

BEFORE THE  
CALIFORNIA ENERGY COMMISSION

In the Matter of: ) Docket No. 12-EPIC-01  
)  
Electric Program Investment )  
Charge (EPIC): Checking in )  
on the Implementation )  
of the First-Triennial )  
Investment Plan ) Staff Workshop

Electric Program Investment Charge (EPIC):  
Checking in on the Implementation of  
the First-Triennial Investment Plan

CALIFORNIA ENERGY COMMISSION  
HEARING ROOM A, 1516 NINTH STREET  
ART ROSENFIELD HEARING ROOM  
SACRAMENTO, CALIFORNIA

TUESDAY, FEBRUARY 24, 2015  
1:00 P.M.

Reported by:  
Kent Odell

## APPEARANCES

### Staff Present (\*Via telephone)

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Virginia Lew, Office Manager, Energy Efficiency  
Lorraine Gonzalez, Energy Research and  
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Erik Stokes, Office Manager, Market Facilitation  
Aleecia Gutierrez, Manager, Generation Office  
Fernando Pina, Systems Research  
Pam Doughman  
Allan Ward, Assistant Chief Counsel  
Rachel Grant-Kiley, Manager, Grants and Loans Office  
Eli Harland, Energy Research and Development Division  
Le-huy Nguyen  
Josh Croft

### Also Present

Barbara Haydorn, SRI International  
Hasna Khan, Energy Systems  
Vojin Zivojnovic, Aggios  
Phil Hughes, Clustered Systems  
Ken Broome, KR Broome and Associates  
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U.C. Berkeley  
Peter Miller, Natural Resources Defense Council (NRDC)  
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Christa Darlington, Subcontractor, Woman-owned  
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Pramod Kulkarni, Customized Energy Solutions  
Urvi Nagrani, Motiv Power Systems  
David Bliss, Charge Bliss  
Niles Brinton, Charborn  
Eric Thompson, Natel Energy  
Erik Bluvas, Green Creative  
Fred Walti, LECI, Executive Director  
Bernie Kotlier, Executive Director, Energy Solutions for  
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Terry Surles, Senior Advisor, California Institute for  
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Consultant to the Institute for Defense Analysis  
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Environment, U.C. Berkeley  
Mitch Sears, Sustainability Manager, City of Davis

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Merwin Brown, Co-Director, Electric Grid Research, CIEE;  
Member, DOE Electricity Advisory Committee;  
DOE Leadership Committee; Chairman, DOE Energy  
Storage Subcommittee  
Ron Durbin, Executive Director, U.C. Solar Institute,  
U.C. Merced  
Masoud Rahman, Department of Chemical Engineering and  
Material Science U.C. Davis; Research Engineer,  
California Solar Energy Collaborative  
\*Rob Hammond, President, Bier Energy  
Kristin Holdsworth, Project Manager, California Center  
for Sustainable Communities at U.C.L.A.'s Institute of  
the Environment and Sustainability  
Bill Eisenstein, Executive Director, Center for Resource  
Efficient Communities at U.C. Berkeley

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<ul style="list-style-type: none"><li>• In solicitations released so far, has the Energy Commission missed any important and high priority technologies, approaches, or opportunities described in the 2012-2014 EPIC Investment Plan? If yes, please explain how the topics fit within the investment plan and how they would:</li><li>• Benefit electricity ratepayers; and</li><li>• Lead to technological advancement and breakthroughs to overcome the barriers that prevent the achievement of the state's statutory energy goals.</li></ul>	

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<ul style="list-style-type: none"><li>• Is there a need to target EPIC funds to research centers or multi-project awards? If so, describe why research centers or multi-project awards are needed and identify which topic areas they are needed in.</li><li>• If the Energy Commission invests EPIC funds targeted to research centers or multi-project awards, what criteria (e.g. research complexity, successful commercialization, broad partnerships, and demonstrated need) should the Energy Commission use to competitively solicit applications that maximize benefits to IOU ratepayers?</li></ul>	
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P R O C E E D I N G S

FEBRUARY 24, 2015 1:03 p.m.

MS. TEN HOPE: Good afternoon. I want to welcome everyone today to our check-in workshop on the Electric Program Investment Charge (EPIC). We are interested in having a dialogue on how EPIC is proceeding with the Energy Commission's implementation. First I'll do introductions and some housekeeping items and then share the agenda for today.

So I'm Laurie ten Hope. I'm the Deputy Director for the Research Division here at the California Energy Commission.

For safety considerations, if there's an emergency, we will go carefully across the street to Roosevelt Park, follow staff, and reconvene there and come back when it's safe.

There are restrooms diagonally across the hall here. And I think that pretty much covers our safety considerations.

Today's workshop is broadcast by WebEx and it is being recorded, so we want parties to be aware that the dialogue is recorded. We are interested in having active participation from participants today, so we're going to, as staff,

1 tee up some of the discussion points and then ask  
2 folks to come forward, so I'd really like you to  
3 fill out the forms that were out front and, Josh,  
4 Le-huy, and who is our third -- Pam, if you can  
5 raise your hands, provide those forms, and we'll  
6 sort the forms and bring people up.

7           Our goal is to make this a little bit  
8 more workshop-like, so when we get to the open  
9 session we'll actually invite groups of people  
10 up, we'll probably need to control the time for  
11 each person, but that would allow for a little  
12 bit more dialogue on some of the issues between  
13 our staff and participants.

14           So our workshop today is really organized  
15 in two themes: we're going to start out first  
16 with an overview of the EPIC process and our  
17 outreach to date. Virginia Lew and Lorraine  
18 Gonzalez will provide some context slides in that  
19 area, and then we will open up for discussion on  
20 any comments you have on question related to  
21 whether you find our materials clear,  
22 understandable, have suggestions for improving  
23 outreach and transparency, and we'll have a  
24 moderated discussion.

25           We'll then take a break at approximately

1 2:45, and if we're going faster we may break  
2 earlier, and then we'll move into the second  
3 session where we're interested in feedback on  
4 technology investments and research centers. So  
5 in this area what we're interested in, our EPIC  
6 Program follows the EPIC Investment Plan that  
7 we've developed, it's been approved by the Public  
8 Utilities Commission, it's available on our  
9 website, and you'll get some really brief  
10 highlights on that investment plan this  
11 afternoon.

12           But what we want to hear is, the way  
13 we're structuring our solicitations and our topic  
14 areas, are we missing some key technology area  
15 that would be consistent with our Investment  
16 Plan, it would bring high value to the Investor-  
17 Owned utility ratepayers, and is consistent with  
18 our policy goals, but we either don't know about  
19 it or we're structuring our solicitations in a  
20 way that misses an important opportunity?

21           And the second part of this discussion is  
22 research centers. The Energy Commission in the  
23 past has created and funded various research  
24 centers around the state. We are currently not  
25 doing active competitive solicitations for



1 centers, we've had some questions about whether  
2 we plan to, and we thought this was a good topic  
3 for discussion in terms of what might be, again,  
4 missing in the approach we're taking and the pros  
5 and cons of a center-type solicitation.

6           When we get to our discussion  
7 opportunities, we'll take comments from the room,  
8 from those of you who are on WebEx, we would ask  
9 you to use the chat function and let Eli know  
10 that you're interested in making a comment, and  
11 at periodic points for those of you who are on  
12 phone only, we'll unmute the phones to take phone  
13 questions.

14           So I basically covered this, our purpose  
15 is to really check in on the implementation of  
16 our first Investment Plan and hear your feedback.

17           For those of you who have participated in  
18 the EPIC Program, this is kind of old news, but  
19 for any of you who might be new, I wanted to kind  
20 of lay out the really high level overview of what  
21 the EPIC Program is. It's a research program  
22 designed to advance clean energy technologies,  
23 get those technologies into the marketplace in a  
24 way that benefits the Investor-Owned Utility  
25 ratepayers that are paying for the research, and

1 that it follows through an energy innovation  
2 pipeline, not necessarily as linear as this  
3 portrays, but a research program that makes room  
4 for earlier stage research in the Applied  
5 Research area, a demonstration program where some  
6 of those technologies can be demonstrated on  
7 site, and a market facilitation program that's  
8 still relatively new for the Energy Commission,  
9 addressing some of the non-technological barriers  
10 to technology deployment, including things like  
11 workforce or permit challenges, or some  
12 mentorship for entrepreneurs that would help  
13 accelerate technology path to market.

14           So I want to just give a high level sort  
15 of where we are. We've been issuing  
16 solicitations off the first Investment Plan and,  
17 you know, we're off to a pretty strong start. We  
18 have 13 solicitations that have been released and  
19 have either planned or recommended awards for  
20 \$192 million out of the \$330 million Investment  
21 Plan for the First Triennial Investment Plan.

22           We have had really active participation  
23 by the research community. On average there's  
24 about four times the applicants to funding  
25 awarded, and I think that really bodes well for

1 the awards that are selected. It's also  
2 difficult because we have a much higher rate of  
3 those we can't fund than those we do fund.

4 We have posted a Notice of Proposed  
5 Awards, so after we issue a solicitation we go  
6 through the scoring and evaluation, we post the  
7 proposed awards, and so for about half of the  
8 research portfolio of \$153 million are available  
9 on our website, we have three solicitations where  
10 Notice of Proposed Awards are imminent in about  
11 the next 10 days. And the other two  
12 solicitations are in the next couple of months,  
13 and that will cover our solicitations that are  
14 released to date and we have a dozen  
15 solicitations planned in the next few months to  
16 commit the remainder of the planning funds.

17 So I didn't realize this would be quite  
18 so difficult to see on the screen, I just wanted  
19 to provide an example of where we're going  
20 through and looking at each of the solicitations  
21 and the topic areas, the recommended award  
22 amounts, how many applications received awards,  
23 the requested funds, and the total applications.  
24 And this is kind of illustrative, I had said on  
25 average, you know, it's about 4:1 applicants to

1 awards, but it varies a lot from solicitation to  
2 solicitation. So the first solicitation which  
3 was for Building Energy Efficiency received over  
4 120 applications in the first stage, and we were  
5 only able to award 13 Applicants, or about 11  
6 percent of the awards.

7           The Storage Solicitation was about a one  
8 in ten. Microgrids was about a 5:1 ratio, so  
9 again, it just goes to the strength of the  
10 research community here in California.

11           I do want to point out the last one, all  
12 the sample solicitations that are listed here and  
13 the results are for closed awards except for  
14 Federal cost share, that's an open solicitation,  
15 so we've allocated about currently \$5 million of  
16 the Applied Research Funds and \$5 million of the  
17 Technology Demonstration Funds to be available  
18 for possible match to federal research, and  
19 that's consistent with our Investment Plan. And  
20 so our goal, and we'll probably hear from some of  
21 you on whether the goal has been met, the goal is  
22 to have a simplified application process at the  
23 Energy Commission that provides some certainty to  
24 Applicants on whether or not Energy Commission  
25 funding would be available for their Federal

1 award.

2           So those are the ones that have been  
3 awarded to date. We update that solicitation  
4 with the funding opportunity notices from DOE,  
5 ARPA-e, and other Federal agencies.

6           So one of the things we're doing right  
7 now and we're just starting to do is we're  
8 looking at our applications from the perspective  
9 of who is applying, who is funded, who is not  
10 funded, by the big groups of University of  
11 California, private sector, large research  
12 organizations, National Labs, and others. And  
13 part of the reason we're doing this, we are then  
14 going to dial down and look at the Applicants and  
15 Sub-Applicants a little bit further in terms of  
16 whether small businesses, women, or minority or  
17 disabled Veteran-owned businesses. And one of  
18 the questions that we'll ask you in the process  
19 discussion here is whether our solicitations are  
20 clear and understandable and work for a diverse  
21 applicant pool. So this sort of tells us a  
22 snapshot in time of who is applying and being  
23 funded, and we're looking at this solicitation by  
24 solicitation, so it can vary quite a bit in terms  
25 of the applicant pool and the funded pool,

1 depending on the topic area.

2           Next, I'm going to turn the podium over  
3 to Virginia Lew, who will talk about a few  
4 process improvements, and she'll turn it over to  
5 Lorraine Gonzalez on outreach, and then we'll  
6 open for discussion on this first topic area.

7           MS. LEW: Thank you, Laurie. So my  
8 presentation today will provide some background  
9 information on some of the improvements that  
10 we've made on our solicitation process, primarily  
11 to reduce the time it takes to get agreements  
12 developed and in place, and also some of the  
13 reasons for delays in some of our processes.

14           In managing our previous research  
15 program, one of the comments that we received was  
16 that our solicitations were non-standardized, and  
17 the criteria and formats varied from solicitation  
18 to solicitation. In implementing the EPIC  
19 Program, we created and developed a standardized  
20 template. The goal was to create a document that  
21 provided clear information on what we needed and  
22 how we would evaluate that information. We also  
23 wanted to provide detailed instructions for  
24 preparing the project narrative and also for some  
25 of the more difficult documents like the

1 Statement of Work and the Budget Templates.

2 As you flip through any of the PONs that  
3 Laurie mentioned, you'll see that they all have  
4 the same look, the same type of information, and  
5 the main areas that are changing are primarily  
6 the project scope, the focus, the funding, and  
7 the schedule.

8 The result was a solicitation, that  
9 document that had the same look and feel, and  
10 created familiarity and helped both Applicants  
11 and our own internal reviewers. We'd like to say  
12 that the template was perfect and that we're not  
13 making any more changes, but that's not really  
14 happening. I mean, since we released our  
15 solicitation we've made additional improvements  
16 to clarify the solicitation requirements and  
17 provide more information where it was necessary.

18 The Energy Commission participated in a  
19 Lean 6 Sigma project in 2014, led by Rachel  
20 Grant-Kiley of the Energy Commission's Grants and  
21 Loans Office. The goal of this project was to  
22 reduce the time it took to process agreements.  
23 This slide here shows all the procedural steps  
24 needed after a solicitation is released to get it  
25 to having a signed agreement. And so we're

1 committed to completing all these steps in less  
2 than a year.

3           So how are we doing? So the top portion  
4 of this table shows the average number of days  
5 from solicitation release to business meeting.  
6 And we're averaging about 253 days for all the  
7 solicitations that we've released. And for  
8 Single Stage solicitations it's been about 244  
9 days, and for Two Stage solicitations, which  
10 consists of an abstract and final proposal, it's  
11 taking about 280 days.

