do my two cents  
3 indeed, two things. One is the people at DOE and  
4 elsewhere, they draw upon the same intelligence pool for  
5 input. So it's not surprising that you'll start seeing  
6 some of the same ideas floating around in each different  
7 organization's programs, the DOE, CEC and elsewhere. So  
8 indeed, we have to watch that.

9           But the implementation, that's the other caution,  
10 what they focus in on, if you -- if you say let's -- let's  
11 see you do some work on interoperability standards, well,  
12 they may focus in on one aspect of that. Or if it's --  
13 what was the last one we were on there, architecture this  
14 morning, they may focus on some specific aspect of  
15 architecture. So the danger is not to say the DOE has  
16 covered that. We don't need to do anything. There may be  
17 some piece of it that DOE is focused in on, but a lot of  
18 other things that need to be done in that same area yet.

19           MR. PATTERSON: Okay. So we're getting a little  
20 tight on time. So I think I can sum up real quickly the  
21 comments.

22           Oh, Byron?

1           MR. WASHOM: Byron Washom, U.C. San Diego. Two  
2 comments. One is under the potential initiatives I think  
3 cyber security needs to be pulled out as an individual item,  
4 if it hasn't already been mentioned. And as a cautionary  
5 note, that is definitely an area that is underserved by  
6 both DOE and the private sector. So that's probably the  
7 hungriest of them all.

8           MR. PATTERSON: Okay. Thank you. Well, now, I  
9 think I've heard -- many of your comments, I would like to  
10 quickly summarize them as we need, as administrators going  
11 forward, we need to really look hard at DOE and see how we  
12 can leverage their money that they are funding, because  
13 they are funding money into these areas, and ensure that we  
14 don't do duplicative research, but to do complimentary  
15 research. Okay.

16           Are we ready to move to the electric vehicles?  
17 Okay. Let's move to electric vehicles. Okay. Electric  
18 vehicles. Now, looking at electric vehicles we have our  
19 potential initiatives. Electric vehicles, we have the  
20 smart grid, microgrids; How does electric vehicle fit in  
21 with that? electric vehicle charging and grid integration.  
22 We have vehicle efficiency and battery reuse. Okay. So

1 battery for storage, which is the next thing down there,  
2 ancillary services, how electric vehicles can be used to  
3 supply those services on the grid such as B2G. We have  
4 grid monitoring control and analysis, with the idea being  
5 of doing that to support electric vehicle integration,  
6 smart charging we mentioned earlier.

7 We have HANs. Frank? Well, okay, I don't know  
8 if he said HANs and or --

9 MR. HOLMES: Customer program networks.

10 MR. PATTERSON: Customer program networks. Okay.

11 Thank you. HANs and CPNs. And any others, such as  
12 distributed gen, which has been brought up, and cyber  
13 security has been brought up as two additional areas of  
14 initiatives.

15 So what are the major barriers to developing and  
16 commercializing clean energy technologies for electric  
17 vehicles among these initiatives? Okay.

18 MR. HOLMES: So I could stand up here the rest of  
19 the day and talk about the barriers, but I'll and summarize  
20 a very short list here for us to be able to focus on in the  
21 future.

22 Standards are clearly one of the things that are

1 more appropriate to -- to focus on with respect to  
2 technology barriers. Because without standards there's --  
3 it's the Wild-Wild West and we don't have anything  
4 predictable to be able to design to work.

5           So with that in mind, a couple of areas of focus,  
6 specifically in standards, are the, you know, utility  
7 interface to vehicle chargers, and by proxy, to the  
8 vehicles themselves, eventually potentiating vehicle to  
9 grid. And so those are standards that are actively under  
10 development through AST on the list, as well as SAE.

11           And so the ability for us to look at research  
12 activities to support electric vehicle integration  
13 operations with the grid, and specifically infrastructure  
14 associated with charging, is -- is seen both as -- as a  
15 barrier from the standpoint that standardizations --  
16 standards are not completely in place today, but also as an  
17 opportunity in terms of being able to look at the -- the,  
18 for example, the renewable portfolio standard and the  
19 ability to integrate vehicle operations and charging with  
20 involving integration of renewables. So that's a very  
21 important component that often those two areas or dots  
22 don't get connected.

1           So that's an important focus that we're working  
2 on right now with U.C. San Diego, specifically in the area  
3 of separate use of batteries. We have two active research  
4 products, one with CEC, and a second with NREL, and a third  
5 under development right now with a systems integrator in  
6 Detroit who facilitate module standardization.

7           So I would also suggest that there's an important  
8 aspect of demand charges associated with vehicle charging,  
9 that we have to contemplate solutions toward -- with  
10 respect to rates. Demand charges affect every commercial  
11 area. And in some cases there's a lessening of the burden  
12 of demand charges by locating charging equipment at places  
13 of high load. And in some cases there's an impenetrable  
14 hurdle because the demand charges make charging an  
15 impossible proposition for a business to begin operations.

16         So those are two areas I think that are really important  
17 for us to look at in terms of barriers.

18           MR. PATTERSON: Thank you. And for all those  
19 barriers that you left out, I'll be reading a comment that  
20 you're going to submit to dockets, if you decide to do so.

21         Okay.

22           What other barriers are there? Bill?

1           MR. TORRE: Bill Torre from San Diego Gas and  
2 Electric Company. As an EV owner one of the most  
3 frustrating things is availability of public charging  
4 stations. If there's something we can do on the  
5 technologies side to make public charging more affordable  
6 and more readily available on major freeways, maybe a study  
7 looking at -- at where optimum location of charging  
8 stations could be would be a good one, possibly maybe  
9 covered with -- coupled with energy storage, perhaps, and  
10 maybe renewables in a way we could couple the renewables to  
11 the energy -- to energy storage and electric vehicles and,  
12 you know, looking at the benefits in terms of reducing  
13 greenhouse gasses. Thank you.

14           MR. PATTERSON: Great. Okay. We have more.  
15 Byron?

16           MR. WASHOM: Byron Washom from U.C. San Diego.  
17 From -- from -- from a market penetrations point of view  
18 and sustained commercialization I would say for research  
19 purposes, penetrating a multi-unit development, housing  
20 development is the toughest nut to crack and the one that  
21 requires the greatest amount of research. Thank you.

22           MR. PATTERSON: Thank you.

1           MR. MCLAUGHLIN: Larry McLaughlin, College of the  
2 Desert. Recognizing that we have a workforce development  
3 session tomorrow I'll just say that we need to make sure  
4 that we have trained technicians who can service these  
5 vehicles from Sears to Pep Boys to Joe's Mechanic Shop on  
6 the corner as the vehicles that are currently covered under  
7 warranties come out of warranty and these repairs are  
8 taking place in the aftermarket retail automotive service  
9 industry. You have to trained technicians out there. The  
10 OEMS, the original equipment manufacturers, are currently  
11 taking care of that skilled training right now, but the  
12 rest of the industry is going to have to have it in order  
13 to remove that barrier.

14           And we also need to be mindful of what skills  
15 electricians are going to need to have in terms of  
16 installing the charging systems.

17           MR. PATTERSON: Good observations. Any other  
18 barriers? Okay. Anything out there on the web? Okay.

19           I'll quickly go on to any specific -- where  
20 should funding be placed to maximize the deployment of  
21 this? Where do we want to put our funding? Any comments?  
22 Okay.

1           Let's move on to three. What specific  
2 initiatives? We've sort of been mixing that up with  
3 barrier -- but what are the specific initiatives? Any  
4 additional ones you can think of? Any web ideas from folks  
5 out there on WebEx? No? Okay.

6           Define the ratepayer need for which EPIC --

7           MR. HOLMES: Would you --

8           MR. PATTERSON: I have one.

9           MR. HOLMES: John from SDG&E again. We have been  
10 successful in a proposal that's been awarded to Qualcomm  
11 for wireless charging, not the inductive charging that  
12 you've seen in the past with the first release of the EV-1,  
13 but imbedded inductive loops in the ground or on a pad.  
14 And so the activities around demonstrating that technology  
15 are underway currently in London, will be underway in San  
16 Diego in the project that we have. So there will be  
17 additional opportunities for us to look at expanding the  
18 role of wireless charging in, for example, multi-unit  
19 dwelling facilities, as well as public -- public  
20 installations.

21           We're stifled somewhat in that we as a utility  
22 cannot own and operate those charging infrastructures, as -

1 - as an IOU. But we are working together with industry to  
2 advance that.

3 MR. PATTERSON: Okay. Well, thank you. Yes?  
4 Would you come around here?

5 MR. COLBURN: Absolutely.

6 MR. PATTERSON: So that way we can make sure that  
7 you're picked up --

8 MR. COLBURN: Thank you.

9 MR. PATTERSON: -- on the recording.

10 MR. COLBURN: Mike Colburn from San Diego Gas and  
11 Electric. One of the main interest areas for electric  
12 vehicle early adopters is being able to -- and utility  
13 companies, is the ability to manage the load on the  
14 infrastructure, primarily the distribution transformer,  
15 which I believe has been identified as a bottleneck when it  
16 comes to electric vehicle charging. You need some kind of  
17 a closed-loop control that will allow the utility to  
18 modulate the charge rate as a function of available  
19 capacity.

20 The other issue, the older urban areas where  
21 electric vehicles may be proliferating are often served at  
22 lower distribution voltages. And one other opportunity

1 would be to more thoroughly incentivize utilities to do  
2 cut-overs from those 4 and 5 KV systems to at least a 12 KV  
3 system. It would be more -- much more capable.

4 MR. PATTERSON: Okay. Thank you. Okay.  
5 Initiatives; I think we're -- we're really short on time  
6 here. So let's try and wrap this up.

7 MR. ROCHE: Okay. So a specific initiative  
8 around electric vehicles would be a system to test and  
9 certify the electric vehicle chargers in California in  
10 order to support the metering, something that the PUC has  
11 asked for. So there's no way to test and certify these  
12 chargers today.

13 MR. PATTERSON: Okay. Thank you. Thank you.  
14 Okay. Are we ready to kind of get through these last three  
15 questions real fast? Good.

16 Let's define ratepayer need for which EPIC  
17 investments should be targeted? Any ideas, or do we want  
18 to move on? Okay.

19 Prioritize initiatives. Identify the benefits  
20 that should be anticipated and measured, such as energy and  
21 cost savings, and those other things that are up there.  
22 Any ideas? Anything anybody wants to identify and tell

1 everyone? Okay. Nothing on the web?

2 In that case let's go to what areas are already  
3 well covered by DOE and private funding? Okay.

4 We'll be monitoring those. I think I've --

5 MR. HOLMES: I'd come back to question five and  
6 comment.

7 MR. PATTERSON: Okay. Come on up here and let's  
8 get you on record here.

9 MR. HOLMES: I think the comment I would offer  
10 pertaining to environmental benefits in question five here  
11 relates to quantifying how it is that we would displace the  
12 liquid fuel content in the goal toward vehicle  
13 electrification. One of the things that's not well  
14 understood is how the different types of charging, whether  
15 that be AC charging or DC charging, what the source of that  
16 power to charge those vehicles is, is not well understood.

17 Because in this evolving market we're looking, for  
18 example, at -- at solar charging facilities that would  
19 dramatically change that equation.

20 MR. PATTERSON: Okay. So you're looking like  
21 level one, level two versus DC charging research now?

22 MR. HOLMES: DC charging.

1 MR. PATTERSON: DC charging research. Okay.

2 That's good.

3 Any other -- I guess we have one from the web.

4 MR. FORTUNE: Yeah. Hi. This is Jon Fortune  
5 from Sunmerge. I would like to echo what John Holmes  
6 stated as much. I think solar charging stations across a  
7 specific pathway up California could be beneficial to EV  
8 and that whole integration of all those assets would be  
9 good.

10 MR. PATTERSON: Okay. Good. Thank you. Frank?

11 MR. GOODMAN: Thanks. Yeah. I think just to  
12 expand a little on John Holmes comment about looking at  
13 where the power comes from, I think environmental issues  
14 are ripe for more work on electric vehicles. And we talked  
15 about cradle-to-grave studies at the workshop a week ago.  
16 And I think in electric vehicles they are particularly  
17 germane as to what happens to the batteries, spent  
18 batteries, and the whole life-cycle issues associated with  
19 electric vehicles, including the power generation to charge  
20 the batteries.

21 MR. PATTERSON: Okay. Yeah. We have battery  
22 reuse up there.

1           MR. STOKES: Well, I think, Frank, are you  
2 talking about recycling or what we do with these batteries  
3 or --

4           MR. GOODMAN: Cradle-to-grave.

5           MR. PATTERSON: Here, why don't you --

6           MR. GOODMAN: However many uses they have --

7           MR. STOKES: Yeah.

8           MR. GOODMAN: -- where do they end up, and factor  
9 in all the costs over the life cycle.

10          MR. STOKES: And maybe you could speak to what  
11 needs to be done in recycling for EV batteries or types of  
12 studies that might -- we might do under EPIC?

13          MR. GOODMAN: Well, I'm not an electric vehicle  
14 specialist. So I would defer to anyone else in the room  
15 who wants to comment on that. I was just saying whatever  
16 the solutions proposed are, look at a cradle-to-grave cost  
17 analysis, including an environmental cost on electrical --  
18 electric vehicles.

19          MR. PATTERSON: Okay. We're running a little  
20 late so --

21          DR. BUNJE: I'll speak as fastly as I can.  
22 Fastly; that's not a word.

1           I was going to echo what Frank said, actually,  
2 but I don't see any approaches to this, in particular  
3 looking  
4 at -- at the actual --

5           MR. PATTERSON: Come over here.

6           DR. BUNJE: Sorry. Paul -- Paul Bunje -- sorry -  
7 - UCLA.

8           With respect to the actual materials and  
9 recycling and incentivizing creative ways of re-utilizing  
10 batteries, as it were, but also integrating that battery  
11 technology development to think about the actual -- actual  
12 cradle-to-grave life cycle.

13           In addition, the -- the entire life cycle of the  
14 transportation sector as it pertains to electric vehicles,  
15 as there's a lot of overlapping intention -- overlapping  
16 programs to try and combine EVs and other types of  
17 transportation sector elements with transit and other  
18 elements, and that should be incorporated here, as well, as  
19 you're measuring things like GHG benefits and other energy  
20 benefits. Thanks.

21           MR. PATTERSON: Hit mute?

22           MR. SCHINDLER: Yeah. Go ahead.

1 MR. PATTERSON: Oh. Go ahead. Is somebody --

2 MS. DELMAS: Oh, is this me?

3 MR. PATTERSON: Yes.

4 MS. DELMAS: Yes. Hi. I'm Magali Delmas from  
5 UCLA. I'm a professor at the Institute of the Environment.

6 I also -- I just would also emphasize the need to have a  
7 life-cycle assessment of electric vehicles. We did  
8 actually conduct one analysis of the current impact of  
9 electric vehicles on -- on the environment. And some of  
10 them mentioned, of course, a lower impact than hybrids or  
11 conventional vehicles.

12 However, I think what is also required are  
13 studies that would look at the essential impact of such  
14 vehicles, considering the changing infrastructure that  
15 would be required to accommodate for all these vehicles.  
16 Let's say, you know, everybody has now an electric  
17 vehicles, we need to increase the, you know, the energy  
18 providing these cars in power plants maybe or, you know,  
19 in renewable energy.

20 So how this life cycle exceptionally would change  
21 once everybody has -- has an electric vehicles, so I was  
22 just emphasizing kind of long term type of -- you know, not

1 just looking at the current impact right now?

2 MR. PATTERSON: Okay. And could you please say  
3 your name again?

4 MS. DELMAS: My name is Magali Delmas. It's  
5 M-a-g-a-l-I D-e-m-l-a-s. I'm a professor at UCLA.

6 MR. PATTERSON: Thank you very much.

7 MS. DELMAS: Thank you.

8 MR. PATTERSON: Okay. So we covered all of the  
9 questions. Anybody have any more comments or anything that  
10 they wanted to add? If not, then next slide please. I  
11 think this is it.

12 I look forward to -- I'd like to remind everybody  
13 that if you have additional comments please --

14 MS. TEN HOPE: No. Go to the slides. If you --  
15 go to the next one --

16 MR. PATTERSON: Right.

17 MS. TEN HOPE: -- and just open it up to all  
18 questions on market and facilitation, and then we'll move.

19 MR. PATTERSON: Okay.

20 MS. TEN HOPE: So just see if there are any  
21 closing comments, if we could just -- if --

22 MR. PATTERSON: Okay. We have our market

1 facilitation plan where we talk a little bit about what  
2 we'll -- there will be a further discussion tomorrow, of  
3 course, but we have workforce development. We talked a  
4 little bit about that today in some of your earlier  
5 comments. We have innovation clusters. And I guess we  
6 could go through the questions real quick from one to six.  
7 So I'd like to open it up to any questions out there.

8 MS. TEN HOPE: I'm just trying to give everybody  
9 an opportunity to respond to this section but not go one by  
10 one. So if you have an urgent comment on market  
11 facilitation we'll take it now and then move it to the next  
12 session.

13 MR. PATTERSON: Anybody on any of the six  
14 questions that you see up there? Okay.

15 Then let's move on. I'd like to remind everybody  
16 about the -- so if you think of things that you would like  
17 to say but you haven't had a chance to say, or if you have  
18 anything that you would like to elaborate on and provide  
19 greater levels of detail, then please send them by email to  
20 the docket. Include that docket number 12-EPIC-01 on the  
21 subject line. And it's docket, just d-o-c-k-e-t, at  
22 energy.ca.gov.

1 MS. TEN HOPE: Thank you, Jamie. And I really  
2 appreciate everyone's active participation in -- in this  
3 session. And sorry to have to move along, but we don't  
4 want to shortchange energy efficiency. I know it's been a  
5 long afternoon. If you want to stretch in place while Beth  
6 comes up, just stand up, you know, say hello to your  
7 neighbor and then -- but we'll kind of stay in the room so  
8 we can -- can move to the next session, the -- the final  
9 facilitated discussion this afternoon.

10 MS. CHAMBERS: Bend and stretch. We saved the  
11 best for last.

12 MS. TEN HOPE: All right. So our last section,  
13 facilitated section is on energy efficiency and demand  
14 response. We're losing part of our audience. But I hope  
15 those of you who are staying are enthusiasts of energy  
16 efficiency, top of our loading order. And I'd like to  
17 introduce Beth Chambers who will facilitate this  
18 discussion.

19 MS. CHAMBERS: Good afternoon. I'm glad to see  
20 that you're all still awake, at least I hope you are. So  
21 like I said, I think maybe -- I hope we saved the best for  
22 last. So put on your thinking caps. A lot of the same

1 questions -- I mean, the questions are exactly the same  
2 but, of course, the topics are different. So we're going  
3 to be looking at efficient and demand-side management.

4 I'm going to try to do what Jamie did. But I  
5 think just for a little bit of explanation, what we're  
6 trying to do is capture your voice here and here or here  
7 for our court reporter, and also on the conference phone,  
8 so that our friends on WebEx can hear everything. So the  
9 challenge is not to trip.

10 MR. PATTERSON: Do you want me to help you?

11 MS. CHAMBERS: Perhaps. So we'll start there and  
12 see what happens. All right. Oh, yeah, see?

13 MR. PATTERSON: Anyways --

14 MS. CHAMBERS: That will work. Why thank you,  
15 kind sir. Okay.

16 So let's look at our energy efficiency management  
17 goal. At the top of our list on every single session has  
18 been to provide IOU ratepayer benefits. And how we go  
19 about doing this -- I can hold this up --

20 MR. PATTERSON: I got it.

21 MS. CHAMBERS: -- you got it -- okay -- reduce  
22 costs of energy efficiency and demand-side technologies,

1 advance science and technology, help technologies overcome  
2 valleys of death, reduce both electricity use and demand  
3 cost-effectively, advance building and appliance energy  
4 efficiency standards, reduce indoor air quality and -- and  
5 compliment and leverage other public and private funding  
6 sources.

7           Some of our key policy drivers are our energy  
8 policy report, or IPR, where we want to increase energy  
9 efficiency, reduce greenhouse emissions, support for energy  
10 efficiency standards in zero-net energy buildings. Also  
11 our California Energy Efficiency Plan where we want to  
12 achieve zero-net energy buildings, and also efficiency in  
13 the industrial and agricultural sectors. Our California  
14 public resources code speaks to indoor air pollution and  
15 air quality.

16           Some of our other policy drivers that we were  
17 looking at are the Energy Action Plan, which discusses  
18 energy efficiency as being first in the loading order,  
19 which Laurie alluded to, and also our AB 32.

20           This is very uncomfortable.

21           MR. PATTERSON: No. Not at all.

22           MS. CHAMBERS: But if you think it's okay, all

1 right.

2 MS. TEN HOPE: Beth, you can go up to the -- and  
3 put it up at the podium and then you -- and put that right  
4 down on the podium.