12           And what are some of the things that have  
13 caused some of these delays? There are two main  
14 areas, one is during the application process.  
15 During the application process, if we receive a  
16 high volume of questions during our pre-bid  
17 workshops, it might take us longer to respond.  
18 Some of the earlier solicitations we were  
19 receiving upwards of 100 to 200 questions, and so  
20 it took us quite some time to put some of those  
21 responses together, especially when some of the  
22 questions were very new and we needed to do some  
23 research.

24           To help answer some of the more routine  
25 questions, we created a Frequently Asked



1 Questions about the EPIC Program on our website,  
2 and so you can find that on our Funding  
3 Opportunities website.

4           As indicated in our earlier slide, we've  
5 received over 300 applications and the very first  
6 Building solicitation we received over 100. In  
7 our Single Stage applications, we've been  
8 receiving an average of 30. So with this high  
9 volume of proposals, it also takes longer for us  
10 to complete our review and our analysis and score  
11 the proposals. It also takes longer for us to  
12 complete our review and our analysis and score  
13 the proposals. And another reason for delay is  
14 once we post the NOPA, we're going to agreement  
15 development, and so when we do agreement  
16 development we need timely responses from the  
17 proposed Awardees in order to address questions  
18 that we have on the Statement of Work, Budget,  
19 and the Schedule. And if we don't get timely  
20 responses, that could also cause us delays in  
21 getting the documents ready and considered for  
22 our Business Meeting.

23           Another area deals with Terms and  
24 Conditions. In each one of our solicitation  
25 documents, we specifically say that the Terms and

1 Conditions are not negotiable, and each Applicant  
2 also certifies in their application that they  
3 will accept the Terms and Conditions without  
4 negotiation. But several have contacted us,  
5 asking for clarification on the Terms and  
6 Conditions and, as a result, this has taken some  
7 time to go through and review each of those  
8 requests. And that has also resulted in delays  
9 in getting the agreements to the Business  
10 Meeting.

11           So during the open discussion that will  
12 come after Lorraine's discussion, I'd like you to  
13 identify and suggest any other improvements that  
14 we should make and consider on our solicitation  
15 process to make it easier: Is the purpose of our  
16 solicitations clear? Are the instructions clear?  
17 And is everything easy to understand?

18           So with that, I'd like to turn it over to  
19 Lorraine Gonzalez who will speak and give you a  
20 status update on the outreach and diversity  
21 efforts.

22           MS. GONZALEZ: Hello, I'm Lorraine  
23 Gonzalez and I'm going to be talking about  
24 outreach and diversity efforts for the EPIC  
25 Program. After my presentation, we'll be opening

1 the floor up for an open discussion, and so while  
2 I'm talking now, Josh will be coming around and  
3 picking up the discussion request cards from you  
4 so that we're aware of the topics that would like  
5 to be discussed today.

6           So the Energy Commission staff has  
7 initiated an outreach plan to ensure that women,  
8 minorities and disabled veterans know about and  
9 understand how to participate in EPIC Program  
10 activities, especially solicitations.

11           Ongoing outreach efforts include  
12 workshops and community meetings in a variety of  
13 locations, tools to increase awareness of the  
14 program, reports on participation, and support  
15 for disadvantaged communities. We're building a  
16 solid foundation to ensure all Californians have  
17 the opportunity to participate in our research  
18 funding process.

19           Chair Weisenmiller's letter to the CPUC  
20 in November of 2013 identified the following  
21 efforts that the Energy Commission would  
22 undertake: to initiate and implement an outreach  
23 plan to ensure that a diverse range of potential  
24 applicants know about and understanding how to  
25 participate in EPIC Program activities in an

1 effort to demystify the application process, to  
2 increase our efforts to connect with the diverse  
3 range of California communities targeting  
4 particular geographic regions within the state,  
5 to include initiatives that provide ratepayer and  
6 environmental benefits in low income communities  
7 throughout the state, and to develop methods to  
8 track, monitor and report on the participation of  
9 California-based entities, women-owned, minority-  
10 owned, and disabled veteran-owned businesses, and  
11 small businesses using the same definitions as  
12 the IOUs in CPUC General Order 156.

13           The Energy Commission is dedicated to  
14 even greater transparency under the EPIC Program.  
15 We strive to ensure all entities and potential  
16 new Applicants are aware and knowledgeable of the  
17 process, policies and procedures for EPIC. To  
18 support these efforts, the Energy Commission has  
19 conducted a number of outreach activities to  
20 inform stakeholders about EPIC funding  
21 opportunities and provide guidance on how to  
22 prepare successful proposals.

23           In 2014, staff participated in a wide  
24 array of existing workshops and community forums  
25 centered on economic development, urban renewal

1 and clean energy innovation. Staff reached out  
2 to a wide variety of diverse clean energy groups  
3 and the African-American, Hispanic and Asian  
4 Chambers of Commerce, and participated in events  
5 such as the Oakland Business Roundtable and the  
6 Annual Connecting Point Event hosted by Caltrans.

7 Staff also made public information more  
8 accessible by making information on EPIC funding  
9 opportunities easier to find on our website,  
10 updating the Energy Commission's research website  
11 to include a statement about the Commission's  
12 commitment to diversity, developing and posting  
13 Frequently Asked Questions about our  
14 administration of the program, including the How  
15 to Apply for EPIC Funding Workshop Presentation  
16 on our website, and announcing EPIC funding  
17 opportunities and workshops on social media and  
18 the Commission blog to reach a larger audience.

19 Moving into 2015, \$9 million were  
20 allocated for proposals with the demonstration  
21 community located in communities with the poorest  
22 environmental quality as defined by Cal  
23 Enviroscreen.

24 We issued a Request for Public Comment on  
25 our Draft Solicitation that will provide funding

1 for disadvantaged communities to develop the  
2 workforce for the Clean Energy Economy by  
3 providing on-the-job training for innovative  
4 energy efficiency technologies. And we're  
5 surveying funding recipients to better understand  
6 the applicant pool and to establish a baseline  
7 for tracking the participation of California-  
8 based entities, women-owned, minority-owned, and  
9 disabled veteran-owned businesses and small  
10 businesses.

11           Using social media to our advantage, we  
12 will soon unveil a LinkedIn group page to connect  
13 potential applicants with one another for  
14 partnering on applications for EPIC project  
15 funding. Other efforts will include meeting with  
16 stakeholders in Southern California and the  
17 Central Valley to share the funding opportunities  
18 that can benefit their communities, continuing  
19 outreach efforts with small businesses, minority,  
20 disabled veteran, and women-owned businesses to  
21 develop their awareness of the program and ensure  
22 their voices are being heard, encouraging that  
23 working and partnering among potential  
24 applications and providing clarity through pre-  
25 application workshops, translating certain EPIC

1 materials into other languages.

2 We are interested in meeting with  
3 additional organizations and individuals to  
4 discuss which outreach efforts have been most  
5 effective and to identify additional efforts to  
6 increase diversity in our process.

7 And so with that, I think we'll go ahead  
8 and open the floor for open discussion and I will  
9 pass it off to Laurie ten Hope.

10 MS. TEN HOPE: As Josh brings up the  
11 cards, I want to introduce the people who are up  
12 here from the Energy Commission, and we're going  
13 to do this a little bit differently than we  
14 usually do, I'll call up eight folks to come up  
15 here, and then we'll hear from each of you for a  
16 few minutes and then we may have a little bit of  
17 dialogue, and then we'll go to the next group. I  
18 thought this might create little bit more of a  
19 conversation than coming to the podium and not  
20 having any interaction at all.

21 So you heard from Virginia Lew, she's the  
22 Office Manager for Energy Efficiency; we have  
23 Erik Stokes, who is the Office Manager for Market  
24 Facilitation; Aleecia Gutierrez is the Generation  
25 Office Manager; and Fernando Pina for Systems

1 Research. So these are the Program Managers that  
2 oversee a large portfolio of the research we're  
3 talking about today.

4 And then we have Allan Ward, who is  
5 Assistant Chief Counsel, and Rachel Grant-Kiley,  
6 who is our Manager for our Contracts Office. And  
7 so some of the questions or input may be related  
8 to our contract procedures that either set in  
9 statute regulation and it would be helpful for  
10 them to hear and perhaps respond, as well.

11 I'm terrible with names, so forgive me.  
12 Hasna Khan, Barbara Haydorn, Phil Hughes and  
13 Vojin Zivojnovic. Why don't you come up? I can  
14 take maybe two more.

15 So actually I think this is all the  
16 people who submitted a card that they were  
17 interested in speaking on this first topic. If  
18 we missed anybody and you would like to speak,  
19 just find -- where did Josh go -- right there.  
20 You know, turn in a card and we'll hear from you,  
21 as well. Ken Broome, you may want to join as  
22 well, come on up.

23 All right, so let's start with Barb.

24 MS. GRANT-KILEY: Make sure that the  
25 green light on your microphone is on.



1 MS. TEN HOPE: Thank you.

2 MS. HAYDORN: Barb Haydorn with SRI  
3 International. And we're very happy to see the  
4 EPIC Program have a Federal cost share  
5 reimbursement component to it, and we're also  
6 grateful to your taking time to solicit public  
7 feedback on what makes the process work or not  
8 work.

9 I think there are three things that would  
10 be very helpful to us. One would be to simplify  
11 the application process, the current application  
12 with the 30-page project narrative is almost as  
13 complex as the Federal application for the full  
14 award. In our case, for things like ARPA-e's  
15 applications, essentially they cover 95 percent  
16 of the budget on award, the remaining five  
17 percent is the cost share that we hope to get  
18 through EPIC. And the application processes are  
19 equally complex.

20 We'd like to also see better alignment in  
21 the timelines between Federal awards and the EPIC  
22 solicitations so that our researchers aren't  
23 diverted from putting together their full Federal  
24 awards by having to participate in the EPIC  
25 process.

1           We'd also like to see a component that  
2 allows educational institutes and nonprofits to  
3 be awarded the full percent of the cost share  
4 requirement; in some cases that's as low as five  
5 percent. For some institutions having any  
6 requirement can make it difficult to proceed and  
7 the way the current EPIC program is structured,  
8 all Applicants just receive half of the required  
9 cost share. So having a component maybe with a  
10 financial cap, or limited to a smaller  
11 percentage, but that covered the full amount  
12 would be very helpful in allowing more people to  
13 participate. Thank you.

14           MS. TEN HOPE: Can you say a little bit  
15 more about what you -- I mean, you say the  
16 process is too complex and too long, what you  
17 would suggest as an alternative?

18           MS. HAYDORN: Yes. So one of the things  
19 that's problematic for us is, well, from our  
20 standpoint DOE has a very extensive peer reviewed  
21 process, they make their initial decisions just  
22 based on a four-page concept paper and sometimes  
23 before we've even heard back from whether or not  
24 that we receive an invitation to submit a full  
25 proposal we're required to have the 30-page

1 project narrative submitted to CEC. So I think  
2 if CEC could place greater reliance on the DOE  
3 peer review process to evaluate the technical  
4 merit, the team qualifications, and have the  
5 process focus more on the benefits to California  
6 that fits with Energy Commission needs, ratepayer  
7 benefits, that would be very helpful. Does that  
8 answer your question?

9 MS. TEN HOPE: Questions or comments?  
10 Okay, we may come back to that.

11 MS. HAYDORN: Okay.

12 MS. TEN HOPE: Hasna.

13 MS. KHAN: Thanks. I'm Hasna Kahn from  
14 Energy Systems. My issue is very simple, it's  
15 regarding the question that you had about women-  
16 owned businesses participation. And I'm perhaps  
17 not aware of it, but it would be interesting to  
18 see how many you have gotten so far in terms of  
19 numbers of responses and awards that have been  
20 given to women-owned small businesses. And the  
21 whole point is it is not easy to get women into  
22 the technical fields, it's a universal problem; a  
23 similar thing has happened for like women  
24 engineers, getting them into the system, stem  
25 issues like outreach, and I understand from Ms.

1 Gonzalez's presentation that you have already  
2 taken steps on that and perhaps a little bit more  
3 of networking opportunities might help. Thanks.

4 MS. TEN HOPE: We certainly welcome more  
5 networking opportunities. Although we've posted  
6 notice of proposed awards for a large percentage  
7 of the funding, we have only taken seven awards  
8 to the business meeting, and of those seven what  
9 we're doing is a voluntary survey with selected  
10 applicants to collect information on whether  
11 they're a small business, women-owned, minority-  
12 owned, or disabled veteran-owned. It's not part  
13 of our selection criteria for reasons that our  
14 attorney is probably better suited to answer in  
15 terms of statutes that don't allow us to give  
16 preference to women or minority-owned firms, but  
17 we want to collect the information and make our  
18 process as transparent and open as possible and  
19 also to do networking with various groups to be  
20 able to take advantage of the funding  
21 opportunity.

22 I believe several of the proposals for  
23 selected awards were for small businesses, one  
24 was a women-owned sub, I believe, not a prime. I  
25 can check that after for you. But we will be

1 collecting that information to the extent that  
2 Applicants will share it with us.

3           Okay, help me again?

4           MR. ZIVOJNOVIC: Vojin Zivojnovic. Okay,  
5 thank you very much. We would like to thank the  
6 Commission for organizing this public workshop to  
7 review the Energy Commission implementation and a  
8 chance to provide feedback.

9           Aggios is a California start-up  
10 developing new methods for energy management of  
11 electronic devices, including set-top boxes,  
12 computer small network equipment and gaming  
13 consoles, in energy terms it's called plug loads.

14           In 2014, Aggios has demonstrated app  
15 matters for the Citizens Energy Savings for set-  
16 top boxes on the Commission's Small Grant  
17 Program, and currently we're actively supporting  
18 the Commission's Title 20 proceedings on  
19 computers.

20           Why we think our comments can be helpful?  
21 Based on Commission's and industry's positive  
22 review of our Small Grant project, seven leading  
23 U.S. electronic operations, and the start of  
24 Aggios, have submitted the project proposal  
25 mobile efficiency for plug load devices, trying

1 to bring mobile efficiency of your mobile phones  
2 in plug load devices across the state. We  
3 proposed that for EPIC PON 13301.

4           The corporation's commitment is to match  
5 every EPIC dollar with two dollars in expert  
6 labor, equipment and software. Our proposal was  
7 disqualified in Phase 2 due to lack of a separate  
8 reference for the wholly-owned subsidiary where  
9 we emphasized a wholly-owned subsidiary for  
10 Aggios, for the details we have submitted a  
11 letter of reconsideration to the Commission.

12           As we went through the whole EPIC process  
13 from initial EPIC workshop over the Phase 1,  
14 Phase 2 submissions, disqualification,  
15 debriefing, request for reconsideration, and  
16 finally taking part in this public workshop, we  
17 believe that our experience and feedback can be  
18 beneficial for future Applicants, the EPIC  
19 Program, and the Commission.

20           What is working well within the Energy  
21 Commission's implementation, what opportunities  
22 are there to improve the implementation of EPIC:  
23 we need to all understand the EPIC undertaking is  
24 an exceptional opportunity for the Commission and  
25 the State of California and an immense and

1 complex task. EPIC is now the only source of  
2 funding for energy research activities in  
3 California. And I'll be specific: it has not  
4 only replaced the PIER Program, it caused the  
5 termination of the Commission's Small Grant EISG  
6 Program for electricity and most of the energy  
7 programs by California utilities. The last one  
8 is very significant. Managing such a surge in  
9 opportunities and expectation is not an easy  
10 task, even for the most capable organizations.

11           The Commission's implementation of the  
12 EPIC Program worked particularly well post-NOPA,  
13 post-Notice of Proposed Awards in the damage  
14 control phase. Our debriefing with the EPIC  
15 decision makers was very open, conducted at the  
16 highest professional standards, and this workshop  
17 is a further indication that the Commission is  
18 aware of the issues and is doing its best to help  
19 the Energy Research community.

20           We shall focus here on one specific  
21 suggestion for improvement. A substantial amount  
22 of ratepayers' money, obviously, which the  
23 Commission distributes, manages, and require some  
24 proper system of checks to be implemented. As an  
25 example, we have calculated the statistics of

1 avoided past, not past, disqualified, and  
2 percentage of disqualified proposals in the PON  
3 13302, 13301, 14603, 13303, 13606, 13603. In the  
4 case of PON 13301, 27 percent of the project was  
5 disqualified, which successfully passed Phase 1.  
6 I'm willing to contribute that in writing, as  
7 well. This should have run an alarm somewhere in  
8 the Commission, as the typical disqualification  
9 rate across all solicitation is typically  
10 significantly lower. Similar checks should  
11 signal the cases when a single organization nor a  
12 single technology wins 10, 15 or more percent of  
13 the awarded funds, as again it was the case with  
14 PON 13301.

15           Our proposal is very specific. We are  
16 proposing that the Commission introduces an  
17 additional check which triggers the second level  
18 of Commission's review. If the initial decision  
19 is confirmed, it should automatically lead to the  
20 public release of the full report by the second  
21 level reviewers. And if not, simply such  
22 solicitation should be disqualified.

23           The next point: Is the Energy Commission  
24 meeting its commitments to increase the  
25 participation of women, minorities, disabled



1 veterans, start-ups, and what can the Energy  
2 Commission do to increase participation in EPIC?  
3 Unfortunately, it is not. With the way the  
4 Commission has defined administrative procedures  
5 for EPIC, and with the bureaucratic way how these  
6 procedures are implemented, there is absolutely  
7 little chance for most research organizations to  
8 avoid disqualification.

9           If you carefully read the document, and  
10 if you have a little bit of a computer  
11 background, which is very formal in what you  
12 write, for example in a software program, you  
13 will see there is plenty of opportunities so you  
14 can simply, on very basic terms, lead to  
15 disqualification of companies.

16           MS. TEN HOPE: I'm going to ask you to  
17 wrap and then if we have a chance to hear from  
18 everyone, we'll return.

19           MR. ZIVOJNOVIC: Yeah, very good. So  
20 last sentence is, we believe that in order to be  
21 successful with EPIC's submissions you have to  
22 have full time experts, probably even lower,  
23 focused on writing applications for government  
24 programs. Most organizations led by women,  
25 minorities, disabled veterans, as well as

1 technology start-ups, cannot afford such  
2 resources. We have a little bit more of comments  
3 we will provide in writing, but that will be this  
4 part. Thank you very much.

5 MS. TEN HOPE: I appreciate your comments  
6 and you touched on a lot of different topics, I  
7 won't really be able to respond to all of them.  
8 We did, as we went through -- the solicitation  
9 that you referenced was our first one out, we did  
10 look at our solicitations as they went along. We  
11 wanted to make sure that we evaluated all  
12 applicants against the solicitation in the same  
13 way, fairly, but we did learn from different  
14 solicitations in terms of mandatory requirements  
15 that were disqualifications, and so those were  
16 some of the adjustments we made as we went along  
17 to reduce the number of things that were  
18 absolutely required that would create a  
19 disqualification because we want to evaluate as  
20 many proposals as possible, it's not a good  
21 outcome to be disqualified, we'd much rather  
22 review each of the proposals. So I encourage you  
23 to stay in the game.

24 And a couple of the things, just to make  
25 sure that they're clear, you had mentioned the

1 PIER Program and the EISG Program. EPIC will  
2 have a small grant component, as well, so there  
3 will be a competitive solicitation issued for  
4 that topic area. It is creating a gap between  
5 the PIER Program to the EPIC Program, and we have  
6 a lot of people who are anxious for that and we  
7 are looking forward to getting that program out  
8 again, too.

9           You also mentioned the loss of the  
10 utility research programs and you may be aware  
11 that the Utilities also have a portion of the  
12 EPIC Program that they're administering, and they  
13 have other demonstration funds available under  
14 other pots of money in addition to the EPIC  
15 Program, so you may want to look to the  
16 Utilities, as well, for some of the topic areas.  
17 Thank you.

18           All right, Phil Hughes with Clustered  
19 Systems.

20           MR. HUGHES: Hi. Good afternoon, thanks  
21 very much for inviting us all. I want to  
22 basically start off with a story because I'm a  
23 happy camper because I started some time ago with  
24 the EIC Program. We developed a prototype and  
25 then we created some industrial relations and we

1 were funded again for Chill Off 2, which you guys  
2 might have heard, I think you also contributed to  
3 that. And on the strength of actually being,  
4 then, designated the most energy efficient system  
5 tested, we moved on, got a Federal grant of close  
6 to \$3 million, a matching grant from PIER, plus  
7 Intel contributed, to build a 100 kW rack for  
8 computers. That was very successful. It had a  
9 total overhead of everything, cooling,  
10 everything, power conversion of 11 percent,  
11 unprecedented in the industry. And at two  
12 million hours, no failures. And then nothing.  
13 So really what we found is that we got dropped  
14 into the gap between the PIER Programs and the  
15 EPIC Programs because I kept on getting  
16 invitations for Energy Efficiency, but then as  
17 far as market development, or further testing, or  
18 anything like that, shall we say none of that  
19 sort of solicitation arrived. So I'm just  
20 wondering, are you going back and looking at the  
21 email lists of the earlier participants of PIER  
22 and earlier programs, making sure that everybody  
23 does know about the EPIC Program?

24 MS. TEN HOPE: We have tried. So when we  
25 started the proceedings for the EPIC Program, we

1 sent out notices to our PIER and Research  
2 Listservs and we used them for quite a while, and  
3 we sent out several emails to those lists saying  
4 if you want to follow the EPIC process, to sign  
5 up on the EPIC Listserv. So you know, it's  
6 unfortunate that something happened and you  
7 didn't see them, or it didn't make it to you. We  
8 certainly want to cast the net as wide as  
9 possible on EPIC opportunities. And, you know,  
10 this is a multi-year program so there will be  
11 future solicitations in topic areas. Virginia is  
12 the Office Manager for Energy Efficiency, we  
13 profiled your technology in one of our Annual  
14 Reports, so, you know, we think it's pretty cool,  
15 too.

16 MR. HUGHES: Okay. No, if you can help  
17 me with some market outreach, I'd be very happy.

18 MS. TEN HOPE: Thanks for your comment.  
19 Ken Broome with KR Broome and Associates.

20 MR. BROOME: We've been very fortunate to  
21 have two very fine experiences with the Energy  
22 Commission, a PIER Program project for \$400,000  
23 that allowed us to demonstrate the potential  
24 benefits of a very low head hydro generating  
25 system and to compare the various alternative

1 means of applying the water to the turbine. And  
2 we then subsequently were fortunate enough to get  
3 a small grant program that allowed us to optimize  
4 the design of the turbine blades. And so we were  
5 all ready to do a commercial-scale demonstration  
6 of this technology when along comes PON 14-307,  
7 which is divided into two parts, the first part  
8 is the commercial-scale demonstration of new  
9 technology where the technology has reached the  
10 point now of being feasible, but not yet  
11 acceptable; and the other element of PON 14-307  
12 was a totally different concept that was really  
13 research on how to distribute power in a  
14 community with the most efficiency, of  
15 combination of people generating their own power  
16 with the distribution of power from large-scale  
17 generators. And these are such totally different  
18 technologies and stages of development that I  
19 believe it was very unfortunate that you combined  
20 the two. So I would ask you in the future to  
21 please consider that you should not combine two  
22 different technologies and two different stages  
23 of development in one project because I do think  
24 that we're still now waiting for an opportunity  
25 to do this commercial-scale demonstration. At

1 the moment I see no prospect of being able to do  
2 that under EPIC, and I just wish that you would  
3 rearrange things a little bit so we're able to  
4 take advantage of what I believe will be a real  
5 benefit not only in this state to the irrigation  
6 canal drops, but also the same technology will be  
7 useful for the navigation dam spillways on the  
8 major river; in other words, there's a real huge  
9 potential waiting to be demonstrated and I just  
10 hope that we will be able to find the opportunity  
11 to do so. Thank you.

12 MS. TEN HOPE: Thanks for your comments,  
13 we appreciate it.

14 MR. BROOME: Uh-huh.

15 MS. TEN HOPE: We had two other people  
16 who wanted to speak to this topic, David Lehrer  
17 from CBE and Peter Miller from NRDC. There are  
18 two chairs here, so if you want to just come on  
19 up?

20 MR. LEHRER: Okay, thank you. I'm David  
21 Lehrer, I'm with the Center for the Built  
22 Environment at U.C. Berkeley and I want to  
23 reiterate others who have thanked you for  
24 allowing us to provide feedback.

25 Our group was involved in submitting for

1 the PON 13-301, and my colleagues who were  
2 involved in writing the proposals wanted me to  
3 share some details and what may be some  
4 constructive thoughts.

5           So the two-stage process works very well,  
6 one comment was, however, that the first stage  
7 template was quite different from the second  
8 stage. And if having the ability to bring the  
9 Stage 1 content and information over more  
10 seamlessly, that would reduce the amount of  
11 workload for the proposers. Also, allowing  
12 electronic submissions would be helpful, and  
13 probably helpful for all of your staff if there  
14 was a system in place to help with that. Of  
15 course, we've worked with systems that enable  
16 peer review of publications and maybe a system of  
17 that nature could be adapted for this use without  
18 a huge investment.

19           And then finally, in this particular PON,  
20 the main intellectual merit was described in  
21 Phase 1 in an eight page narrative that really  
22 contains most of the benefits and most of the  
23 thinking and the critical thinking that went into  
24 the work. And in this particular, the Group A of  
25 the 301, I believe there were 44 approved



1 projects, proposals in Stage 1, and then I  
2 believe 10 were funded in this group. So the  
3 question we wanted to raise is whether it would  
4 be possible to actually have that first stage  
5 more critical, maybe it has to have a little more  
6 information, but if that could actually narrow  
7 the field down more, reducing the number of  
8 failed proposals, or not funded, or for whatever  
9 reason, proposals that are not successful in the  
10 second stage, reducing the amount of work for all  
11 the bidders, but for the staff as well.

12 MS. TEN HOPE: I just have a question on  
13 Stage 1 versus Stage 2, I mean, they have  
14 advantages of having a one-stage process versus  
15 two, and two takes longer. Stage 1, you have  
16 less effort upfront, so you kind of know if you  
17 have a chance or not, so I'm interested from you  
18 and others a little bit more of the pros and cons  
19 of one versus the other. One, you have to wait  
20 longer to get your reward and that might create  
21 some challenges, as well. So if you or others  
22 have feedback. I mean, you prefer it. Why do  
23 you prefer it?

24 MR. LEHRER: You know, many times  
25 companies or research centers, or faculty sort of

1 have ideas that they want to pursue, and  
2 developing those to, say, an eight-page narrative  
3 is something that is expected. And that, I  
4 think, can proceed and if you do an eight-page  
5 narrative and it doesn't get funded, maybe you  
6 can find another funding source, or let that  
7 emerge in a different way, or change it. Going  
8 from the eight to whatever it was, the 50-page  
9 requirement really takes a lot of work and a lot  
10 of the work that goes into the second stage is  
11 more fleshing out all the administrative details,  
12 the whole Section 1 about the deliverables, the  
13 medians, and you know, a lot of the work that  
14 goes into the second stage I think is more on the  
15 administrative side, and checking all the boxes,  
16 and providing all the back-up, whereas the real  
17 intellectual thought goes into the first stage.  
18 So I think that's generally beneficial. I know  
19 that some of the work we've done in getting  
20 funding from the California Air Resources Board,  
21 the first stage is quite light and they were able  
22 to give us some feedback after the first stage,  
23 and then you go into the second stage with some  
24 bit of confidence, feeling that the effort will  
25 be rewarded with the funding.

1           MR. ZIVOJNOVIC: I'd like to comment on  
2 this. I fully agree. Stage 1 does not flow into  
3 Stage 2 and then, you're right, Stage 2 you're  
4 all the time concerned whether the Stage 1 eight  
5 pages will be included because in Stage 2 there  
6 is not enough space in terms of pages that you  
7 really describe the full contributions of your  
8 research. So during the process we always  
9 wondered is the reviewer going to have the Phase  
10 1, eight pages, and then the reduced amount of  
11 research information which is effectively a part  
12 of Stage 2. So I think that should be aligned,  
13 whether Stage 1, or just one stage, or two phases  
14 as you said, it has compromises, right? But it  
15 doesn't make sense that Phase 1 does not flow  
16 somehow into Phase 2, or that we are aware that  
17 the Phase 1 will be taken into account when we  
18 submit Phase 2. Thank you.

19           MS. TEN HOPE: Barb, it looks like you  
20 have a comment, too?

21           MS. HAYDORN: Just that we agree with the  
22 comments also, that it's very expensive to  
23 prepare proposals and we appreciate the need for  
24 them and the requirement for them, but getting  
25 insight early if you're off the mark for that

1 particular funding opportunity is very helpful  
2 for all concerned.