5 (Colloquy Between Ms. Chambers and Ms. ten Hope)

6 MS. CHAMBERS: We'll get all the kinks worked  
7 out. Okay. So these are the questions, the same questions  
8 we've been looking at. And here are our lists of  
9 potential, and I think that's the operative word, energy  
10 efficiency demand-side management and investment topics,  
11 building use energy and efficiency zero-net energy  
12 buildings, industrial ag and water energy efficiency,  
13 demand respond, demand-side storage, environmental and  
14 public impacts, and market facilitation. And I think the  
15 key word is others. What have we not captured?

16 Is there anything else you would like to add to  
17 this? You can speak up now or add in a comment going  
18 forward. We'll look at each section, each topic area.  
19 Okay. Look at each topic question and respond to the  
20 questions as quickly as we can. Okay.

21 So looking at building end-use energy efficiency,  
22 we have identified some of those initiatives as lighting,

1 HVAC and refrigeration, flood loads, consumer electronics  
2 and appliances, building envelopes, demand response and  
3 energy storage, and consumer behavior, have we captured all  
4 of the initiatives that perhaps should be under this  
5 particular topic area? So you can comment now? Yes? Of  
6 course, now this -- you'll have to come up here.

7 MR. WASHOM: I'll come to you.

8 MS. CHAMBERS: Good idea.

9 MR. WASHOM: Okay.

10 MS. CHAMBERS: Thanks, Byron.

11 MR. WASHOM: Byron Washom from UC San Diego. I  
12 don't know where this fits. But as a campus and a large  
13 industrial consumer of electricity we would love to be able  
14 to participate as a load center, rather than just  
15 responding and during demand responses, we would love to be  
16 able to acquire surplus energy off the grid before it's  
17 sold at a negative price to Arizona. I don't know where  
18 that fits, but we have the ability to be able to be able to  
19 sync.

20 MS. CHAMBERS: Thank you, Byron.

21 Any other comments in the initiatives area?

22 Well, we're going to start right at number one.

1 What do you consider the major barriers and commercializing  
2 building and efficiency under any of these initiative  
3 areas? Come on, friends.

4 MR. SCHINDLER: You got one.

5 MS. CHAMBERS: I got one on the line. Okay.

6 MR. SCHINDLER: Well, we have to go on.

7 MS. CHAMBERS: You have to read it?

8 MR. HORNQUIST: Yeah. Edwin Hornquist, and  
9 H-o-r-n-q-u-I-s-t. So kind of down to a few barriers that  
10 I -- that we were looking at here that are -- sort of seem  
11 to be -- I manage an emerging technologies program for  
12 Southern California Edison. So -- so we run -- you know,  
13 we come across these a lot. And we try to address or at  
14 least identify these -- the barriers when we're going  
15 through technology evaluations or assessments.

16 So one key one is -- is the cost, of course, of  
17 any new technology coming out of research. So the cost of  
18 consumers to adapt that technology. We always run also  
19 with issues of persistence of savings. So we -- we --  
20 there's a lot of activity in the area of where are  
21 technologies are intended to address some behavioral or  
22 some issues with billing operations, but it's not

1 addressing some of the persistence issues with how to  
2 ensure that those savings are not there just for a short  
3 period of time.

4           The evalu-ability of those technologies is  
5 another key barrier. The -- another barrier is -- is that  
6 when a technology is coming out of research is -- is it --  
7 is there proper interest from potential investors that are  
8 going to take these technologies and commercialize them and  
9 bring them to the utilities, in particular in a form that  
10 we can actually do something with. The other -- so that's  
11 one -- one of the investor challenges.

12           The -- the other barrier that many technologies  
13 face are the market adopters or the consumers knowledge of  
14 the technology and their ability to dedicate any time to  
15 that, to what we call the research. There's a search cost  
16 or a search or understanding of the technology.

17           The other one it's -- it's consumer access to  
18 technologies, how to -- you know, because the consumers  
19 actually have readily accessible technologies that -- and  
20 it kind of ties in with the prior barrier that I talked  
21 about. Then the enforcement. There's also, further down  
22 the line is the enforceability when these technologies are

1 brought to market. And a lot of times they're quite  
2 complicated. And if they ever make it to kind of a code or  
3 they're going to be used as part of a compliance code on a  
4 new construction type project, can -- can they be enforced  
5 easily by the entities charged with that?

6           And I guess I'll mention one last one which are -  
7 - this is a typical issue of -- of how to reach certain  
8 markets, like the small and medium market, business market,  
9 the SMBs, what we call SMBs, how to reach that -- those  
10 markets. There's -- the tenant-owner relationships is a  
11 huge barrier for adopting overall energy efficiency, but  
12 even more so for any emerging demand.

13           MS. CHAMBERS: Thank you, Edwin.

14           And you have -- you have one on the line?

15           MR. SCHINDLER: Yeah. We had a couple comments  
16 from people whose mikes aren't working.

17           Owen Howlett says, "I think that appliance menu  
18 sufficiency is missing from our list of goals."

19           So John Carrieri with GreenNet, "As per the  
20 previous section's suggestion, we need help educating  
21 installers on new technology. It's a pretty big barrier."

22           And then I have someone on the line. Erin, go

1 ahead.

2 MS. FALQUIER: Hi. I think -- hello. This is  
3 Erin Falquier. I'm with the California Energy Efficiency  
4 Industry Council. A couple of points on barriers.

5 One is that we find that technology experts don't  
6 understand their technologies very well, the market  
7 information. So, one thing that would be helpful, and this  
8 was brought up earlier, is information sharing. This would  
9 really help technology experts to better be able to deploy  
10 new efficiency technologies and target the most (inaudible  
11 sentence)---or markets within the building section. That's  
12 one set of barriers. Another set that was also brought up  
13 earlier today was in regards to distributed generation as  
14 related to business models and processes. When you were  
15 asking before about potential (Inaudible - large  
16 section.)We need to develop a business model for deploying  
17 efficiency so it's not just enough to have really good  
18 innovative technologies that are being developed through  
19 EPIC, but also, innovative methods to get them implemented  
20 cost-effectively. So for example, methods that bring  
21 together all of the elements and sequence them in the right  
22 order to get the technologies implemented. This would

1 really help get (inaudible section). And it helps get  
2 technology implemented that might not otherwise be because  
3 they required integration with other efforts, or required  
4 training. One thing that we've brought up in our comments  
5 is EPIC is being developed (inaudible). Noting that set  
6 novel business models and processes should be eligible for  
7 EPIC funding. So we think that would be a good additional  
8 initiative to add to your list.

9 MS. CHAMBERS: Could you repeat your name please?

10 MS. FALQUIER: Yeah. Erin Falquier,  
11 F-a-l-q-u-i-e-r.

12 MS. CHAMBERS: Okay. I might also invite you to  
13 send written comments to the -- addressed to CEC further  
14 down in the cycle just to make sure we captured your  
15 comments as possible. You do have a lot to say there.  
16 Thank you.

17 Any other comments?

18 MS. DELMAS: Hello? Can I speak now? It's me.  
19 I'm --

20 MS. CHAMBERS: Sure. Go ahead. State your name  
21 please.

22 MS. DELMAS: Okay. Magdali Delmas from UCLA.

1 I'm sorry, I'm not very used to this. It's my first time  
2 on this interface. But speaking about interface, what I  
3 see, I think is recent in list of items that you are  
4 providing here, potential initiatives, I think are energy  
5 management at a residential level. It seems to me that one  
6 of the barriers to the adoption of clean energy  
7 technologies or more efficient appliances is the lack of  
8 understanding from consumers about what appliances are  
9 actually using a lot energy and what appliances are not  
10 using a lot of energy. So we now, with the development of  
11 smart meters and of energy management systems, essentially,  
12 we will be able to provide to residential customers this  
13 information. And I think there's a lot of work to be done  
14 on how these interface between existing appliances, the  
15 existing energy usage, and the consumer, how this interface  
16 should be designed to be the most efficient. And so, what  
17 we are doing here at UCLA, we have an experiment ongoing.  
18 We have installed smart meters for 120 apartments. We are  
19 providing appliance level, real-time information to the  
20 (inaudible) department. One of the big things that they say  
21 that we have no idea how (inaudible sentence). And it's  
22 going to be hard to get people to adopt these energy

1 efficient appliances if they cannot create it to their  
2 actual current energy usage. I think that there's a lot of  
3 work that can be done in designing these interfaces that  
4 are going to help (inaudible) because people are going to  
5 realize how much savings they can potentially get from  
6 that. But I think that we should also have in terms of  
7 potential initiative, initiatives on the energy management  
8 system between the efficient technology and the end user of  
9 the residential level and the commercial level, that's also  
10 a possibility. MS. CHAMBERS: Thank you. Was there  
11 someone else on WebEx?

12 MR. SCHINDLER: There is. Owen Howlett

13 MS. CHAMBERS: Owen, go ahead. Owen?

14 MR. HOWLETT: Oh, hi. Yes, this is Owen Howlett  
15 at the California Energy Commission. My -- my role here is  
16 to help develop the Title 24 building standards and the  
17 Title20 Appliance Standards, specifically for (inaudible)  
18 and in terms of the valley of death so that in a lot of  
19 cases we -- we fast tracked technology into the  
20 (inaudible). So what we want to do is take a technology  
21 that can be proved to work, and proved to be cost-  
22 effective, and not wait for it to get wide-spread, market

1 adoption and commercialization but just immediately jump it  
2 into the code (?)and have it (inaudible). We've done that  
3 with quite a few different things but for, in order to do  
4 that we need pretty good info on how those technologies are  
5 used in many different types of buildings by many different  
6 types of users. So, it's great to have a couple—let's say  
7 somebody develops a new technology that might be some type  
8 of (inaudible) control thing. If they do one or two  
9 demonstration sites, yeah this thing can be proved to work,  
10 it saves 50% of energy at these two sites, that's great,  
11 but it's not enough for us to adopt it into code. What we  
12 need to have is - quite a few different buildings, and a  
13 cheap way to get that, is not to pay a researcher to go in  
14 and get all that data, but the cheap way is to have some  
15 kind of infrastructure there, let's say a utility program  
16 can feed their building's end-use data into a database, or  
17 a manufacture can feed their end-use data into a database.  
18 And then we can look at it and say hey we've got 30 or 40  
19 buildings here. Here's how this technology performed across  
20 these multiple buildings and we can identify problems and  
21 we can prove that it works in a general way not just in one  
22 or two places. From my perspective, that's how I'd like to

1 see that valley of death, kind of overcome. In terms of  
2 providing funding, I think it would be logical for EPIC to  
3 provide funding to set up that information sharing  
4 infrastructure to set up databases and common data  
5 standards for transferring data so we share data on how  
6 these technologies work in different buildings.

7 MS. CHAMBERS: Thank you, Owen. Anyone else out  
8 there? I'll ask that you come over here.

9 DR. BUNJE: Paul Bunje, UCLA. Three things. The  
10 first thing I want to point is not included here in  
11 building end-use efficiency which should be is water,  
12 because a significant amount of energy is -- is associated  
13 with heating of water within buildings. So we want to make  
14 sure that that's -- that's recognized.

15 Secondly, there's a couple of other issues that  
16 are particular barriers, one having to do with retrofits,  
17 in particular implementing technologies associated with the  
18 building envelope and such. A lot of the lighting and HVAC  
19 sorts of things, the return on investment is -- is  
20 financially viable, but we need to identify a way to  
21 actually -- actually make it more viable and profitable,  
22 the price of retrofits and stuff.

1           (WebEx background noise.)  Somebody didn't like  
2 that comment, apparently.

3           MS. CHAMBERS:  Apparently.

4           DR. BUNJE:  So in particular, a subset of data  
5 within the real estate area where a particular barrier,  
6 split incentives between building occupiers, managers, and  
7 building owners.  And if we're going to actually --  
8 particularly, again, on building envelope and other sort of  
9 retrofit activities that needs -- that certainly needs to  
10 be squared somehow.  And somebody else mentioned business  
11 models.

12                   And then the very last one that I want to mention  
13 is permitting procedures.  There are still (inaudible) in -  
14 - in standards and codes and such in different -- different  
15 counties and municipal jurisdictions around the state.  And  
16 in order to incentivize and -- and improve the adoption of  
17 some of these procedures it would be valuable to have  
18 methods by which we have standards and permitting processes  
19 themselves that are usable and transparent.

20           MS. CHAMBERS:  Thank you.  Anyone else in the  
21 audience or online?

22                   Well, then let's move on to where you think

1 funding should be placed to maximize deployment of clean  
2 energy technologies as it has to do with building and  
3 energy efficiency? Anyone?

4 Well, moving right along, anyone?

5 MR. HORNQUIST: I'll tell you, a lot of the --  
6 I'll just say that the barriers that I mentioned earlier  
7 are all areas of potential research or some funding  
8 research emphasis.

9 In addition to that I think there -- I like what  
10 the gentleman said earlier about the challenges with the  
11 retrofit market, and also behavioral. And I won't dwell on  
12 it since you have it already up there, customer behavior,  
13 not only as -- as it relates to technologies that drive  
14 behavior change but also study the behavior or how, not so  
15 much as to energy management, but also with respect to  
16 purchasing decisions.

17 The other is -- is leveraging the smart meter  
18 infrastructure, is how we deploy this huge meter  
19 infrastructure. We need to ensure that there's ample  
20 research data in that area as well.

21 And also issues with respect to the idea of sun.  
22 You know, we want to make sure that when a technology or

1 the -- that people don't adopt technologies on a piecemeal  
2 basis, that they adopt it in a certain order that makes  
3 economic and -- and -- and sense for them and for the  
4 utilities from a cost delivery standpoint.

5           And I guess lastly I'll mention that the  
6 coordination is critical. And I think -- I don't know how  
7 you fund coordination or emphasis, but it's ensuring that  
8 there is coordination with state efforts, regional and  
9 national efforts. So that would be it. Thank you.

10           MS. CHAMBERS: Thank you, Edwin. Anyone else in  
11 the audience? Online? Okay.

12           Let's move on to three. What specific  
13 initiatives are recommended to advance innovative energy  
14 technologies that benefit ratepayers, in addition to those  
15 we have listed, or if there are any on the list that you  
16 don't think ought to be there? Oh, good.

17  
18           DR. FISCHLIEN: Marian Fischlien from UCLA. I  
19 think you have my information already. I just wanted to  
20 talk for a moment about consumer behavior, because I think  
21 that's one area where it would really benefit ratepayers to  
22 target some of the EPIC funding, in that a lot of the

1 benefits from consumer behavior programs benefits the  
2 ratepayer directly because at the reduced energy use, of  
3 course, they -- they save money. But we also need to be  
4 thinking about how we can target these types of programs.  
5 Because, for example, if we target high-usage consumers,  
6 those benefits also percolate through the entire customer  
7 base because we can then keep rates for everybody.

8           And I guess some people before me said -- have  
9 spoken before about the research that is going on there.  
10 And we hope that on some of the findings we have in  
11 building these energy management systems and looking at how  
12 different types of customers react to different types of  
13 information about the energy usage, and also what  
14 strategies we can evolve for how this is going to be used  
15 to apply it in the product development.

16           MS. CHAMBERS: Any other comments? Okay.

17           Let's move on. Four, define the ratepayer need  
18 for which EPIC investment should be targeted.

19           MR. GOODMAN: Thank you. Frank Goodman, San  
20 Diego Gas and Electric. Ratepayer need; it's a function of  
21 the ratepayer, I guess. I think a lot about this. And for  
22 somebody like me who has lights and they're CFLs, and --

1 and I don't watch television, what else do I use  
2 electricity for? My computer. And I'm a very low user.  
3 And I'm probably at the low end of use patterns. And then  
4 it ranges all the way up to people with big air  
5 conditioning, big flat screen TVs, pools, and so on.

6           So maybe some research is needed to understand  
7 how many ratepayers are in these different spectra of use  
8 so that we don't target energy efficiency measures and a  
9 lot of resources at developing energy efficiency measures  
10 for only five percent of the customers; understand  
11 different customer behavior patterns and which of them  
12 really have anything they can't be more efficient about  
13 than they already are.

14           MS. CHAMBERS: Thank you, Frank. Anyone else?  
15 Ratepayer benefits.

16           MR. HORNQUIST: I don't know if this is ratepayer  
17 benefits but it certainly -- it speaks to several of the  
18 things we talked before about, barriers to adoption. And -  
19 - and I was thinking about ratepayer needs. Ratepayer  
20 needs is -- they have the need to -- well, at least we'd  
21 like to think that the reason that they don't install or  
22 they don't pursue these technologies is because it's

1 difficult to -- to access them or difficult for them to  
2 install them because they don't have access to these  
3 things. And we need to make sure that there's research  
4 done, or at least a component is done on ease of it, of --  
5 of installability or ease of adoption.

6           And if I can go back for a second, I think we  
7 talked about these initiatives. I think we wanted -- we  
8 sort of -- again, it speaks to the technology is really  
9 not -- we know from a developing standpoint what the  
10 issues -- what technologies people are delivering. But  
11 what we don't have is really a clear understanding of  
12 behavior when it comes to innovation and the delivery of  
13 those -- of those technologies. So it's how to research  
14 topics associated with the innovation and delivery.

15           The -- I'll mention one other topic that we were  
16 just talking about. Basically, it's really -- it's maybe  
17 as important as a lot of these things. We talk about -- we  
18 talk about energy a lot, but we don't talk about the power  
19 quality issues associated with the -- with the advanced  
20 technologies. The more electronics are embedded in new  
21 technologies the more challenging it is to control that,  
22 which can cause problems within the grid. So there's, you

1 know, some interconnection between those two areas of  
2 research.

3 MS. CHAMBERS: Thanks, Edwin.

4 Anyone else have a comment?

5 DR. BUNJE: Paul Bunje, UCLA. I just wanted to  
6 highlight also this sort of diversity of ratepayer  
7 benefits, particularly with respect to equity here and  
8 recognizing that certain -- certain ratepayers are going to  
9 need sometimes more expensive types of investments in order  
10 to reduce their -- their energy load, for instance. Very  
11 often, for instance, poor communities can live in less  
12 insulated or -- or less efficient houses and such. That's  
13 very different from improving HVAC systems and the like  
14 when you have high load -- load bearers. So it's important  
15 to recognize their need. We'll have -- we'll have to bear  
16 in mind.

17 MR. HOLMES: I think it's important to turn the  
18 question more around and to say to the ratepayer, what do  
19 you need? In the case of the automotive industry we go  
20 back, you know, to Henry Ford's question about what do you  
21 want from a car, and he said, "Faster horses." You know,  
22 Steve Jobs didn't ask his customers what they wanted; he

1 delivered something they never expected. But it's  
2 important for us to understand, for example, as a utility  
3 that we are delivering value added content. There are some  
4 customers who could not be bothered with the energy  
5 awareness systems that -- that we're talking about today.  
6 And there are others, particularly enterprises looking at  
7 building energy systems who stand to have great benefit  
8 from them.

9           And so I think one of the important things we  
10 need to look at with respect to EPIC investment in this  
11 particular area is voice of the customer.

12           MS. CHAMBERS: Thank you, John. That's John  
13 Holmes.

14           Any other comments on four? Okay.

15           Well, let's move to five. Was there anyone  
16 online, Cody? Okay.

17           Number five, how would you prioritize these  
18 initiatives that we have out here. Is there any one that  
19 sticks out, or should we -- do we need them in a particular  
20 order in the energy cost savings, grid reliability, job  
21 creation, economic benefits and such?

22           DR. BUNJE: Paul Bunje, UCLA again. Less about

1 prioritizing initiatives but highlighting -- a critical  
2 element here is that both environmental benefits and energy  
3 and cost savings. When you look at over-consumption and  
4 reduction of greenhouse gasses this is an absolute metric,  
5 which is different from energy efficiency, of course. And  
6 so we want to make sure that that's -- that that's  
7 highlighted in terms of measurements, and that we're  
8 prioritizing the -- the reduction costs in those gas  
9 emissions there.

10           And then, finally, I don't see your equity,  
11 again, which I think is an important element that needs to  
12 be addressed.

13           MS. CHAMBERS: Okay. Devin?

14           MR. RAUSS: Devin Rauss with Southern California  
15 Edison. I would not necessarily prioritize them, but maybe  
16 put a different spin on it of how do you integrate demand-  
17 side management. And if you look at it with that -- those  
18 lenses on I think all of these kind of tie together and  
19 actually feed into more of the benefits at the same time.  
20 So you get energy and cost savings from the EE, but the  
21 reliability from demand response as also appropriately  
22 used. So I would just encourage you to consider integrated

1 demand-side energy management.

2 MS. CHAMBERS: Anyone else? Okay.

3 MS. FALQUIER: Hi. This is Erin Falquier,  
4 California Energy Efficiency Industry Council. One  
5 additional benefit I would add is that we're achieving  
6 benefits across-market sectors or subsectors.

7 MS. CHAMBERS: you said this was Erin?

8 MS. FALQUIER: Yes.

9 MS. CHAMBERS: Okay. Thank you. All right.

10 So if there are no other comments, I think we'll  
11 move on to six. It's what areas might already be covered  
12 by DOE and others? I think we kind of touched on this in  
13 other areas where maybe we could look at collaborations. I  
14 think that was a comment that was made. Any other comments  
15 in that area? Okay. Let's move on to the next slide.