3 MS. TEN HOPE: Sure, go ahead.

4 MR. HUGHES: This is more of an  
5 implementation suggestion. I filled out a couple  
6 of surveys, or actually for applications for a  
7 military program, and that was kind of  
8 interesting because they then separated out in a  
9 questionnaire about details about the company.  
10 And then what's so special about what you're, you  
11 know, so actually taking you through a thought  
12 process for what you have, what's different about  
13 it, and why this particular technology could be  
14 successful, and how much money you'd need to get  
15 the thing going. But very very disciplined and  
16 in steps. And it was very easy to fill out  
17 because it guided you through the process. Now,  
18 having to, if you like an open question, describe  
19 the technology, you know, and everything about  
20 it, and why it's good in just one sentence, then  
21 everybody is going to do it somewhat differently;  
22 but if you could also get it codified in the  
23 pieces, then it would be a lot easier for you to  
24 assess it, as well, as opposed to a fairly long  
25 written document.

1 MS. TEN HOPE: So you liked the process  
2 that was laid out in the military -- was it a  
3 solicitation?

4 MR. HUGHES: Yeah.

5 MS. TEN HOPE: We'd welcome seeing it if  
6 you wanted to submit it with comments.

7 MR. HUGHES: I'll see if I can dig it  
8 out, yeah, it's been some time ago. I thought it  
9 was pretty smooth at the time.

10 MR. TEN HOPE: Peter, we haven't heard  
11 from you.

12 MR. MILLER: Peter Miller with the  
13 Natural Resources Defense Council. We're not an  
14 Applicant, we're a Nonprofit Public Interest  
15 Clean Energy advocacy organization, environmental  
16 organization more generally.

17 And I guess I wanted just to begin by  
18 saying that public workshops are an opportunity,  
19 rightly so, for parties to bring forward their  
20 concerns and problems, but I wanted to begin by  
21 just emphasizing the importance of this program  
22 in meeting the State's environmental and economic  
23 goals. It's a critical part of the commitment of  
24 the State to moving forward on clean energy and  
25 it's critically important. And the work of the

1 staff has been to our view really exemplary and I  
2 think the presentation on the progress you've  
3 made already and goals amplifies on that. So I  
4 wanted to thank you all for your hard work and  
5 progress, it's been challenging, I know, given  
6 delays and the transition from PIER to EPIC, and  
7 hopefully we're on a firmer footing going forward  
8 which allows for more stable process and improved  
9 implementation.

10 I do have a couple comments and  
11 suggestions. The first is that I wanted to  
12 highlight the importance of research into plug  
13 load efficiency, given improvements to building  
14 efficiency through the State Building Codes.  
15 Plug loads are an increasing share of the State's  
16 electricity demands, and we need to develop  
17 improvements and new technologies going forward  
18 in order to meet the State's energy goals and  
19 provide benefits to the State's utility  
20 customers. So we feel that's an important area  
21 to highlight going forward.

22 The other thing we wanted to emphasize is  
23 the opportunity for small companies to contribute  
24 to the EPIC agenda. Very pleased to hear about a  
25 Small Grants Program, I thought that was a very

1 valuable part of the PIER Program and glad to  
2 hear that it's going to be part of EPIC. The  
3 outreach efforts that you've already mentioned on  
4 women, minority and disabled vet programs is  
5 welcome and a valuable part of this, and I  
6 encourage you to continue to look at process to  
7 ensure that those firms and small companies, more  
8 generally, are given an opportunity to  
9 participate and compete.

10 MS. TEN HOPE: Thank you. In addition to  
11 the Small Grants, there will be solicitations on  
12 innovation clusters and those are designed to  
13 help facilitate companies in various geographic  
14 areas, so it will be designed to do more  
15 mentorship and matchmaking between technologies  
16 and the marketplace. Thank you.

17 Stay put, I want to bring up three other  
18 people and have a couple of questions for those  
19 of you who want to answer. Romie Shield, Christa  
20 Darlington, and Pramod Kulkarni. We have two  
21 seats here and then maybe one person at the  
22 podium, or if that chair without somebody's  
23 jacket?

24 MS. GRANT-KILEY: Laurie, can I speak  
25 real fast to the electronic submissions? You had

1 just mentioned that you encourage that we look  
2 into some sort of electronic submittal, and I  
3 just wanted to assure everyone that we are  
4 looking into that, we are actively pursuing a  
5 possible contractor, something to that degree and  
6 there are definitely efforts underway to move in  
7 that direction.

8 MS. TEN HOPE: Also before I forget, when  
9 you get up if you could give your business card  
10 to the Court Reporter so that he can properly  
11 capture your name and affiliation, that would be  
12 most helpful. So Romie?

13 MS. SHIELD: Hi. Romie Shield, I'm with  
14 OMI Software, we're a commercial motivated  
15 software company. And I had a couple different  
16 comments, one was reiterating a comment that was  
17 made earlier, which is that it seems like there's  
18 a high percentage of rejections across all of the  
19 solicitations. And we would encourage you to  
20 look at what's causing those rejections or  
21 disqualifications and either try to improve the  
22 descriptions of what's required, or figure out a  
23 way to reduce the number of disqualifications or  
24 communicate more broadly what's causing that.

25 The second thing that we noticed is that



1 there's definitely a lot of consistency across  
2 the various solicitations, and that's definitely  
3 appreciated, but that doesn't mean that we don't  
4 have to read through every single page again to  
5 see if there's any changes, or if all the  
6 attachments are the same or different, and the  
7 requirements are the same or different. So if  
8 there's some way of publicizing what has changed  
9 between the various solicitations other than the  
10 obvious things which are the actual project  
11 description and the schedule and, you know, the  
12 project-specific parts are obviously different,  
13 but there's so much consistency yet we still have  
14 to look for "did something change in here?"

15           And then the third suggestion that I  
16 would have would be, as we try to figure out who  
17 is doing research on these various projects, who  
18 we want to support, what projects are coming up,  
19 we're finding that just one little phrase that's  
20 on the website of "upcoming solicitation" doesn't  
21 really give us enough insight into what the  
22 upcoming solicitations will be focused on, so I  
23 wonder if you want to have something more of an  
24 abstract, or what the various projects in the  
25 future will be so that, as bidders or companies

1 supporting bidders, we have some idea of what's  
2 coming up three, six months from now so we can  
3 start working on that.

4 MS. TEN HOPE: All right, thank you. I  
5 did just want to encourage, first of all, on the  
6 high disqualification, I think it's really  
7 important to look at that and we are. I would  
8 also encourage anyone who was disqualified to get  
9 a debrief to get more information. And also, you  
10 know, part of the purpose of this workshop is  
11 there are things that are unclear in terms of the  
12 requirements, that's really what we want to  
13 assess, so we appreciate specific feedback on  
14 specific items. And good comments, otherwise, I  
15 think they stand alone, so I won't comment  
16 further. Allan?

17 MR. WARD: Yeah, I just have a brief  
18 question. Have you seen other solicitations from  
19 other Government entities, or otherwise, that  
20 actually do what you're talking about, about  
21 keeping -- because we try to maintain a template  
22 with very similar provisions so that there's not  
23 a lot of change, but we do issue new  
24 solicitations, so I really understand your  
25 comment about having to read it all each time.

1 Have you seen other entities already do it in a  
2 certain way that you're thinking of that might be  
3 better than what we're doing?

4 MS. SHIELD: I don't know. For the most  
5 part, when we support research labs working on  
6 the Federal grants, we don't end up having the  
7 rolled over factor, or like we'll end up doing  
8 one thing one year, and then another thing the  
9 next year. So we're in a position where we need  
10 to like read everything if there's more than a  
11 year in between, but we end up participating in  
12 something like four of the solicitations in the  
13 last six months, so we definitely are trying to  
14 figure out what's the same, what's different. We  
15 also are not sure when questions get answered on  
16 one solicitation whether those same questions  
17 need to get asked again in order to get the same  
18 answers for subsequent solicitations.

19 MS. TEN HOPE: We have posted a  
20 Frequently Asked Question so you want to make it  
21 clear, the kinds of questions we're receiving  
22 that should apply across the board. Okay,  
23 Christa?

24 MS. DARLINGTON: Hi. I'm Christa  
25 Darlington and I am a successful subcontractor

1 woman-owned business. So there's one for your  
2 list, both 303 and 305, I'm providing legal  
3 services, so I was a public attorney for 15  
4 years, I just went on my own this summer to work  
5 in the bioenergy space and provide legal services  
6 to startups like the ones in the audience, so  
7 that's a great sign and you're getting to some  
8 women, so that's good.

9 I wanted to make comments, two comments  
10 on process. The first one I thought I was going  
11 to be the first person to bring up, and then you  
12 got me, right before me, and that is the  
13 description of the upcoming PONs. The difficulty  
14 is what we look at obviously is the Triennial  
15 Investment Plan, and then we try to deduce from  
16 the plan what you're going to do next, and then  
17 what you tell us are you give us these one-  
18 sentence blurbs that aren't consistent with the  
19 Plan, they kind of cross over a couple of the  
20 subsections of the plan, and I understand you  
21 need to stay flexible, but on the other hand a  
22 lot of small companies like mine, we need to know  
23 what's coming, and we try to build our business  
24 plan around what to expect. So if you could get  
25 more detailed on what your exact and commit to

1 some of the plans that you're coming up, that  
2 would be awesome.

3           The second piece, I think, is the timing  
4 of those. So right now you give like a 90-day  
5 window for the upcoming solicitations, and so  
6 that's kind of a wide period of time, as well,  
7 like saying you're going to have three or four  
8 months, and so that would be great if we could  
9 shorten that just a little bit and give people a  
10 little more of a direct timeline because you're  
11 talking a lot about being efficient once the PON  
12 is released, but some of that pre-work could be  
13 great, too. So those are my two process  
14 comments.

15           And then the other two comments I wanted  
16 to make are related. One is one of your specific  
17 solicitations I wasn't a part of, but some of my  
18 clients were interested in, was relating to the  
19 environmental effects of renewable energy,  
20 generally speaking, you know that part of the  
21 plan? It was very narrow this time, it was on a  
22 lot of information for wind, like bats and birds  
23 types of things, and we would really like to see  
24 that broadened for bioenergy, particularly  
25 biochar, there's a lot of up and coming research

1 and interest in biochar, and we think there's  
2 room for research and development in that sphere  
3 as a co-product that will make bioenergy products  
4 more economically feasible, so I would just  
5 really encourage, you know, maybe a broader  
6 spectrum of topics on that.

7           And then the second one is for my main  
8 client, Placer County Air Pollution Control  
9 District, they're very interested in doing  
10 research about whether or not biomass energy  
11 projects economically incentivize commercial  
12 logging, and we want to really investigate that  
13 and kind of clear the air, and so that's another  
14 topic area that we hope that will be broad enough  
15 that we could apply for that type of bioenergy  
16 research, specifically on forest biomass. So  
17 those were my comments. Thank you.

18           MS. TEN HOPE: Thank you very much.  
19 Pramod.

20           MR. KULKARNI: Thank you. My name is  
21 Pramod Kulkarni. I work with Customized Energy  
22 Solutions. For full disclosure, I used to work  
23 as a PIER staff, so if I say it's a good program,  
24 it's a great program, it would be really self-  
25 serving, so I won't say that. On the other side,

1 what I'm going to say would definitely not be  
2 self-serving because my company has a policy, we  
3 do not bid on Government contracts, however, I  
4 work with a lot of companies which do, and so I'm  
5 bringing their perspective, as well.

6           The first is about Phase 1 and Phase 2.  
7 People talked about why do you have Phase 1 and  
8 Phase 2. From small companies' perspective, I  
9 mean, I look at some recipients of the money, and  
10 they are research institutions, that's their job  
11 and that's what they do all the time. They are  
12 small companies who would likely do some  
13 demonstration and those companies don't have  
14 time, they're short of staff, they're going from  
15 project to project, so they don't have the luxury  
16 of writing a 50-page or 60-page response, knowing  
17 not well at all if they could succeed or not. So  
18 for them, Phase 1 is really good, within four or  
19 five pages they know where they stand, and  
20 they're in or out. So that's definitely  
21 something we need to consider.

22           The second thing is the small grants and  
23 that, of course, has been a very good program,  
24 its absence has been felt, and the reason for  
25 that is each and every program or project doesn't

1 lend itself to a half a million dollar project or  
2 research. And so I'm sure that people who have  
3 dialed it take it. Nonetheless, that's not worth  
4 it. Many small companies can do with \$100,000,  
5 \$120,000, so I'm glad to hear that program is  
6 being reinstated hopefully sooner than later.

7           Lastly, the short times between PONs.  
8 For last so many months, successful, you had many  
9 PONs with six weeks or seven weeks to respond. I  
10 can understand why that's happening, you have a  
11 lot of money to put out in a short time, you have  
12 a sunset on that. However, I hope going forward  
13 there will be some quality time to develop a  
14 particular response to a proposal, especially  
15 talking about industrial customers, commercial  
16 customers, especially industrial customers, you  
17 have to find a site, a location, qualify that,  
18 and then apply. It doesn't happen in two weeks  
19 or three weeks' time. So what's basically  
20 happening is that you're leaving out a whole  
21 segment of your partners who could be helping you  
22 commercially as a technology. Research, yes,  
23 there's a place for that, and big institutions  
24 can do it, universities do it, labs do it, and  
25 definitely they're quite good at it. Once you



1 take that technology in the market you need to  
2 collaborate with the smaller companies, or even  
3 bigger companies, but even bigger companies don't  
4 have staff to put time on that. So it helps a  
5 lot to have a slightly longer PON response  
6 period, especially with certain solicitations,  
7 and that will help. So that's as for the general  
8 comments.

9 I am making one more comment about energy  
10 storage and the reason for that is that the  
11 Energy Commission did a yeoman's job, rejobbing,  
12 taking the technology to a level where the CPUC  
13 can take it to the next level, and now you have a  
14 storage roadmap. However, when I look at the  
15 storage roadmap, there are very few things  
16 identified for California Energy Commission to  
17 date. Most of the action is on the side of CPUC  
18 or CAISO, which is very correct because that's  
19 where the technology is for that. Having said  
20 that, what is the road finding storage for the  
21 Energy Commission? To take energy storage and  
22 store in different directions or to kind of fill  
23 up the gap so when you have the EPIC Program --  
24 not EPIC, I'm sorry, the Integrated Renewable  
25 Energy Plan, at that time I think you should hold

1 a workshop to see what is the specific storage-  
2 related research which the Energy Commission  
3 could still do. And that's all I have. Thank  
4 you.

5 MS. TEN HOPE: Thank you. There will be,  
6 you know, stay tuned for storage.

7 Okay, I just want to move on comments on  
8 the WebEx, we have a couple of people who want to  
9 weigh in, and then I would like to put the  
10 question more broadly that Allan asked: if you  
11 have experience with other solicitations, Federal  
12 or State, that you think there are some best  
13 practices to learn from, I'd like to hear what  
14 they are, or submit them in your comments. Eli,  
15 do you want to tell us who is on the line, or Le-  
16 huy?

17 MR. HARLAND: First up, we have Irvi  
18 Nagrani, please. I'm unmuting you.

19 MS. NAGRANI: Hi. First of all, I want  
20 to thank you guys for having this conversation.  
21 And I've got a couple points.

22 MS. TEN HOPE: Ma'am? Would you remind  
23 repeating your name and affiliation?

24 MS. NAGRANI: Yeah, of course. I'm Irvi  
25 Nagrani from Motiv Power Systems.

1 MS. TEN HOPE: Thank you.

2 MS. NAGRANI: So in terms of simplifying  
3 the Grant process, I think there are some things  
4 that have been done well in terms of, for  
5 example, creating templates around the scope of  
6 work, and simplifying the number of attachments  
7 so that they look more similar from one grant to  
8 the next. I think that there is still room for  
9 improvement. I think one of the ways that we  
10 could do that, for example, would be allowing for  
11 email submissions, not just online, but email,  
12 because for example the California Air Resources  
13 Board has a document management system which in  
14 order to put a submission online takes almost as  
15 much time to learn how to submit a file as it  
16 does to create the file you're submitting, and so  
17 if you're going to create an online submission to  
18 begin with, I think it's very important to think  
19 of ease of use, especially for small businesses.

20 Secondly, I think the focus on both  
21 women-owned, minority-owned, and disabled  
22 veteran-owned businesses is a very good thing  
23 that we should be tracking; however, we need to  
24 be thinking about the pipeline in that because  
25 either just looking at the Applicants we receive,

1 if you look at the U.C. system, you see a lot  
2 more women in technology in those majors than  
3 you're seeing in the industry, and I think that  
4 there needs to be more of an emphasis on  
5 companies that are also applying who are not  
6 women, minority, or disabled veteran owned on  
7 hiring those folks, so that way there's a  
8 pipeline that's giving them more experience so  
9 that they can go take that next step into owning  
10 their own businesses. And I think somebody else  
11 mentioned that about maybe 30 minutes ago about  
12 the pipeline being very important. And I think  
13 the other thing is you've mentioned that you've  
14 talked with some women-owned businesses who have  
15 been both subcontractors and also award  
16 recipients, and that you're making plans for a  
17 LinkedIn group to help folks who are subscribing  
18 to the mailing list and looking at these PONs  
19 begin to connect with each other. I think it  
20 would be very valuable to have a subdirectory of  
21 these women-owned businesses, veteran-owned  
22 businesses, and minority-owned businesses so that  
23 if you are a company that's trying to contract  
24 you can help meet the Energy Commission's goal  
25 there when you're planning a proposal.

1 MS. TEN HOPE: Great. Thank you very  
2 much. And one other person?

3 MR. HARLAND: The next person online is  
4 David Bliss from Charge Bliss. One second,  
5 please. All right, go ahead, David.

6 MR. BLISS: Thank you very much. I, like  
7 everyone else -- by the way, David Bliss from  
8 Charge Bliss -- we were one of the Applicants  
9 recently for 14-301 and 14-307. I think this is  
10 fantastic that you guys are seeking public  
11 comment and I share many of the same comments of  
12 others in the group, many of whom we know.

13 I just wanted to bring up a few, I think,  
14 very practical matters that I hope are helpful.  
15 One is, I think it will be helpful if the CEC can  
16 site some exemplars from prior PONs that are  
17 relevant to a new one that illustrate what sort  
18 of information elements the CEC is looking for.  
19 Despite all of our best efforts to read these  
20 instructions closely and try to follow along,  
21 it's very clear in going through these  
22 debriefings that we had misunderstood,  
23 misinterpreted, not fully understood the scope of  
24 information the CEC was looking for. And I  
25 imagine from the CEC's viewpoint, you want as

1 many high quality applications as possible, and  
2 from our viewpoint we want to produce that, and  
3 so every opportunity to see examples that we  
4 could apply would be helpful, especially if  
5 they're on point.

6           Number 2 is the timing of questions and  
7 the closure on questions, realizing that it's  
8 difficult to have questions from remain open and  
9 then information disseminated up to and close to  
10 the time of application submission. I would  
11 submit that the more lengthy that process and the  
12 more comprehensive that process, the more likely  
13 that, again, a lot of the confusion that arises  
14 will be ameliorated because quite frequently I  
15 think what happens, particularly with smaller  
16 teams who don't have dedicated folks to read  
17 through these PONs extensively enough, an issue  
18 that's been brought up by others, a lot of  
19 questions come up at the last minute when it's  
20 too late to determine how to get an answer to  
21 that because the question time has closed.

22           I would offer the thought that having  
23 questions open until about two weeks before due  
24 dates would seem a good target and would allow  
25 everyone to get the information disseminated to

1 them.

2           Thirdly, I think the CEC provides for the  
3 opportunity for clarification interviews at the  
4 CEC's request. We would suggest that just such  
5 interviews would be an important piece of  
6 evaluating any applications that are passed but  
7 not funded, and particularly that fall within a  
8 short point distance from being funded so that,  
9 again, misunderstandings and miscommunications  
10 can be dealt with prior to the issuance of the  
11 final decisions, which will probably save both  
12 CEC and Applicants a considerable amount of  
13 difficulty. And I suspect, based on looking back  
14 on some recent circumstances, there won't be a  
15 large number of interviews.

16           And then lastly, and I think this was  
17 articulated before, but I wanted to reemphasize,  
18 to the extent that the CEC has any kind of  
19 roadmap for specific types of projects upcoming  
20 will be critical, particularly for smaller teams  
21 and smaller companies because, and I'll give you  
22 the example, in the critical infrastructure  
23 piece, we elected to go to hospitals and I think  
24 we were probably the only ones who did that.  
25 Well, that's a very difficult process to get

1 through hospitals, through two hospitals, and get  
2 them on board with the concept of something  
3 relatively innovative, it's a very conservative  
4 group of folks, so not having very much lead time  
5 to do that presented some real challenges, and  
6 were it not for the fact that we sort of had  
7 somebody available to us, which was more luck in  
8 planning, that would have just been an  
9 impossibility. So having that roadmap, even if  
10 it turns out that you don't stick to it 100  
11 percent allows all of us to kind of pre-plan a  
12 bit around what kind of projects are upcoming and  
13 not have to sort of have projects sitting out  
14 there that don't get done.

15           Anyway, I ran a little bit long, I  
16 apologize. I appreciate the opportunity to  
17 comment. And again, thank you for letting us all  
18 participate in this.

19           MS. TEN HOPE: Can I just clarify what  
20 kind of roadmap you're talking about? Like for  
21 where a technology -- where we see technology  
22 ending up over the course of multiple years? Or  
23 something else?

24           MR. BLISS: No, no, I mean project  
25 roadmaps. So for example, if you are planning on



1 doing small grants for small -- let's say plug  
2 load efficiency, I'm just going to pick something  
3 I'm not involved in because there were a lot of  
4 people involved -- so if plug load efficiency  
5 projects were going to be upcoming in the fiscal  
6 year or the calendar year, it would be nice to  
7 understand that that is on that specific type of  
8 projects on the roadmap, or large commercial  
9 microgrids, or on-grid storage, that sort of  
10 thing. I would use the critical infrastructure  
11 example if you were interesting in microgrids at  
12 critical infrastructure, giving us that sort of  
13 information in advance, whether or not that  
14 turned out to be crafted into a PON, you know,  
15 this is what the CEC is considering on its  
16 roadmap, and this will come out in the coming  
17 year. Those sorts of indicators will be helpful  
18 for us to know what to be looking for, otherwise  
19 we're scurrying the moment a PON comes out.

20 MS. TEN HOPE: Okay, it was similar to a  
21 prior comment --

22 MR. BLISS: Did that make sense?

23 MS. TEN HOPE: -- yes, absolutely. Okay,  
24 I want to thank everybody, and I just want to tee  
25 up that question I asked before, if you have any

1 examples you want to provide from other  
2 solicitations, Federal or State, I'd ask that  
3 people keep their comments pretty short so we can  
4 wrap this panel up on time, but either answer  
5 that question or a final closing comment.

6 MS. DARLINGTON: I just wanted to -- you  
7 had asked about redlines, and this isn't a  
8 solicitation, but the CPUC requires the IOUs to  
9 submit all their PPA drafts with redline versions  
10 in a lot of the documents that they turn in, both  
11 in final and redline. So just as an example, I  
12 know that's not a grant, but it is an example  
13 where a state agency is -- and they also actually  
14 dispense, like they share their own redline  
15 versions, so they actually give to the public  
16 redline and final drafts, so there is some  
17 precedence for it, at least on the CPUC.

18 MS. TEN HOPE: Final comments?

19 MR. HUGHES: Yeah, I'm going to be a  
20 little bit contrarian. I think that the lead  
21 time should be actually shorter because it would  
22 help you filter. If you've got, let's say, four  
23 weeks to respond, you'll be pretty sure that the  
24 people that do respond are going to be subject  
25 experts, they've got to know their stuff

1 backwards to be able to write in that amount of  
2 time. But if you leave it for, let's say,  
3 several weeks, you know, you're going to get  
4 people that are going to try to put something  
5 together to make a proposal, so you're probably  
6 just going to increase your own workload.

7 MR. LEHRER: Well, I guess I'll be  
8 contrarian again. Sometimes in the process of  
9 putting together an interdisciplinary team, also  
10 identifying field sites, you know, we're working  
11 with commercial buildings and sometimes it takes  
12 quite a bit of negotiation or ground work to  
13 identify sites in order to do pilot  
14 implementation. So I would say that the schedule  
15 seems about right at this point.

16 MS. TEN HOPE: Barb.

17 MS. HAYDORN: I actually had a question  
18 and I'm not going to bring it up as the new  
19 topic, but maybe for another time. It came up in  
20 the opening remarks about terms and conditions  
21 not being negotiable. Is that something that you  
22 are taking public comment on, as well? Or will  
23 that be a separate process? Or is that not up  
24 for discussion?

25 MS. TEN HOPE: Well, it's non-negotiable,

1 but you can provide a comment and how you feel  
2 about it.

3 MS. HAYDORN: But just one observation  
4 would be, for example --

5 MS. TEN HOPE: Allan wants to jump in  
6 here.

7 MR. WARD: So we definitely need to hear  
8 back and if there are any terms that are causing  
9 a lot of entities not to apply, or somehow don't  
10 -- we heard back from National Labs that they had  
11 a problem with the hold harmless provision, and  
12 we're working through that. So, yes, provide  
13 your comments, but also if you've got comments on  
14 terms that need to be changed because they make  
15 it problematic to apply because it violates some  
16 Federal law or other mandate, we definitely want  
17 to know that.

18 MS. HAYDORN: Okay, and then just an  
19 observation that it appears that license rights  
20 are identical, whether CEC is funding, you know,  
21 half the cost share or the entire project, and I  
22 wasn't sure if that was intentional.

23 MR. WARD: That's a good point. No one  
24 else has raised that to my knowledge. But it  
25 would be purposeful because we want to have

1 license rights to anything that is match funded  
2 or Commission funded. The arguments that are  
3 made as part of the EPIC proceeding were why  
4 should EPIC ratepayers have to pay twice? Why  
5 should they have to fund the project and then, if  
6 it becomes commercialized, then have it paid for?  
7 And so what the Public Utilities Commission  
8 decided was to include a provision that says, to  
9 the extent that the Public Utilities Commission  
10 decided was to include a provision that says, "To  
11 the extent that the Energy Commission decides, it  
12 can grant a license to load serving entities to  
13 serve EPIC ratepayers." So in that context, we  
14 wouldn't want to limit it just to Commission  
15 funds, but also include it as the match fund  
16 portion because that's the entire project.

17 MS. HAYDORN: Okay.

18 MR. WARD: Is that addressing that?

19 MS. HAYDORN: We may follow up on that.

20 MR. WARD: Sure.

21 MS. HAYDORN: I don't want to take  
22 everyone's time, but thank you.

23 MS. TEN HOPE: Peter, any comments? No.

24 MR. ZIVOJNOVIC: Just a few back to  
25 Allan. The lawyers of the companies we work

1 with, right, the public companies, felt quite  
2 uneasy with provide an unqualified without  
3 reservation a limitation commitment that  
4 guarantees the availability of the funds, it's  
5 talking about the match funds, and 4) provide a  
6 strategy for replacing the funds if they're  
7 significantly reduced or lost. So obviously it's  
8 a blanket commitment from a public company. In a  
9 certain way I question really which executive  
10 would sign it ever, right? It's completely open.  
11 It could be major changes in the company and so  
12 on, and on the other side it's no commitment  
13 about the frame for using that money within the  
14 project. So I think this is very broadly set and  
15 probably a good reason for future  
16 disqualifications or rejections of match funding  
17 because an executive would hardly sign something  
18 like this. So maybe if you look at that, we can  
19 talk offline, as well, but the point is that  
20 unqualified, without reservation or limitation  
21 commitment that guarantees the availability of  
22 the funds for the project, where the project is  
23 not fully defined, it is not in full shape, it is  
24 not approved, and there are no commitments from  
25 the Energy Commission to provide its portion of

1 funds for the project. So you are looking for a  
2 really blanket commitment from a lawyer, from  
3 General Counsel of a company, and the CEO to  
4 provide these funds without knowing what is the  
5 framework for these funds. So this is okay if  
6 you have Phillips and Phillips CEO signs on the  
7 contract for its own investment, right? It's  
8 different when you have Free-scale, if you have  
9 International Rectifier, if you have other large  
10 U.S. corporations who look at that and say,  
11 "Okay, how are we going to be sure that we are  
12 not committing any legal offense with not  
13 eventually agreeing on certain portions of that  
14 agreement in the second step.

15 MR. WARD: Okay, and I would like to  
16 learn more about that because from our  
17 perspective we want people to have firm  
18 commitments to match funds because otherwise we  
19 could have people apply, say they've got millions  
20 and millions of dollars in match funding which  
21 then improves their score, then we get to execute  
22 the agreement, "Oh, we don't have it yet, oh it's  
23 sort of iffy," and then we can't have a fair  
24 scoring process. So somewhere there has to be a  
25 balance, though. And if we can improve what we

1 do and still maintain the fair process,  
2 certainly, let's discuss that further.

3 MR. ZIVOJNOVIC: It's resolved very fast  
4 if you have a \$3 billion company and the General  
5 Counsel has to sign that, right? So you are  
6 talking here people who maybe, you know, try to  
7 play tricks with money; here we are talking about  
8 people who are legally obliged to fully adhere to  
9 every single line they sign, and we have problems  
10 with the General Counsels of these large  
11 corporations signing such commitments, which is  
12 very very open --

13 MS. TEN HOPE: So perhaps you can suggest  
14 an alternative that allows us to, as Allan said,  
15 have the firm commitment.