16 Zero-net energy buildings; we touched on this a  
17 little bit in the area of communities, but I'd also like to  
18 look at it from a single-, multi-family, and also  
19 commercial building. We want to look at the integration of  
20 energy efficiency and renewable energy and storage. If you  
21 can, think of some other potential initiatives that we  
22 should include in that. So also consider what mechanisms

1 might be needed to catalyze zero-net energy buildings such  
2 as incentives or financing or anything else that you think  
3 might maximize the plan.

4           So we're going to go through the list of  
5 questions again as it applies to zero-net energy buildings.

6       What barriers do you guys see that might be prohibiting us  
7 from going forward with this. And we talked about it in  
8 zero-net energy communities, but I think it bears  
9 repeating.

10           MR. RAUSS: Devin Rauss, Southern California  
11 Edison. I think you have to look at in terms of both --  
12 all the different market segments, and also new  
13 construction versus retrofit for barriers. I mean, there's  
14 been a lot of look at zero-net energy. So in my opinion, I  
15 think residential is not necessarily as much of a technical  
16 barrier, it's more of a cost barrier of how do you tack on  
17 this added cost to a new home or retrofitting the home to  
18 the customer, homeowner, potential home buyer. You know,  
19 in a commercial setting it's much more is there even  
20 technology that gets you to that point of being zero-net  
21 energy? Is there enough roof space to get enough  
22 renewables in there if you're going with solar and

1 photovoltaic. There is certainly financial barriers to get  
2 past. I mean, I would just leverage these in the action  
3 plan as much as possible. And I think that a lot of that  
4 effort has pointed to the barriers. And even what they're  
5 working towards speaks to actions to take to get past those  
6 barriers. So really maybe enhancing that work, that would  
7 be great.

8 MS. CHAMBERS: Okay. So what Devin was  
9 referencing is the energy action plan responds to the  
10 strategic energy efficiency plan, specifically towards the  
11 NEI. I think they were focusing mostly on commercial. And  
12 we have talked about we're looking at lighting, and right  
13 now we're also doing R&D. So that's quite a plethora  
14 across the whole deal. So --

15 MR. GOODMAN: Yeah. I can remember an event  
16 where someone was criticizing Al Gore for a 6,000 energy  
17 seasoned house. And he said, "But I buy offsets."

18 So my point is this, not who's right in the head  
19 question, but you liberalize the definition of ZNE to where  
20 you can exchange with some source of renewable energy that  
21 is not on the premises. And right now the CPUC definition  
22 of zero-net energy would not allow that. But if you open

1 up the possibilities of a community in particular, if it  
2 can't generate enough energy onsite to be zero-net energy  
3 it can buy too. And then when it has a surplus, from  
4 wherever that facility is offsite, it can sell it to  
5 someone else who needs it. Maybe you're not talking about  
6 a zero-net energy building anymore, but you may be talking  
7 about something that makes economic sense anyway.

8 MR. HOLMES: This is John from SDG&E&E. I think  
9 we have to look at unintended consequences as well. Zero-  
10 net energy has great potential to serve the grid, as -- as  
11 well as the customer. But it -- it comes with it a sense  
12 of panacea. And the challenge here is that there's a  
13 significant amount of grid-based infrastructure investment  
14 that has to go along with that in order to facilitate the  
15 actual limitation of this objective, especially at the  
16 scale that we're looking at.

17 And so the approach that we need to take I think  
18 has to be carefully considered in great detail in terms of  
19 the grid investment to facilitate the goals.

20 MS. CHAMBERS: Thank you, John.

21 I think, Frank, you made -- made a comment early  
22 that a ZNE community approach, stepped approach or phased

1 approach, perhaps that was the defining word.

2 MR. GOODMAN: Yeah. And -- and you can phase in  
3 a zero-net energy concept into a community. But you can  
4 also phase in utility interoperability with a zero-net  
5 energy community where, I think -- I think last week I  
6 touched on this somewhere, that perhaps the utility can, as  
7 a pay-for-service, can handle these things for free, but  
8 interact with customers, like the large commercial customer  
9 and maybe a community, and eventually individual residences  
10 where -- I don't like to use the word police it, but if the  
11 behavior in that community or the behavior in a commercial  
12 facility is not inline with the intended behavior to make -  
13 - make zero-net energy, perhaps either through initially  
14 some sort of manual process of monitoring it and calling  
15 them or sending them a message, and eventually moving to  
16 automated processes where if they're exceeding with some  
17 piece of equipment, let's say in a factory, they're  
18 exceeding their energy use allotment to be zero-net energy,  
19 through a prearranged agreement we might, if it's a  
20 nonessential piece of equipment, shut it down. Maybe it's  
21 -- maybe it's recycling their air conditioning or something  
22 like that. So there may be a utility role through

1 interoperability systems and helping customers manage their  
2 behavior to stay within zero-net energy balance.

3 MS. CHAMBERS: Anyone else? Okay.

4 So let's move on, I think. Can you think of any  
5 other specific initiatives that we should recommend that  
6 would, of course, benefit the ratepayers? Okay.

7 Define the ratepayer need for which EPIC  
8 investment funds should be targeted, specifically dealing  
9 with zero-net energy? I can see your brains working.

10 MR. RAUSS: Devin Rauss, Southern California  
11 Edison. I forget your name, sir, but I think you said it  
12 very well, that zero-net energy, it should provide a lot of  
13 benefit to the customer. Obviously, they have hopes of  
14 off-setting their consumption, you know, lowering rates.  
15 But there is potential for impacts to the grid. And so I  
16 think that that's certainly an area that, you know, if you  
17 look at the broader ops, considering grid ops and all the  
18 other areas, that that's something that this initiative  
19 should target for ratepayer benefits, of how does the need  
20 actually support grid operations, so you know, safe  
21 reliable power?

22 MS. CHAMBERS: Good point.

1           MR. HOLMES: Hi. This is John for SDG&E again.  
2 I mentioned this morning and earlier about the importance  
3 of maybe considering something like the California Solar  
4 Initiative for Energy Storage. So looking at storage as a  
5 component of zero-net energy premise it's critical for  
6 resolutions of remedies to the intended consequences with  
7 onset generation.

8           MS. CHAMBERS: Thank you. Now, any other  
9 comments?

10           Then I think I'll move on to prioritizing  
11 initiatives and identifying any benefits that should be  
12 anticipated and measured and such? Any comments in that  
13 area, on that question?

14           MR. GOODMAN: I think the high priority has to be  
15 coming up with an agreed upon definition of what zero-net  
16 energy means. Because anything else you do really needs to  
17 be driven by what -- what we've agreed on as the zero-net  
18 energy definition. And I said earlier today, that until  
19 instructed otherwise we go by the PUC definition, which is  
20 the most restrictive. But once you've got the definition  
21 down that will govern how you define and implement the rest  
22 of the activities.

1           And then the final point is if something is  
2 perceived as a part of zero-net energy solution. Like I  
3 said this morning, even if after you test it you find out  
4 it's not -- it may have merit in its own right as a  
5 standalone energy efficiency measure.

6           MS. CHAMBERS: That's a good point. Thank you.

7           So let's go on to six. What areas might already  
8 be covered by DOE or areas that you think we should be  
9 complimenting, funding that's already going on? Okay.

10           Then let's move on to the next topic area.  
11 Industrial, agriculture, and water energy efficiency.  
12 Here's where the water comes into play. So we're -- our  
13 potential initiatives are industrial process improvements,  
14 integration of renewable. In agricultural, irrigation and  
15 post-harvest processing. And water and waste water  
16 distribution, end use, and process improvements. So the  
17 same questions apply to all these different topic areas, so  
18 maybe we can run through them quickly.

19           What major barriers do you see for improving  
20 industrial processes? This is not your area of expertise,  
21 but perhaps you might have some ideas how that could work.

22           Come on down.

1           MR. RAUSS: Devin Rauss, Southern California  
2 Edison. Industrial and agricultural (inaudible) water, but  
3 particularly industrial, it is extremely process driven.  
4 And the lack of consistency across like a smelting plant to  
5 (inaudible) facility, a manufacturing plant, it makes it  
6 very hard to come with one a one-size-fits-all solution.  
7 So I think efforts looking at, you know, things that are  
8 consistent like air compressors or pumps that, you know,  
9 regardless of what process you're doing, but you'll have  
10 that same equipment, that is a much easier way to focus on  
11 the research to provide benefit across the board, rather  
12 than just if you were to target a manufacturer of product A  
13 versus product B.

14           MS. CHAMBERS: You've touched on it. That's  
15 definitely a challenge, or one of them.

16           Any other comments in this area for barriers as  
17 far as industrial, ag or water?

18           I think someone mentioned the other day, of  
19 course, regulations. Can you think prohibitive regulations  
20 or limiting regulations, other areas like that? Okay.

21           Well, where do you think funding should be placed  
22 to maximize deployment of these clean energy technologies?

1     Okay. You can always submit your written comments as  
2     well.

3             MR. HOLMES: this is John Holmes, SDG&E. I think  
4     about these three categories of industry, ag -- ag and  
5     water. And they're somewhat indistinguishable when you  
6     look at agriculture because the -- the primary consumption  
7     of energy for ag is water.

8             I think generally you have to look for a little  
9     improvement in these categories. So in terms of where, we  
10    can look at the larger categories of load. And I think  
11    that's principally the message you would want. But we  
12    have relatively small large consumers in San Diego. We're  
13    not a very industrial-intensive region.

14            However, knowing the -- the balance of customers  
15    throughout -- throughout California, there are megawatt  
16    scale customers who generally need incentives to be able to  
17    integrate the systems that -- that they need in order to --  
18    to actually become more green. It's not necessarily the  
19    case that everyone has a luxury, for example, that Google  
20    has to be able to integrate its renewable portfolio. And -  
21    - and, you know, there are other entities such as Cisco and  
22    other major corporations who are actively involved. But

1 there are some mid-sized organizations who are, you know,  
2 heavy consumers of power that we want to, you know, keep  
3 patrioted in California. So those are areas that -- that  
4 really do demand a significant of attention.

5           And coming back to the previous segment, if I may  
6 while I've got the microphone.

7           MS. CHAMBERS: Sure.

8           MR. HOLMES: The last question six on the  
9 previous slide, the DOE is not participating in zero-net  
10 energy implementation of energy management from a weather  
11 perspective. It's systems which will potentially -- zero-  
12 net energy -- will demand awareness from weather patterns.