16 MR. WARD: Absolutely.

17 MS. TEN HOPE: Romie.

18 MS. SHIELD: If I can, I'd like to  
19 reiterate that. I went round and round and round  
20 many times with our lawyers trying to come up  
21 with wording that they would agree with, that  
22 might meet that criteria. And then the  
23 replacement of the funding was also extremely  
24 challenging because we're providing the  
25 commitment to fund something, and if we renege on



1 that commitment, how are we going to replace  
2 that? You know, it was like, huh? So we  
3 definitely struggled on those Letters of  
4 Commitment trying to meet your criteria. I know  
5 based on the very useful feedback that we got,  
6 we're getting virtually no points for all the  
7 effort that we put into trying to make those  
8 letters say what you wanted them to say. We were  
9 recently working on the 14-605 and the  
10 requirements for those letters were much more  
11 reasonable. So that was different for whatever  
12 reason. Thank you.

13 MR. WARD: I'll say thank you, but I  
14 can't take credit for making those easier, that  
15 was somebody else.

16 MS. TEN HOPE: Any final comments?

17 MS. KHAN: I just want to thank you for  
18 the opportunity, thanks.

19 MS. TEN HOPE: Thank you. I believe we  
20 have another WebEx. Go ahead.

21 MR. HARLAND: This question comes from  
22 Geena from TeleSense (ph). "In the anticipated  
23 solicitation list, some are mentioned as Phase 2.  
24 Does that mean that only participants in Phase 1  
25 are eligible?"

1 MS. TEN HOPE: No, it just means the  
2 initiative level listed in the Investment Plan,  
3 Second Phase of solicitations, so, no, you do not  
4 have to be an Applicant in Phase 1 to be an  
5 Applicant in Phase 2.

6 Do we have anyone on the line that's not  
7 on WebEx? Okay, I really -- could you put up on  
8 the screen -- I hope you all stay -- but in case  
9 anybody leaves and is not here for the second  
10 topic area, that we are taking written comments,  
11 we ask that they be submitted by March 4<sup>th</sup> and all  
12 the particulars of where to send your written  
13 comments are up on the screen.

14 We're going to take a 15-minute break,  
15 we'll resume at ten of 3:00 and we'll be able to  
16 talk about any technology areas that are missing  
17 and centers or programmatic-type solicitations.  
18 So hope to see you all back in a few minutes.  
19 Thanks.

20 (Break at 2:35 p.m.)

21 (Reconvene at 2:54 p.m.)

22 MS. TEN HOPE: Welcome back for topic 2.  
23 We are going to tee up a discussion on more of  
24 the technology side. We're first going to hear  
25 from Pam Doughman on our future investments

1 planned and then we'll hear from Eli Harland with  
2 some context on centers or programmatic type  
3 funding, and then we'll do the same kind of  
4 format where we'll welcome your comment on those  
5 two topic areas. So I'm going to turn it over to  
6 Pam for a couple of minutes.

7 MS. DOUGHMAN: Okay. Thank you. So now  
8 we're moving on to the second topic for today,  
9 EPIC Investments and Research Centers. I will  
10 highlight some key points regarding EPIC  
11 Investments under the Energy Commission's first  
12 EPIC Investment Plan, the first plan covers 2012  
13 through 2014, and then Eli will discuss the  
14 Research Centers. And just a reminder, please  
15 fill out those cards, they're at the table as you  
16 come in, to indicate whether you'd like to make  
17 comments and on which topic. And then if you  
18 could hand them to Josh Croft, then we'll call  
19 your name up after we finish our quick  
20 presentation.

21 MS. TEN HOPE: And I just want to  
22 interrupt, I forgot, we have two forms, so Josh  
23 has the forms if you want to comment, we also  
24 have an evaluation form where we're looking for  
25 your feedback on the workshop, whether it was

1 valuable, any suggestions that you have. So a  
2 twofer.

3 MS. DOUGHMAN: Great, thanks. Oh, also I  
4 want to point out in the back of the room we have  
5 a few copies of the 2012-2014 EPIC Investment  
6 Plan for reference. The plan is available online  
7 on the Energy Commission's EPIC web page, as  
8 well. Chapter 2 of the Plan summarizes Guiding  
9 Principles and Policy Drivers for Investments  
10 under the first plan. Strategic Objectives for  
11 Applied Research and Development are described in  
12 Chapter 3. And Chapter 4 describes Technology  
13 Demonstration and Development Strategic  
14 Objectives. Chapter 5 describes Strategic  
15 Objectives for Market Facilitation.

16 The Investment Plan states that the  
17 Energy Commission may not issue solicitations or  
18 make awards in every initiative area if funding  
19 is inadequate, there is a lack of qualified  
20 applicants, or further analysis of market  
21 conditions indicates that an initiative is not  
22 currently a high priority, or it is already  
23 adequately funded by other entities.

24 Other key documents include Notices of  
25 Proposed Rewards, current Solicitations, and

1 feedback opportunities; for example, we have  
2 posted a draft solicitation in order to get  
3 feedback on the solicitation and finalize it,  
4 taking feedback into account.

5 NOPAs have been posted for most of the  
6 closed EPIC Solicitations already. Three  
7 additional NOPAs for about \$32.4 million are  
8 scheduled to be posted by the end of March. For  
9 the Federal Cost Share PON, NOPAs are scheduled  
10 to be re-released 60 days after submission of  
11 Stage 2 applications. As of February 23rd,  
12 Federal Cost Share NOPAs have been posted for  
13 more than \$1 million, leaving about \$9 million  
14 remaining in committed funds for this PON.

15 As of December 2014, the Energy  
16 Commission had released solicitations totaling  
17 \$192.8 million in EPIC funding. In 2015, the  
18 Energy Commission will release up to an  
19 additional \$139 million in committed  
20 solicitations, bringing the total committed  
21 funding to \$331.8 million. Updates on the status  
22 of Energy Commission EPIC Solicitations are  
23 available online, on the Energy Commission's  
24 webpage. Now I'll turn it over to Eli.

25 MR. HARLAND: Great. Thank you, Pam. My

1 name is Eli Harland and I work in the Energy  
2 Research and Development Division here at the  
3 Commission. And I'm the one that everybody is  
4 submitting their public comments to for this  
5 workshop so far, so thank you so much for taking  
6 the time to submit and prepare those thoughtful  
7 comments. If you haven't seen the comment page,  
8 we have received a lot so far.

9           So I'm going to talk about what the  
10 Energy Commission has done in the past with  
11 Research Centers and, you know, some of the  
12 rewards that we've made and some of the reasons  
13 we've funded then, and then we're going to talk a  
14 little bit about what the Energy Commission said  
15 that we would do with Research Centers or  
16 contemplate doing in the 2012-2014 EPIC  
17 Investment Plan.

18           This table here shows an example of some  
19 of the Research Centers that the PIER Program had  
20 funded in the past. The Centers that you see  
21 here are just kind of an example, or a subset of  
22 those Centers that we funded in the past, this  
23 isn't all the Centers. But the point of these  
24 Centers and the way they were funded in the past,  
25 we focused on developing agreements that targeted

1 research on technologies or analyses that were  
2 most needed to advance evolving energy policies,  
3 public interest energy research not addressed  
4 elsewhere. And as a cost beneficial method, to  
5 bring together researchers, industry  
6 manufacturing, policy experts, universities, and  
7 National Laboratories. The tool that was used  
8 previously under the PIER Program to set up  
9 agreements with the Centers, we used Interagency  
10 Agreements, or Noncompetitive Agreements, which  
11 is a different tool than we're using under EPIC  
12 right now, but these are just some examples of  
13 those Centers.

14           When the Centers were established under  
15 PIER, the goal was to not set up a program where  
16 PIER would continuously fund the Centers, but at  
17 some point PIER could become not just the sole  
18 source of funding and could just complement other  
19 funding that Centers were receiving.

20           So in the EPIC Investment Plan, we do  
21 discuss Research Centers and multi-project awards  
22 under EPIC, so the Commission, you know,  
23 according to the plan could establish a  
24 competitive process for funding Research Centers  
25 similar to the solicitations that have been

1 released to date under EPIC.

2           An example center in the Investment Plan  
3 was highlighted for its structure with strong  
4 partnerships and a track record of bringing  
5 technologies to market and influencing Codes and  
6 Standards. In fact, in several of the EPIC  
7 solicitations we received to date, we've actually  
8 had Research Centers that have been part of  
9 successful applications, either as Primes or  
10 Subs, but they've been on teams and had  
11 succeeded. All of these solicitations that  
12 Centers have participated in were competitive and  
13 include multi-year projects.

14           In the Investment Plan, the Energy  
15 Commission made a commitment to pursue  
16 opportunities to advance highly effective  
17 technological incubators, and several of our  
18 investment project areas could be a fit for some  
19 centers, whether as prime applicants or  
20 subcontractors. The Investment Plan also  
21 presents some possible selection criteria for  
22 Research Centers or multi-project awards. These  
23 criteria are for illustrative purposes, so when  
24 we get to the discussion section, we're really  
25 interested in hearing about these criteria and



1 others. The sample criteria from the Investment  
2 Plan that you see on the slide there, we have  
3 major area with evolving technology, so this will  
4 be a criteria in the Solicitation, as well as a  
5 proven track record of directly benefitting IOU  
6 customers, ability to leverage other funding  
7 sources so that the EPIC funds aren't a sole  
8 source of funding, strong industry partnerships  
9 and demonstrated path to market, and the ability  
10 to inform policy.

11           So when we're considering a Center only  
12 or a multi-project solicitation which will be  
13 different than the project-based solicitations  
14 that EPIC has put out so far, there are some  
15 things that we need to look at. So we want to be  
16 able to assess the gaps that Research Centers  
17 provide that are not possible with Project-based  
18 solicitations and awards, and it's possible that  
19 Centers may be better poised for flexible  
20 responses to current barriers and needs in fast  
21 moving technology area or tackling  
22 interdisciplinary problems.

23           And we also want to make sure that, as we  
24 design all of our solicitations, whether it's  
25 Center-based or not, we're looking for the

1 ability to enter into agreements where we can  
2 have accountability for deliverables that advance  
3 those EPIC goals. We're always looking at  
4 geographic and Applicant diversity, and  
5 administrative non-research costs are reasonable  
6 across all of our EPIC solicitations, so these  
7 are considerations that we consider as we sit  
8 down and we start talking about how we move  
9 forward with our Solicitation process.

10           And one of the things that we have to  
11 think about if we're going to have a Solicitation  
12 that is multi-project or Center-based, that that  
13 does reduce awards in possible funding  
14 allocations and other competitive project-based  
15 research awards that are out there today.

16           So I'm going to turn it over to Laurie so  
17 that we can start with the open discussion to  
18 talk about technology areas that we've funded in  
19 the past and that we're going to fund, as well as  
20 the Research Centers, and so if you haven't  
21 already filled out a card already and given it to  
22 Josh, please do so. And like the first session,  
23 Laurie will invite folks to come up and we can  
24 have a conversation.

25           MS. TEN HOPE: Okay, we're going to do

1 the same format and I'll invite the people up who  
2 have submitted cards, I see a lot of people in  
3 the audience who haven't spoken, so you'll have  
4 an opportunity if you want to come up, as well.

5           As Eli said, we really want to look for  
6 gap areas in technologies and have a discussion  
7 of Centers, and I put "Centers" in quotes because  
8 you'll see on several of the slides it says "or  
9 multi-project Solicitations," so we had a history  
10 under the PIER program of funding Centers that  
11 were in most cases a physical location doing  
12 multiple projects over multi-year, and that is  
13 obviously a model we can consider.

14           I think we could also look at something  
15 that was more of a multi-project award that may  
16 or may not have one single physical location that  
17 addresses a key problem.

18           So I know we'll hear from Research  
19 Centers and I think that's key, and some of their  
20 partners. I also want to hear from other people  
21 in the audience because if we were to go forward  
22 with a Solicitation that was Center-based, that  
23 funding comes from somewhere, you know, because  
24 it's a zero-sum game in terms of the funding  
25 that's available, and so some of the other

1 questions about where would that funding come  
2 from, how do we sort of get geographic diversity  
3 and broad participation? What types of problems  
4 are most suited for this? And is there a new  
5 topic? So we're not just looking at legacy  
6 programs, but in the past when the research  
7 program established a multi-year project, it was  
8 in some cases to do research on a problem area  
9 that was either new, or there was very little  
10 effort going on in that area and wanted to  
11 develop a concentrated hub around a problem. And  
12 so we're at a new time in our energy goals and in  
13 technology opportunity, and so I open the  
14 question for topic areas that you might want to  
15 put forward for consideration for "Center" or  
16 multi-project award.

17           So the folks that have said they want to  
18 speak on this topic that are in the room are  
19 Niles Brinton, Eric Thompson, Vojin with the  
20 difficult last name, and it's not just because  
21 it's hard to pronounce, but it's hard to read,  
22 Phil Hughes, Peter Miller, and Christa  
23 Darlington. So why don't you come up and we'll  
24 follow a similar format as Panel 1. Are you  
25 Niles?

1 MR. BRINTON: I am. Is it on?

2 MS. TEN HOPE: You have to touch it and  
3 the green light comes on.

4 MR. BRINTON: Hello? So my name is Niles  
5 Brinton. I am here with Charborn. Charborn is a  
6 California-based startup that's focused on using  
7 biochar for agricultural improvements, and large-  
8 scale manufacturing of biochar is closely linked  
9 to forest health management and also with biomass  
10 energy. So I just wanted to emphasize the  
11 importance of cleaning up our forests and using  
12 this renewable resource as a baseload energy  
13 source for California's diverse energy portfolio  
14 and also to emphasize the focus of using EPIC  
15 funds for this reason, and letting those funds  
16 also be leveraged towards things like economic  
17 benefits towards rural communities near forest  
18 projects and also downstream benefits such as the  
19 water and energy benefits that can be brought  
20 along in agricultural settings, the use of  
21 Biochar.

22 MS. TEN HOPE: So the funding source is  
23 electricity ratepayers, and so the benefits need  
24 to have a tieback. Can you help me with the  
25 connection back to --?

1           MR. BRINTON: I can. I was trying to  
2 focus on actually the focus would be biomass  
3 energy. Biomass energy is a resource that was  
4 once used heavily in California and is not so  
5 much anymore, however, there are a number of  
6 factors that are affecting ratepayers in  
7 California, not only through their electricity  
8 bills, but also external factors such as air  
9 quality, financial risks and public health risks  
10 through forest fires, etc. I would emphasize  
11 that it may be very appropriate to perhaps  
12 collaborate with Forest Service or Cal Fire in  
13 some approach here because I think the forests  
14 need to be treated in a sustainable manner and  
15 there's a major renewable energy source there  
16 waiting to be tapped into.

17           MS. TEN HOPE: Thank you.

18           MR. BRINTON: Thank you.

19           MS. TEN HOPE: Let's see, Phil, correct?

20           MR. HUGHES: Yeah. Well, really I think  
21 one of our big worries is the power consumption  
22 in data centers. For the last 10 years, there's  
23 been an increasing compound annual growth rate of  
24 24 percent and now we're at two percent of  
25 worldwide energy consumption, is now going into

1 Data Centers. And there's no sign of it slowing  
2 down. This means, of course, that we're going to  
3 have a lot more greenhouse gas emissions, a lot  
4 more pollution, depending on what source of  
5 energy these are. If you could free up a big  
6 chunk with two percent, it goes a long way to  
7 saving. I think we're at, let me see, 42  
8 terawatts per year now, at the moment. So it's a  
9 huge amount of energy that is going into Data  
10 Centers, worldwide and also in California  
11 because, as you know, Santa Clara is a big center  
12 that is almost all Data Centers. So to improve  
13 life there would be extremely useful.

14           Because the other issue with these Data  
15 Centers is the sprawl, because these things are  
16 huge and if you looked at some of the places,  
17 again, around Santa Clara, they're sometimes the  
18 size of a block and, again, they could be much  
19 smaller with improved cooling, improved power  
20 supplies, and so on, they could be made to about  
21 a tenth of their size.

22           MS. TEN HOPE: Can I ask you if, I mean,  
23 besides that being an important topic area, there  
24 are particular technology focus areas or  
25 structure of Solicitations that would get at the

1 biggest opportunities?

2 MR. HUGHES: Well, I think the biggest  
3 one is Data Center cooling because that really  
4 drives everything. If you keep your chips  
5 cooler, they work better, you can put them closer  
6 together, you can make smaller systems, and they  
7 use less electricity. So those are all the  
8 things that come, the good things, from cooling.  
9 So the focus, I believe, should be on Data Center  
10 cooling systems. Now, what was the other part of  
11 the question again?

12 MS. TEN HOPE: That was sufficient. I  
13 was just asking the specific technology or  
14 approach that you thought would get to the most  
15 promising solutions.

16 MR. HUGHES: Well, I think that that is  
17 most probably going to be liquid cooling.

18 MS. TEN HOPE: Thank you. Eric Thompson?  
19 And people, if you could provide your card to the  
20 Court Reporter.

21 MR. THOMPSON: Eric Thompson with Natel  
22 Energy. In short, I'll be advocating for more  
23 EPIC funding for small distributed hydro projects  
24 and technologies. CEC's own documents, reports  
25 show a 250 MW potential in constructed waterways,



1 read: no environmental, or low environmental  
2 impact. The same documents talk about another  
3 two Gigawatts of potential in California, and  
4 those would be in impoundments and natural  
5 waterways. Importantly, this is baseload power,  
6 so it doesn't have the issues from other  
7 renewable energy of intermittency and  
8 unpredictability. Also, very often in small  
9 hydro, this energy could be installed for three,  
10 three and a half doors a watt, and much less  
11 expensive than a lot of renewable energy.

12           There are a lot of promising technologies  
13 out there to make this small distributed hydro  
14 more cost-effective, including Natel Energy's,  
15 and we would just like to see some more project  
16 funding focused on the R&D, as well as the  
17 project implementation side.

18           And in terms of, well, first of all, I'm  
19 not familiar with any EPIC funding that has been  
20 available to hydro technologies in the latest  
21 rounds, and in terms of the benefits to the  
22 ratepayers, I mentioned the baseload nature of  
23 the renewable energy, but also there's a growing  
24 emphasis on the water energy nexus. A lot of  
25 these projects, for example, are half megawatt,

1 two megawatt projects on irrigation canals, and  
2 this would support the struggling California  
3 irrigation and water delivery sector.

4           And lastly, a lot of these technologies  
5 address the huge pending growth in hydropower  
6 worldwide where they're looking at huge dams,  
7 huge power infrastructure behind these dams, and  
8 a lot of the technologies developed here in  
9 California would be applicable to those  
10 installations and would enable more  
11 environmentally benign development of those  
12 resources instead of the huge dams.

13           So basically just addressing the need for  
14 more small distributed hydro funding.

15           MS. TEN HOPE: Okay, I appreciate the  
16 comment. And if you would submit written  
17 comments specific technology areas for  
18 breakthrough opportunities, they'd be welcome.

19           MR. THOMPSON: Definitely. Thank you.

20           MS. TEN HOPE: Peter.

21           MR. MILLER: Thank you. Peter Miller  
22 with Natural Resources Defense Council, and I  
23 brought up the topic area of plug loads earlier,  
24 that was probably in the wrong session, I just  
25 wanted to reiterate that as an important

1 technology area, and then comment that we do feel  
2 that there's value in supporting Research Centers  
3 and urge the Commission to initiate a  
4 Solicitation, I'm not totally clear on what a  
5 multi-topic - multi-project awards would look  
6 like. But we think there's value in having and  
7 making a long term commitment and providing  
8 stable funding to Research Centers in the State  
9 that focus on specific topic areas. Those  
10 Centers can provide a number of additional  
11 benefits beyond specific research objectives for  
12 particular projects, including training and  
13 education, collateral support to agencies and  
14 industry in which the Centers provide information  
15 and expertise, both to the private sector and to  
16 the public sector. Centers can attract co-  
17 funding and form stable long term partnerships  
18 around areas that really provide value to the  
19 state. We recognize that it's essential for the  
20 Commission and the EPIC Program generally to  
21 maintain strategic direction, and to be able to  
22 refocus as needed over time, and ensure  
23 accountability and maximize value of the limited  
24 EPIC funds, but we feel that's consistent with  
25 funding for Research Centers. We'll be

1 submitting written comments noting your  
2 questions, provide some additional comments on  
3 specific technologies or areas of focus and  
4 criteria that could be used for a solicitation.

5 MS. TEN HOPE: Okay, thanks.

6 MR. ZIVOJNOVIC: My name is Vojin  
7 Zivojnovic from Aggios Inc., we are from Irvine  
8 and we approve that Energy Commission's  
9 activities, particularly in the plug load sector  
10 work. We would never be here if the Energy  
11 Commission didn't fund one of these Research  
12 Centers in our vicinity and which attracted a lot  
13 of attention from industry, from the Commission  
14 itself, as well as a lot of research. So, yes,  
15 although obviously we share all the same thoughts  
16 of more money into Research Centers means less  
17 money probably for small businesses, we need to  
18 encourage the Commission to invest in Research  
19 Centers because this is the crucial element for  
20 companies to grow and to be able to sustain their  
21 efforts in the market.

22 I would like to suggest that these  
23 Solicitations for Research Centers have a  
24 stronger match funding component. And that in  
25 this way, with all due respect, \$600 million is a

1 lot of money, if you look at the wallet at Apple  
2 and other large U.S. corporations, there's much  
3 more money to be invested in this direction; for  
4 example in plug loads. So we would advise the  
5 Commission to look at the solicitations which  
6 will effectively not only have additional points  
7 for match funding, but effectively for these  
8 Research Centers attract more of the industry  
9 and, in this way, then easy the funding of these  
10 research centers over a long term. It's easy to  
11 start them, but it's hard to feed them over a  
12 long time, because typical research effort goes  
13 as much as a PhD goes, four to five years, and  
14 it's only for one generation. Thank you.

15 MS. TEN HOPE: Thank you. We have quite  
16 a few people who want to speak on this, so I'm  
17 going to bring up another group and we may mix it  
18 up a little bit at the end, but let's bring up -  
19 oh, I'm sorry, Chris, yes, you came up late, so  
20 Christa Darlington.

21 MS. DARLINGTON: Just a couple of  
22 suggestions. As far as multiple-party awards,  
23 you know, there's probably space for considering  
24 different types of technologies that could co-  
25 locate in one place, and how would that look. I

1 know we're exploring that for County and City  
2 Permitting suggestions on how to integrate the  
3 way they develop projects, for example, you could  
4 have a dairy that has a solar component, that has  
5 an EV station, I mean, there's things you could  
6 do that are across technology sectors and so you  
7 might want to consider how would you fund or  
8 support that kind of collaborative work between  
9 technologies.

10           And a second suggestion is about finding  
11 money for Centers, or just finding more money.  
12 You know, the leveraging with getting match  
13 dollars from private sector is really important;  
14 there's also a lot of other state money going on,  
15 so the state agencies tend to silo themselves and  
16 it would be great if someone like yourselves if  
17 you're innovative to think about crossing over  
18 into Cap-and-Trade, thinking about crossing over  
19 into the Cal Fire dollars, start thinking about  
20 how can you leverage other state funded programs  
21 that have a lot of co-benefits to ratepayers that  
22 are looking at ways to reduce carbon, that you  
23 can clearly justify the benefit to the ratepayer.  
24 And you could make that perhaps a way for them to  
25 score more points, Applicants to score more

1 points if they're working with multiple sources  
2 of State funding. Thanks.

3 MS. TEN HOPE: Wonderful. Thank you.  
4 All right, so Erik Bluvas, Fred Walti, Bernie  
5 Kotliar, Terry Surles, and Gayle Braeger, and  
6 then we do have another group after that, so  
7 don't worry if I didn't call your name. We'll  
8 start with Eric.

9 MR. BLUVAS: Hi. Yeah, my name is Eric  
10 Bluvas and I'm with, well, we're not so small  
11 anymore, but a small LED manufacturing company  
12 called Green Creative based here in California.  
13 And my role with the company is I'm kind of our  
14 utility liaison person. I actually come from the  
15 consulting side, so I see what goes into  
16 designing programs like this, and have a unique  
17 perspective because I've witnessed the benefits  
18 on the consulting side of what you get from these  
19 Research Centers across many different energy  
20 saving type technologies that truly benefit the  
21 ratepayers, as well as now on the manufacturing  
22 side, I can see how the approach that groups like  
23 the CLTC take is pretty unbiased, and that's  
24 really what you need to advance this type of  
25 technology.

1           And just a little plug for LED as a  
2 whole, I mean, it may seem like not as new of a  
3 technology as some of the other things that you  
4 could put the money towards, but I would beg to  
5 differ, I mean, some of the research that still  
6 needs to go into place for some of the mass  
7 market adoption that we need and some of the new  
8 use types with LEDs, we haven't even tapped the  
9 tip of the iceberg. So that's about it, just a  
10 general plug for the true clear benefit to the  
11 ratepayers for these types of University-type  
12 Centers, as well as a general plug for LED  
13 lighting.

14           MS. TEN HOPE: So as a private company,  
15 how does a Center facilitate the development and  
16 commercialization in a way that is more  
17 beneficial to you than you applying directly for  
18 project funding, you or them?

19           MR. BLUVAS: That's a good question. I  
20 mean, we're not always going to win at it, but we  
21 can get kind of an unbiased look at a certain use  
22 type, or a product type that we might have, you  
23 know, if they're independently evaluating and  
24 saying that, I think that speaks better than a  
25 salesman. So kind of the unbiased approach that



1 they could bring.

2 MS. TEN HOPE: Thank you. Fred.

3 MR. WALTI: Good afternoon. My name is  
4 Fred Walti and I'm the Executive Director of  
5 LECI. We operate a collection of incubators  
6 mainly in Southern California. We are the  
7 Department of Energy's designated clean tech  
8 incubator for California, and we operate a  
9 network of incubators around the world. And I  
10 think we live in a different space than the folks  
11 that have been talking up until now; we're  
12 totally focused on getting technology out of the  
13 lab, off a bench, out of a garage, and into a  
14 marketplace. It's difficult to do, it requires  
15 really experienced and, by the way, expensive  
16 people to do it, and it takes a long time. And  
17 when I talk to our associates at the DOE, or at  
18 some of the National Research Labs, folks that I  
19 know, and the research universities, they've all  
20 concluded, as I do, that we don't do a  
21 particularly great job of getting technologies  
22 out of the lab. We spend a lot of money to do  
23 that, but we don't spend enough money in getting  
24 them into the commercialization. And so my  
25 message is perhaps a greater emphasis on programs

1 that will help companies get from lab or garage  
2 into the marketplace and a sustained significant  
3 program. There are many models to look at around  
4 the country that do that, New York does that,  
5 Massachusetts does it, and other places. So  
6 that's it. Thank you.

7 MS. TEN HOPE: I had a question, but it  
8 escaped me, so I may come back to it. Anyone  
9 else? Okay, Bernie.

10 MR. KOTLIER: Thank you. My name is  
11 Bernie Kotlier and I'm the Executive Director for  
12 Energy Solutions for the International  
13 Brotherhood of Electrical Workers, and the  
14 National Electrical Contractors Association,  
15 which is often called NECA in California. And I  
16 do want to thank you very much for this  
17 opportunity to comment.

18 The California IBW, NECA, Labor  
19 Management Cooperation Committee, which I'll just  
20 refer to as IBW and NECA, represents thousands of  
21 electrical contractors who are members of NECA,  
22 and tens of thousands of IBW electricians in  
23 California, so I'm here representing them today.

24 First and foremost, IBW and NECA strongly  
25 support Research Centers such as the California

1 Lighting Technology Center, the CLTC, if you  
2 will, and the Western Cooling Efficiency Center,  
3 the WCEC at U.C. Davis. These Centers are highly  
4 effective in Applied Research, Development and  
5 Demonstration partnerships and were founded in  
6 large part based on smart, forward thinking, long  
7 term Energy Commission funding. IBW and NECA  
8 applauds the Commission for those original wise  
9 decisions. The CLTC, and the WCEC grew out of a  
10 close collaboration between the California Energy  
11 Commission, industry partners, and Investor-Owned  
12 Utilities to build a broad and successful  
13 research, demonstration, education and training  
14 portfolio.

15 IBW and NECA have been greatly impressed  
16 with the California Lighting Technology Center's  
17 collaboration with industry, engagement in the  
18 lighting education, workforce training, research  
19 and development, and Code and Standards  
20 activities. IBW and NECA have collaborated with  
21 the CLTC on numerous successful and effective  
22 advanced lighting and lighting controls energy  
23 efficiency projects. Based on considerable  
24 experience with the CLTC, IBW and NECA can say  
25 without reservation that the CLTC is highly

1 successful and it is well valued by its sponsors  
2 and partners as a neutral third party technical  
3 expertise supporting lighting energy efficiency  
4 opportunities.