13           MS. CHAMBERS: Of course, are list of questions  
14 are standard for each topic area.

15           MR. WASHOM: Byron Washom from UC San Diego.  
16 Two -- two areas with respect to the -- the use of water by  
17 large industries. There's a lot of room for additional  
18 work on thermal energy storage, which is not necessarily  
19 chemicals but just thermal energy storage, which provides a  
20 great advantage in load shifting.

21           Secondly, waste water treatment plants, there's  
22 the opportunity -- excuse me -- to capture more waste

1 methane gas from those systems and to utilize them in  
2 either gas turbines or in fuel cells. Thank you.

3 MS. CHAMBERS: Thank you, Byron.

4 MR. GOODMAN: Yeah. Thank you. Frank Goodman,  
5 San Diego Gas and Electric. I know water pumping is among  
6 the biggest users of electricity. I've been told that.  
7 And I think at one time it was the biggest. And there's a  
8 couple of interesting possibilities. One is around  
9 floating solar systems on top of water. And some people  
10 use the term flowtovoltaics, but it's photovoltaic systems  
11 that are designed to flow. And we are pilot testing one  
12 right now down at our mission control center. And they  
13 have originally made a plan to put the pools out in the  
14 desert. And they learned that you can't truck water out in  
15 the desert and back; it's too expensive. And you can't  
16 dump it in the desert, God forbid.

17 So now they're looking at floating it on waste  
18 water treatment facilities. They've looked at how much  
19 land is -- or, excuse me, how much water is available for  
20 floating these things. But since water is a big -- pumping  
21 is a big user of electricity, if you could put some  
22 generation right on the water and power the pumps that way,

1 I think that it could be win-win. But you first have to  
2 get a proven technology that will last while floating on  
3 the water. This particular company is still prototyping.

4           And the other possibility is hydrokinetics. We  
5 have a scoping study going around hydrokinetic  
6 technologies. And these are small generation systems that  
7 could be put in a stream or a manmade waterway like a canal  
8 to harness the kinetic energy in the moving water and  
9 generate small amounts of electricity. But it is a  
10 renewable energy source.

11           So in trying to meet the RPS, picking up a little  
12 here and there is going to be important, even though the  
13 big things may come from solar in this state, and wind,  
14 we'd like to pick a little wherever you can.

15           And when we get our hydrokinetic assessment done  
16 of the options, if any of them look promising we don't  
17 actually have any budget to follow through. So stay tuned,  
18 and it may be some of the PIER money -- excuse me -- EPIC  
19 money. Am I the first one that blew it today and said  
20 that? Okay.

21           But what I'm saying is we will need help in  
22 actually moving into a final phase by EPIC or somebody, if

1 we decide to move it to the public.

2 MS. CHAMBERS: Thank you, Frank.

3 Anyone else?

4 MR. HOLMES: Just one word: Clare adjustors  
5 (phonetic).

6 MS. CHAMBERS: Say it again?

7 MR. HOLMES: Clare adjustors, biomass energy.

8 MS. CHAMBERS: Clare adjustors. Good. All  
9 right.

10 So I think we're on four, defining ratepayer  
11 need. We may have touched on that already to some degree.  
12 Any comments in this area? All right.

13 Number five, prioritizing our initiatives. Is  
14 there anything in this area that you think is more  
15 important that needs to be done first or differently or in  
16 addition to or not at all?

17 And six, areas that might already be covered by  
18 DOE or other funding? Anyone online? This is your  
19 opportunity to comment. Okay.

20 Let's go to the next slide.

21 MR. HOLMES: So --

22 MS. CHAMBERS: Oh.

1 MR. HOLMES: -- I have a comment.

2 MS. CHAMBERS: Okay. Good.

3 MR. HOLMES: So the DOE does a great job of  
4 helping the corn industry. We don't have corn industry in  
5 California. We do have other agricultural fuel industry.  
6 And I would suggest that California consider its, you know,  
7 its residents fuel agriculture as -- as a target for  
8 funding and for further expansion. We have one of the most  
9 fertile environments in the country and I think it's under-  
10 exploited for our ability to do -- to, you know, drive  
11 mutual benefit for both energy and serving our population.

12 MS. CHAMBERS: Thanks, John. Anyone else? Okay.

13 So let's move to demand response. We talked a  
14 little bit about home communication networks and energy  
15 information systems, commercial lighting and HVAC,  
16 industrial. We have refrigerated warehouses and waste  
17 water and water treatment plants.

18 So under this topic area did we capture all the  
19 initiatives or are there other areas that you might  
20 consider under demand response? Devin?

21 MR. RAUSS: Devin Rauss, Southern California  
22 Edison. I think a couple other initiatives would be

1 consumer appliances and maybe thermostats, even though  
2 that's going into the Title 24 already but -- and Title 20  
3 standards, particularly the interoperability standards.

4 MS. CHAMBERS: Any others? Good idea. Okay.

5 Where do you think funding should be placed to  
6 maximize deployment of these clean energy technologies?

7 MR. RAUSS: So I didn't realize but -- Devin  
8 Rauss, Southern California Edison. I didn't realize I was  
9 supposed to be talking to the barriers. So the barriers, I  
10 think, I mean, this is what you were just getting to is  
11 that demand response is interesting because it's not  
12 something where you just put the technology out there and  
13 it happens. So there's a need -- there's barriers both to  
14 utility and the customer and, potentially, manufacturers I  
15 guess.

16 But on the customers' side, and I think that's  
17 where interoperability and standardization comes into play,  
18 you know, you want to be able to buy something from one  
19 manufacturer that works with another manufacturer that  
20 hopefully talks to the meter that the utility has put in  
21 place without having to buy other infrastructure that  
22 allows for that to happen.

1           On the utilities' side it's the -- the  
2   repeatability of the results we'll get. Obviously,  
3   customers have the chose to respond new demand response or  
4   not but, generally, I think CalISO, I think we all know.  
5   But he talked -- he alluded to it earlier. From their  
6   perspective and shared with the utility is we call demand  
7   response events to help ensure that the grid maintains  
8   reliability. And when we don't know what's going to occur  
9   based on that even it gets very hard to plan for, and you  
10   wind up using excess generation. And those are things that  
11   really defeat the purpose of demand response.

12           So one of the barriers when I think you then move  
13   that utility to check with the manufacturer is there are  
14   different definitions of demand response based on different  
15   governing bodies, standards, organizations. Like Energy  
16   Star, for example, that's going through the effort of  
17   creating connected appliances. And their definition of  
18   demand response doesn't necessarily jibe with what other --  
19   other people would call demand response. And then if you  
20   look at markets like Texas and New York, they have a very  
21   different definition of demand response, particular what  
22   the ancillary services in California does. So if you're a

1 manufacturer and you're an aggregator it gets very hard to  
2 design something that's national. And I don't even pretend  
3 to know about internationally how different demand response  
4 is.

5           So, you know, there's no such thing as a one-  
6 size-fits-all demand response solution that will work  
7 everywhere. You have to tailor it for each organization,  
8 customer, whatever you're dealing with. And that -- that  
9 makes it very hard from a manufacturers viewpoint.

10           MS. CHAMBERS: That sounds like that fits into  
11 the challenges category, barriers.

12           MR. HOLMES: California has its own little --  
13 it's John from SDG&E -- child. In this case it's open ADR,  
14 basically (inaudible) and the ability for us to exploit,  
15 you know, that topology is a terrific opportunity for  
16 California. The activities that -- that you were speaking  
17 with -- with respect to the AHAM and how much is the  
18 Manufacturers Association for Home Appliances, the Wide  
19 Goods Sector Association (phonetic) is working with Energy  
20 Star within the EPA to advance a connective topology. And  
21 we've impressed upon them in the course of the last month  
22 the importance to stay consistent with the overall smart

1 grid activities with respect to protocol development and  
2 implementation of interoperability standards.

3           So the challenge here is that we've got a  
4 manufacturers association wanting to get on with the  
5 business of selling appliances. And they're a group of  
6 individual and -- and nationwide implements stakeholders,  
7 the utility sectors and RTOs (phonetic) are trying to  
8 develop interoperability centers. And the consistency  
9 toward achieving a spectrum of communications protocols to  
10 advance this -- this facilitated through open ADR. So we  
11 really need to, in my opinion, help that forward into --  
12 into -- toward integration with smart energy profile  
13 initiatives.

14           MS. CHAMBERS: Good comment. Is somebody online?

15           MR. SCHINDLER: Yeah.

16           MS. CHAMBERS: Let me just -- sorry about that.

17           MR. SCHINDLER: That's all right. John Carrien.

18           Referring to the point on slide, referring to commercial  
19 lighting and HVAC, "Should an investment priority in this  
20 case be centered around which function area uses the most  
21 energy and therefore represents the greatest functional  
22 areas for savings?"

1 MS. CHAMBERS: Good question. Does anyone want  
2 to comment on that one? Sorry. I should use the mike.  
3 Any other comments? Okay. We kind of did barriers, and  
4 also two, funding.

5 So perhaps we go to three, specific initiatives  
6 that we may need to include other than the ones that we've  
7 listed. You've added some, I believe -- that, of course,  
8 would benefit ratepayers. Any additional initiatives? Of  
9 course, this is not your last opportunity to comment. You  
10 can send in your written comments that you know about at  
11 the address that you'll see in a few slides.

12 MR. GOODMAN: Frank Goodman, San Diego Gas and  
13 Electric. I never thought about this before. This is now  
14 contemplating demand response and what happened during the  
15 southwest power blackout last September. And I stayed  
16 around work for a while to see if there was any way I could  
17 help, but I did eventually go home. And the only thing I  
18 had that I could use that was electric was my computer.  
19 But I had three hours of battery time on there. And it  
20 also provided enough light that I could see a little. So I  
21 wasn't well-prepared for that emergency. But my computer  
22 worked fine.

1           So I'm wondering, you know, if it isn't some  
2 opportunity where if a homeowner doesn't want to have a  
3 central storage system or a central generation system at  
4 his house if we can't move in the direction of essential  
5 appliances -- and these days a laptop is about the most  
6 essential thing, I think, maybe a refrigerator is next --  
7 but where an appliance comes in with its own UPS and  
8 specific critical appliances to support life in -- in  
9 critical emergencies will keep operating for some period of  
10 time, rather than trying to keep the whole house up.

11           MS. CHAMBERS: That's a good idea.

12           MR. RAUSS: Devin Rauss, Southern California  
13 Edison. I already mentioned (inaudible). And I don't know  
14 if that's extremely key to getting consistency across the  
15 board.

16           But one of the other ones that you were just  
17 alluding to is storage. I think that may be the next slide  
18 also but, you know, it's --

19           MS. CHAMBERS: Yes.

20           MR. RAUSS: -- areas of thermal storage, chemical  
21 storage, and like compressed air storage, and all those are  
22 pretty plausible demand response opportunities that could

1 be covered in this.

2 MS. CHAMBERS: You peaked at the next slide.

3 Okay. Any other comments in that area?

4 How about defining ratepayer need for which EPIC  
5 investment should be -- should be targeted. I think you've  
6 already alluded to some of that. Anything else  
7 specifically? Okay.

8 And then how might we -- or do we need to  
9 prioritize our initiatives? What might be more important  
10 in the next thing? Is storage more important than  
11 integration or do they work hand in hand? I'm being the  
12 devil's advocate. I'm just throwing stuff out there.

13 MR. HOLMES: This is John of SDG&E&E again. I  
14 think it's very important that we avoid stranded assets.  
15 The ability for many different developers to integrate  
16 solutions with respect to demand response exists. And it's  
17 a Wild Wild West environment today as we don't have a  
18 standard to operate. And there are key laboratories and --  
19 and, you know, corporate level initiatives to advance  
20 demand response functionality. We see solutions coming  
21 from GE, from Whirlpool, from Mosh (phonetic), the Korean  
22 vendors that -- that account for a large portion of

1 (inaudible) plants that's here already.

2 But my suggestion is that prioritization of a  
3 standard, that option really is important.

4 MS. CHAMBERS: Thank you, John. I think we're  
5 starting to run out of time. So why don't we just go --  
6 oh, sorry. Laurie has a comment.

7 MS. TEN HOPE: I have a question for some of our  
8 experts, because several people have mentioned the  
9 important of interoperability standards or plug-and-play.  
10 And I think, you know, I don't disagree. I think they're  
11 really important. But how do you measure success at  
12 something like that? You know, it's a little easier to  
13 measure a technology that's build and sold. How do you  
14 measure something that takes ten years, perhaps, before it  
15 becomes a standard and that it's providing value and  
16 benefits back to the ratepayers?

17 MR. HOLMES: You measure it in phases.

18 MS. CHAMBERS: John says you measure in phases.  
19 You want to --

20 MR. HOLMES: Progress won't be made unless you  
21 chop it up into phased approaches. And so the measurement  
22 of a particular segment or a phase can be looked at as --

1 as a quantifiable achievement in terms of the eventual goal  
2 of a fully developed environment.

3           So my suggestion is that there are areas that we  
4 need to look at in terms of (inaudible) for the first. For  
5 example, the classic demand response initiatives we've  
6 heard about. Air conditioners in certain locations around  
7 the country might have electric water heaters when  
8 primarily in California we have gas water heaters, pool  
9 pumps, all of these relatively large loads.

10           What's not currently contemplated in ZNE  
11 discussions is the fact that California is likely to see  
12 some penetration of electric vehicles and those chargers at  
13 homes, business premises, are not currently contemplated.  
14 So you look at the ability to facilitate demand response  
15 solutions for vehicle charging as well.

16           And I think you have, in my sense of chopping  
17 things up here, you have to look at a roadmap toward  
18 implementation and quantifying success along the way is  
19 the -- is I think the appropriate approach.

20           MS. TEN HOPE: And what are you measuring?

21           MR. HOLMES: Well, your measuring adoption, the  
22 rate at which people are willing to participate in -- in

1 the program. If you give a party nobody attends it's not,  
2 you know, a viable solution. So the challenge here is  
3 educating the public as to the benefit, and potentially  
4 even rewarding them for that benefit.

5 MR. RAUSS: So, Devin Rauss, Southern California  
6 Edison. One -- I think one very good example of a success  
7 story with interoperability and standardization is Title 24  
8 and communicating towards that. And that wasn't a ten-year  
9 process. It was a multi-year process. But now there some  
10 -- some exemptions here, but for example, say any  
11 thermostat sold in California, it will be communicating and  
12 it will be standardized, that it will work with our meters  
13 in a different communication protocol, and that is a  
14 tremendous benefit to any manufacturer for thermostats  
15 because they know what they need to do for Californians  
16 market which is, what, 10 percent, 15 percent of the  
17 national market. So I think efforts like that.

18 I know another thing that was mentioned earlier,  
19 it's like Energy Star, they originally left out the idea of  
20 interoperability. So even the success of getting them to  
21 incorporate the idea of interoperable standards in their  
22 discussions, that's a success point that you can quantify.

1 So I think it's the idea of chopping it up. But that --  
2 you know, those are some examples of how to chop it, I  
3 guess.

4 MR. GOODMAN: Yeah. Frank Goodman, San Diego Gas  
5 and Electric. Just to come up with one indicator, one  
6 metric, I agree with what John and Devin said. But a  
7 metric, for example, used at the business-case stage of  
8 trying to decide whether to develop a standard and  
9 committing resources to it, and there's a lot of volunteer  
10 work goes into standards by the way, but the metric is  
11 this, that what is it like without the standard and what it  
12 would be like with the standard. And, for example, if  
13 installing a specific device requires a lot of custom  
14 engineering to develop the interfaces and make devices talk  
15 to each other without the standard and it becomes a plug-  
16 and-play process without the standard, if you look at the  
17 cost of doing it without and then with, there is an  
18 indicator for a specific installation. And that kind of  
19 thing was done around substations and IEC 61850. And what  
20 the engineering cost was for a substation without IEC  
21 61850, and now in the case of European countries and where  
22 they are starting to use 61850 they are definitely seeing a

1 cost savings and -- and ease of integrating different  
2 vendors' products together, which is an additional  
3 dimension to the cost savings.

4           So I think it's -- the cost savings is probably  
5 one of the biggest metrics. And then if you look at IEEE  
6 standards, the electric standards around interconnection,  
7 like 61850, maybe like have like 1647, which is part of  
8 Rule 21, you not only save costs by having standards, so  
9 somebody who wants to deploy something doesn't have to say  
10 what should I develop in the way of interconnection system,  
11 what's the permitting process, what will be the  
12 inspections. And, in fact, we just went through this with  
13 a small wind turbine on Harbor Island coming in from Japan  
14 that did not perform to Rule 21, and they had to redo it.

15           So it's -- it's, again, it's a plug-and-play  
16 process with the electrical works when you have the  
17 electrical standard, just like it can be with a  
18 communication system when you have the 61850 or whatever it  
19 is.

20           And then the final point I was going to make was  
21 there are engineering costs that are -- save -- there are  
22 tools that can save costs and operative modifications,

1 allowing an engineer to sit at his desk and make resettings  
2 on a piece of equipment without having to send somebody out  
3 there.

4           And the bottom line, though, is to really have an  
5 ability to quantify these things. You need the baseline.  
6 And this came up in the workshop I was at the last two  
7 days. We need to get a feeling for what our baseline  
8 situation is, what crease mark grid costs are, in order to  
9 be able to understand what benefits really were realized,  
10 so when you do the business case to decide to deploy  
11 something. But maybe you get to one sector of your system  
12 deployed. And before you go to your whole system you go  
13 back and do that cost-benefit analysis with real data and  
14 say here's what we really saved versus what the business  
15 case said we were going to save before you do more  
16 deployment.

17           Does that help? Okay. I got a little off,  
18 carried away.

19           MS. CHAMBERS: Good point, Frank.

20           Any other comments in that area? Okay. Let's  
21 move to the next slide, unless anyone wants to discuss any  
22 areas that are already funded by DOE or others? No?

1           Let's go to the next slide.

2           MR. HOLMES: My perspective is the DOE is not  
3 funding demand side management issues.

4           COMMISSIONER DEREK: Others?

5           MR. HOLMES: My point is that the DOE is not  
6 focused on demand side management.

7           MR. GOODMAN: This is storage, John.

8           MS. CHAMBERS: Well, I switched over to the next  
9 slide. You can -- you can answer number six as far as  
10 demand side management goes.

11          MR. GOODMAN: I wanted to be sure which one that  
12 was on.

13          MS. CHAMBERS: Okay. Okay. Demand side storage.  
14 Customer side energy storage, renewable energy integration  
15 for ZNE and industrial applications, thermal energy storage  
16 off peak, I think we've alluded to some of these in some  
17 earlier comments. If you want to bring up barriers to  
18 these specific areas.

19          MR. GOODMAN: There's a barrier which I'll call  
20 the -- the battery mind set, and that is people immediately  
21 start thinking of batteries as the only demand-side storage  
22 option. And we really need to consider others. And

1 somebody a minute ago, it was Byron, brought up thermal  
2 storage. And there are things like ice spheres and some of  
3 these we talked for a little bit last week so I won't  
4 belabor it. So look at thermal storage options for  
5 customers, and maybe coupled to solar water heaters. And  
6 it doesn't always have to be PV on the roof. I have a next  
7 door neighbor that has had a solar water heater on their  
8 roof for 30 years. And they added a second story, and they  
9 took the water heater and moved it up on the roof.

10 So that's not always just to right away focus on  
11 batteries but to consider other storage options.

12 MS. CHAMBERS: Anyone else? Barriers.

13 MR. RAUSS: Devin Rauss, Southern California  
14 Edison. I think probably one of the biggest barriers is  
15 complete lack of understanding. Energy storage is a fairly  
16 new concept. And the idea of grid interaction with it is  
17 even less understood. So again, you know, demand response  
18 might be availability to both utility and customer. I  
19 think that's very, at this point, clearly demonstrated, and  
20 nobody really understands it. So to have a pitch, a sales  
21 pitch to a customer of a utility of this is why this is  
22 such a great idea, that's not there yet.

1 Under the topic of maybe other initiatives, I  
2 think industrial storage or compressed air is another  
3 storage topic, and even pumped hydro is one I prefer. So  
4 those are others. But again, it's standards. And if  
5 you're going to have the storage talking to a meter,  
6 talking to CAISO, talking to whoever, those are -- they  
7 need to be developed and defined.

8 Another one that -- I wish the guy from CAISO was  
9 here because that's where I've heard this before, is a  
10 concept of actually using like a data center and their  
11 uninterruptible power supplies as a demand resource and  
12 kind of a storage site of saying, you know, for the next  
13 half an hour maybe we'll put you under UPS and then provide  
14 power to you as a very short way. So it's that idea of  
15 distributed storage devices within a home or a commercial  
16 setting that maybe you leverage in an aggregate as enough  
17 to offset some part of a building's load.

18 MS. CHAMBERS: Good job.

19 MR. HOLMES: John, SDG&E. There are, in addition  
20 to the other forms of storage that are viable in looking at  
21 demand-side applications, there are -- there's a great  
22 parity with the transportation sector, both Tesla and Coda,

1 two fledgling California automotive companies, are working  
2 toward siting customer premise energy storage as part of  
3 their strategy to advance vehicle charging capabilities and  
4 various demand charges associated with vehicle charging.

5 So we're going to be looking at the integration of storage  
6 that's essentially got control architecture already taken  
7 care of by the automotive manufacturers, their ability to  
8 integrate that stuff.

9           We're also going to be seen in the very --  
10 immediately, and also in the new future, system integrators  
11 who are taking storage and putting it next to rivers and  
12 renewables and coming into the utility phase as PPA, for  
13 instance, exploding the fast-tracking capabilities for not  
14 only utility purposes, but also for market participation.  
15 So in terms of technology barriers, the communications  
16 interfaces that are necessary to integrate with the  
17 utilities' network, communications network to CalISO,  
18 that's an area where we really need to see some very  
19 immediate focus on in order to facilitate the integration  
20 of these systems which are coming fast and furious to the  
21 industry.

22           So what we're talking here about, integrated

1 storage of, you know, 25 to 100 kilowatt are a scale -- a  
2 relatively small scale of the, you know, of the residential  
3 of multi-unit or commercial-industrial facility that would  
4 give operational benefits to the premise, but then it could  
5 also be exploited for market participation and to generate  
6 revenue for the owner. And those systems likely will be  
7 networked by the third-party integrators who are marketing  
8 the operation of those systems into the energy markets. So  
9 megawatt scale integration on both of those networks.

10 MS. CHAMBERS: So we've added some  
11 prioritization. Thank you.

12 Yes, Byron?

13 MR. WASHOM: Byron Washom from UC San Diego.  
14 There's a severe need to measure the technical benefits of  
15 distributed energy storage at the small-scale market  
16 participation. Right now we know there's a value but we  
17 can't quantify it. We haven't measured it, and we can't.  
18 And if we haven't measured it and quantified then we can't  
19 monetize it. So that type of information is very much  
20 needed at the scale that John Holmes just mentioned. Thank  
21 you.

22 MS. CHAMBERS: Thank you. Are there any other

1 questions on this list that you would like to respond to  
2 in -- as far as demand-side storage is -- is concerned?  
3 Please do so. I think we're kind of running out of time,  
4 so let's skip forward.

5 MR. HORNQUIST: Can I ask a question?

6 MS. CHAMBERS: Sure. Please.

7 MR. HORNQUIST: I was just wondering, generally  
8 speaking, what our other methods of giving input, other  
9 than today, for prioritization. It seems like there are  
10 some experts here in the room. But somewhat concerned  
11 about  
12 the -- the depth of -- of the input.

13 MS. CHAMBERS: We have your comments, but Laurie  
14 has something to add here.

15 MS. TEN HOPE: This is Laurie ten Hope. I  
16 encourage you to spread the word to your colleagues, other  
17 people that you know. We are soliciting written comments  
18 in response to these questions and would welcome them from  
19 anyone in the energy community on, you know, any one of  
20 these topics.

21 Sorry, this is repetitive for many of you who  
22 have been here all day. We also will be issuing and

1 investment plan early in September. So we'll take this  
2 input and, you know, experience from running other programs  
3 and suggestions that we get, we'll put together this  
4 investment plan and we'll have a workshop in September to  
5 take comments on that investment plan. And so I think  
6 we'll -- you know, that will be an opportunity where I  
7 think a lot more people will engage in terms of saying you  
8 missed something or you don't need to do that.

9           So, yeah, this is -- we're taking written --  
10 we're asking that written comments be submitted by the 17th  
11 so that we do have time to think about them in our  
12 preparation of the investment plan. And I think the  
13 utilities are opening up their comment period for their  
14 investments until the 24th, so --

15           MS. CHAMBERS: Any other comments? Okay.

16           Let's go to the next slide. He's already there.  
17 Environmental and public health impacts. I'm going to go  
18 through this one quickly because we also might have a few  
19 comments, perhaps, on market facilitation.

20           Indoor air quality; informative advice future  
21 building and applicant efficiency standards, and also  
22 informative advice future and water regulations. What

1 might be some of these barriers in these initiative areas.

2 Be thinking about that, and I'm going to buzz right along.

3 Any other comments? Okay.

4           Where might you think funding should be placed to  
5 maximize deployment of clean energy technologies? Where is  
6 innovation needed versus the support for commercial scale-  
7 up for critical need. Specific initiatives recommended to  
8 advance innovative energy technologies that benefit  
9 ratepayers? Defining the ratepayer need. I think these  
10 are questions -- comments, send your written responses in  
11 these areas. Also, prioritizing our initiative -- pardon  
12 me -- and identifying benefits that should be anticipated  
13 or measured. And lastly, what areas might already be  
14 covered by other funding sources, the DOE or whoever?

15           No particular? We have one speaker.

16           MR. HOLMES: This is John from SDG&E. I just  
17 want to say we really need to exploit the capabilities of  
18 Cal EPA and the Air Resources Board to maximize the  
19 potential benefits that we would have as investments here.

20 I think this is an area of key concern. And I know that,  
21 for example, Peggy Jenkins at the ARB is endorsing her  
22 initiatives in indoor air quality. And so I think that's a

1 great opportunity to build upon the -- the body of research  
2 that's -- that's undergoing development there.

3 MS. CHAMBERS: Thank you, John.

4 MS. TEN HOPE: This is Laurie again. And I  
5 just -- other suggestions that you have on processes to do  
6 these kind of cross-cutting initiatives are appreciated  
7 because the underlying assumption here is that sometimes  
8 the barrier to adopting and energy efficiency technology or  
9 a renewable technology is a water permit or an air permit  
10 or a related environmental issue. And, you know, so you're  
11 not -- we're not going to get to the energy goal without  
12 looking at the interface with environmental issues and  
13 public health issues.

14 But then when you cross -- energy is complicated  
15 enough. But then when you're -- you know, you have  
16 different regulators and a broader community, suggestions  
17 on how -- the -- the best way to -- to think about  
18 initiatives like that and make sure that we have the right  
19 participation is -- is appreciated.

20 So it's about initiatives. It's also about the  
21 structure of the program.

22 MR. HOLMES: So great comments. And I think

1 maybe my suggestion -- this is John again -- is that we  
2 have active participation in the academic environments in  
3 the UC system, both at UC Berkeley with the Center for the  
4 Built Environment which receives essential funding annually  
5 from the Energy Commission, as well as the energy centers  
6 at UC Davis facilities, the Western Co-Efficiency Center,  
7 the California Energy Technology Center, the Ph.D. and ITS  
8 programs, as well as the energy efficiency overall program  
9 that we as a chair, have a professorship there, SDG&E&E.

10 MS. CHAMBERS: Thank you, John. Okay.

11 So let's quickly go to the next slide.

12 MR. SCHINDLER: Sure.

13 MS. CHAMBERS: Market facilitation. As everyone  
14 else has said, this -- there will be full discussion  
15 tomorrow. But if there is anything you would like to talk  
16 about in this -- under --

17 MS. TEN HOPE: On efficiency.

18 MS. CHAMBERS: -- yeah, efficiency and demand-  
19 side management. Innovation clusters, workforce  
20 development, those areas will be covered tomorrow. But if  
21 there's something specific you would like to say about it  
22 today, we welcome your comments. Anybody online? Okay.

1           MR. WASHOM: This is Byron Washom from UC San  
2 Diego. I think the concept developed in the former  
3 governor's administration of the I-hubs was very helpful,  
4 particularly with the Department of Energy, when they  
5 evaluated bids, there were a number of different centers  
6 people claiming to be the lead in California, if you will.

7           But this i-hub concept of focusing and specializing by  
8 region would really enhance the competitiveness of at least  
9 one person in California or one entity in California  
10 prevailing in the national bid. So I think that the  
11 process of i-hubs is very valuable on a national level.

12           MS. CHAMBERS: Thank you, Byron. Any other  
13 comments?

14           MR. HORNQUIST: Edwin Hornquist, Southern  
15 California Edison. I'll just say similar to my earlier  
16 comment regarding coordination and collaboration that --  
17 maybe this is related because it does facilitate the market  
18 for energy efficiency -- one of the things that I'm looking  
19 at as I'm reviewing for the technology action plan I'm  
20 seeing a lot of coordination and facilitation that is going  
21 to be required going forward, pull the right stakeholders  
22 and the right monitor actors to deliver on some of these

1 initiatives. So I encourage the commission to play -- I  
2 know you're playing a big role in the development of the  
3 plan. But I envision a greater role in the actual  
4 implementation of it.

5 MS. CHAMBERS: Thanks. Any other comments?  
6 Great. I think we are over. But did you want to go to  
7 public comment?

8 MS. TEN HOPE: Yeah.

9 MS. CHAMBERS: So I'll turn this back over to  
10 Laurie. Thank you for your time.

11 MS. TEN HOPE: All right. We're going to open it  
12 up for public comment for any of the topics that you've  
13 heard today. If you have a question or a comment about the  
14 process, the schedule, what we're going, or any of the  
15 sessions today, this is an opportunity to speak. And we'll  
16 also take comments online. Do we have any comments online?

17 You'll note that on the agenda Rob Oglesby, who  
18 is our executive director, was going to provide closing  
19 remarks, but he's caught in traffic. So he's landed but  
20 he's not going to make it here before we conclude this  
21 session. He -- he will be here tomorrow morning for those  
22 of you who are staying. He -- he wanted to convey that,

1 you know, this process is really important to the Energy  
2 Commission, and your public participation was really  
3 important. And he'll -- he'll be here to kick it off in  
4 the morning and answer any questions that you might have.

5           So the address for comments is posted. And I  
6 thank those of you who have stuck it out for the day, and  
7 it was, you know, it was a pleasure to -- to have the  
8 dialogue and get your input. Thanks very much.

9           Oh, let me just say, we start tomorrow at nine  
10 o'clock. Tomorrow is -- it's going to be a really  
11 interesting set of three panelists. It will be a different  
12 format than today. So we have several folks coming to  
13 speak specifically about innovation clusters around the  
14 state and what's -- what they're doing, what they see as  
15 some of the pros and cons of those models, and what they  
16 recommend for the program going forward. There's a second  
17 panel, permit streamlining. And a third one on workforce  
18 development. And there will be an opportunity to comment  
19 as well. And if you choose to participate by WebEx, that  
20 option will be provided tomorrow as well. Again, thank  
21 you.

22 (The California Energy Commission, Staff Workshop on the

1 Electric Program Investment Charge Program, Adjourned at

2 4:06 P.M.)

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I, MARTHA L. NELSON, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Status Conference; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said conference, nor in any way interested in outcome of said conference.

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August 9, 2012

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