5           The California Lighting Technology Center  
6 is appreciated by IBW and NECA and the lighting  
7 industry as one of the best publicly-owned  
8 lighting research laboratories in the country.  
9 Working in partnership with designers,  
10 manufacturers, end users, utilities, government  
11 agencies, and others, CLTC commercializes energy  
12 efficient lighting and daylighting technologies,  
13 producing new technologies and best practices.  
14 CLTC also provides engineering, documentation,  
15 market research, lighting guides, working papers,  
16 and white papers. The Center conducts technology  
17 demonstrations and publishes reports and case  
18 studies on these projects. The Center's faculty  
19 and staff develop and deliver curriculum,  
20 statewide instruction, and technical support to  
21 California's workforce, in addition to general  
22 public and outreach and educational activities.

23           Just a few of the recent successes should  
24 be noted. The CLTC developed the Acceptance Test  
25 Technician's Course Program, it initiated the

1 Adaptive Outdoor Lighting Program as an industry  
2 supported collaborative for Title 24, created the  
3 California Quality Specifications for LED lamps  
4 as a voluntary program, and co-authored  
5 California's Advanced Lighting Controls Training  
6 Program, or CALCTP, that has trained and  
7 certified about 4,000 employers and energy  
8 workers in the state.

9           While IBW, NECA and the lighting industry  
10 have celebrated CLTC contributions to moving  
11 California's peak load reduction energy  
12 efficiency policies forward, changes in the CEC's  
13 funding practices have endangered this highly  
14 successful model.

15           The CEC's new use of competitive  
16 solicitations jeopardizes the fulfillment of the  
17 mission of the WCEC and the CLTC. IBW and NECA  
18 views the CLTC at U.C. Davis as entering a period  
19 of significant financial uncertainty and its long  
20 term CEC interagency agreement is set to expire  
21 in early 2015. This previous long term  
22 interagency fund has supported a variety of  
23 efforts on Codes and Standards development,  
24 workforce training, education, and specific  
25 technical activities in support of lighting,

1 energy efficiency and peak load shaving in  
2 California. The absence of this dedicated broad  
3 programmatic support endangers the current  
4 structure and success of the CLTC and the Energy  
5 Center as a whole.

6           The CEC's new focus on competitive public  
7 solicitations to achieve advances in building and  
8 technology energy efficiency may be appropriate  
9 for certain types of research and services,  
10 however, an exclusive focus on competitive public  
11 solicitations which cover a broad range of topics  
12 can only support about a third to a half of the  
13 CLTC's current funding. These competitive  
14 solicitations support very specific research  
15 proposals that are substantially outside of the  
16 CLTC's original construct and mission. IBW and  
17 NECA strongly believes that the CEC should  
18 restore interagency agreements and long term  
19 programmatic support for the WCEC and the CLTC as  
20 soon as possible, otherwise the current timing  
21 and lapse in funding will significantly impact  
22 the existing programs at both centers.

23           Specifically at the CLTC, the Center  
24 cannot complete its programmatic mission in four  
25 important areas: Codes and Standards review and

1 development, laboratory maintenance and  
2 development, professional education and workforce  
3 training programs, and demonstrations.

4           To conclude, I want to say most urgently,  
5 IBW and NECA encourages the Energy Commission to  
6 award and allocate funding to the WCEC and the  
7 CLTC by April 1st. All of the current energy  
8 efficiency related centers are scheduled to run  
9 out of PIER funded 1A Agreements on March 31st  
10 and not all of these centers are guaranteed to  
11 secure additional funding under EPIC. If a  
12 funding gap were to occur to CEC timing, it would  
13 likely have long term negative impacts to the  
14 Centers and to the industry, forcing the Centers  
15 to reduce their work forces, and therefore reduce  
16 their respective capacity and expertise in  
17 response to its financial shortfall, even if the  
18 shortfall is ultimately only temporary.

19           IBW and NECA urge the CEC to avoid such  
20 adverse effects, especially for the CLTC and the  
21 WCEC, which focus on the loading order priorities  
22 of peak load reduction and energy efficiency.

23 Thank you.

24           MS. TEN HOPE: I appreciate your  
25 comments. For -- I mean, our goals are to really

1 achieve a broad range of clean energy goals. To  
2 your members, are these -- you are focused on  
3 HVAC and lighting as the areas in need of  
4 training and workforce development. Are there  
5 other topic areas you see as critical --?

6 MR. KOTLIER: Well, it's not just  
7 training and workforce development, I think the  
8 four that I mentioned, Codes and Standards review  
9 and development is very important, the laboratory  
10 is important not only in developing new  
11 technologies, but also I heard the gentleman  
12 before talking about moving into industry, the  
13 partnerships that the CLTC and the WCEC have  
14 within industry have been very effective in  
15 moving R&D products to industry, to production,  
16 to distribution, and then the training and the  
17 certification helps with the final installation  
18 and making sure that those products actually work  
19 in the field effectively. And also, of course,  
20 the demonstrations are an important part of that.  
21 So I think all four of those that I mentioned are  
22 really critical to the industry and to the State  
23 in terms of meeting our energy efficiency and  
24 peak load shaving priorities.

25 MS. TEN HOPE: I was asking if those were



1 the most important technology areas, or if there  
2 are other technology areas where focused --

3 MR. KOTLIER: Oh, other than lighting --

4 MS. TEN HOPE: -- than lighting and HVAC.

5 MR. KOTLIER: -- and HVAC? Well, there  
6 are certainly other areas that are important, but  
7 these two are critical. If you look at  
8 California's load in the built environment, the  
9 number one load is lighting, and the number two  
10 load is HVAC. And without making a big impact on  
11 energy efficiency in those two, I think we're  
12 going to have a very very hard time meeting our  
13 energy efficiency goals in the State and reaching  
14 the Zero Net Energy objectives, as well.

15 MS. TEN HOPE: Thank you.

16 MR. KOTLIER: Thank you.

17 MS. TEN HOPE: Terry.

18 MR. SURLLES: I apologize for not having  
19 set remarks, but I'm kind of reacting to a few  
20 things here today. I'm with the California  
21 Institute for Energy Environment as Senior  
22 Advisor, I'm also with the University of Hawaii  
23 as the lead for Clean Energy and Environmental  
24 Solutions, and I'm a consultant to the Institute  
25 for Defense Analysis where we're looking at the

1 future of the National Laboratories, and we're  
2 supporting that Commission. So I just wanted to  
3 comment. For full disclosure, again, I used to  
4 be in Laurie's position, in fact, Laurie is only  
5 about 30, she aged under my leadership, you know.

6 MS. TEN HOPE: That's true.

7 MR. SURLLES: That's right. So I just  
8 wanted to make a few comments. I'm very bullish  
9 on the Centers where they are effective, and I  
10 think Eli did a good job of presenting the  
11 criteria that could drive these Centers, and I  
12 think you should keep those in mind. Now, I'm  
13 just going to comment on three that I know about,  
14 the California Lighting Technology Center, the  
15 Climate Centers, and the Demand Response Research  
16 Center. There's others, but given my background,  
17 I basically haven't been in the state a lot since  
18 about 2006. But I think those are three examples  
19 that have been very successful. And they've been  
20 successful because they've -- actually, I don't  
21 need to think, I think the California Lighting  
22 Technology Center was described appropriately,  
23 but they've been successful because they've been  
24 able to get funding from other places. The  
25 Climate Center is important because they're not

1 necessarily producing products, they produce  
2 models. But in the other instances, they're  
3 working with the State, they're working with the  
4 IOUs, and they're getting technologies out into  
5 the field which to me is a measure of success and  
6 it's why you're asking ratepayers to spend money,  
7 because there should be this benefit coming back  
8 to the ratepayers. And I should add, I didn't  
9 add, so while I was here for the three that I  
10 mentioned, I was instrumental in helping to  
11 create those three, and we also did it through  
12 sole sources, and so my comment would be, and Eli  
13 mentioned there were old tools available, my  
14 comment for these three in particular, the Demand  
15 Response Research Center and the California  
16 Lighting Technology Center, let's go back to the  
17 old tool: I know that sole sources is a bear, I'd  
18 have to go into the legislative committee looking  
19 at these things once a year to get my annual  
20 whipping for the sole sources that I did, but I  
21 think to the benefit of California and to the  
22 benefit of the ratepayers putting money into  
23 this, it's an effective way to go. And I think  
24 you should look at these things in that light. I  
25 might also add, for some of the others that have

1 been more iffy, I liked the comment in the  
2 previous session of someone saying that if you  
3 pretty much know who is good at these things, so  
4 you're only going to have a limited solicitation,  
5 cut down the turnaround time because there's only  
6 two or three people or organizations that may be  
7 capable of it, so just cut to the chase as  
8 quickly as possible.

9           So where can you take these things where  
10 you do need open solicitations as you look to the  
11 future? And I think you do need to look to the  
12 future because, just because there are Centers  
13 doesn't mean they're on the gravy train. If  
14 they're not getting co-funding, if they're not  
15 leveraging with the private sector, if they're  
16 not deploying technologies into the marketplace,  
17 why are they funding them? So you want them to  
18 be successful and the successful one should be  
19 maintained, and the other ones you should  
20 basically let die a graceful death. So then  
21 there should be other funding available for other  
22 places, and if you are really doing open  
23 solicitations on certain things, the DOE hubs  
24 that they're looking at now, and I'm more  
25 familiar at this point with the critical

1 materials because of some things I'm doing there,  
2 are I think more a way where you can start  
3 looking at new things in a way that can positive  
4 affect California.

5           So I'll close with one last, first of all  
6 a comment that Laurie suggested multi-project,  
7 multi-location for some of these new things, I  
8 think that's a great idea because the world has  
9 changed since we set up these fixed locational  
10 things and I think there's opportunities to do  
11 that, particularly when you start looking at  
12 Smart Grid systems, and having that flexibility  
13 and the nimbleness to do that in multi-locational  
14 and multidisciplinary things where you're going  
15 to have more than one project for this location.

16           So I will close with one thing, it's an  
17 analogy to the Demand Response Research Center,  
18 when we set that up basically there was no money  
19 coming from the Feds, I mean, there was a lot of  
20 money for efficiency, the lighting thing we set  
21 up to moving it from LBL to U.C. Davis only  
22 because the industry couldn't get Simonovich's  
23 stuff and being at U.C. Davis allowed that to  
24 happen. For the Demand Response Research Center,  
25 we set that up with the idea that you could set

1 that up, fund it, and then they would be co-  
2 funded by the Feds, which they've done and  
3 they've been very successful both with Utilities  
4 and internationally in terms of their image.

5           So what is the next thing that I think is  
6 critical for California, and one where right now  
7 the Feds can't get their act together, and to me  
8 that's the water energy nexus, my last full time  
9 job was in Nevada, the driest state in the Union,  
10 we spent a lot of time thinking about the water  
11 energy nexus, and Pramod Kulkarni was here  
12 earlier and when we looked at the industrial  
13 efficiency work when we were both at the  
14 Commission, we focused on the Ag community  
15 because of this water energy nexus, even then.  
16 So I think broadly speaking, that's something you  
17 may want to look at, where California would take  
18 a leadership position in actually getting some of  
19 these projects off the ground that are going to  
20 be critical for the Western third of the United  
21 States, and critical for California's economic,  
22 energy and environmental future. Thank you.

23           MS. TEN HOPE: Thanks, Terry. I'd like  
24 to do a lot of follow up questions, but I'm going  
25 to make sure we hear from everyone first. Gayle

1 Braeger.

2 MS. BRAEGER: Thank you. My name is  
3 Gayle Braeger and I'm the Associate Director of  
4 the Center for the Built Environment at U.C.  
5 Berkeley. I have five points I'd like to make  
6 regarding why I think that we should invest EPIC  
7 funds in Research Centers to make the  
8 transformational change that I think is so  
9 urgently needed in our industry. I am going to  
10 speak generically about the value of Research  
11 Centers, rather than trying to promote a single  
12 one.

13 First point is about continuity. Long  
14 term innovation requires multi-year efforts that  
15 can move seamlessly from fundamental research up  
16 to applications and pilot testing to the  
17 development of tools and resources to facilitate  
18 technology transfer and industry adoption

19 The project-based model often moves  
20 through these phases at a snail's pace where  
21 different organizations are used to operating at  
22 a particular kind of phase, and they toss the  
23 baton to each other and try to pick up where  
24 somebody else left off. On the other hand,  
25 Research Centers are more likely to provide an

1 unparalleled persistence of interdisciplinary  
2 knowledge that can move more easily across all of  
3 the phases, therefore accelerating the potential  
4 for making a real difference in the industry.

5           Second point is agility. The pace of  
6 technology development is accelerating at a rate  
7 that traditional project-based solicitations  
8 can't easily keep up with. We all know that it  
9 typically takes years in that model to move  
10 through the entire lifecycle from solicitation  
11 through proposal through project completion.  
12 Research Centers are inherently nimble and  
13 flexible, and they can more rapidly respond to  
14 changes in industry, and to the fluctuating needs  
15 of regulatory agencies.

16           Third is cost-effectiveness. Multi-year  
17 programs allow for the long term and cost-  
18 effective support of advanced facilities and  
19 expertise, allowing the cost of a research  
20 program to be amortized over many years. Simply  
21 put, you can get more bang for your buck by  
22 making long term investments in Research Centers.

23           Fourth is industry collaboration. It's  
24 critically important that we break down the silos  
25 between academia and industry to meet the urgent



1 needs for change. Research Centers often have  
2 longstanding relationships with industry partners  
3 that take years to develop, but once established  
4 it allows rapid feedback either from industry to  
5 the researchers to ensure that our research  
6 remains relevant to current concerns and  
7 conversely from researchers back to industry to  
8 ensure that newly developed tools and  
9 technologies can be rapidly deployed in the  
10 field.

11           And five is policy implementation.  
12 Research Centers are more likely to have in-house  
13 staff that are actively involved in organizations  
14 that develop Codes and Standards, that are  
15 advising and advocating for energy efficient  
16 systems and technologies and advancing their  
17 adoption. It often takes many years to get  
18 research results implemented into Codes and  
19 Standards and much of that work can't even start  
20 until you have findings and the research project  
21 is completely over. So with a project-based  
22 model that usually produces research that ends  
23 with a final publication. But multi-year funding  
24 of Research Centers can more effectively support  
25 ongoing efforts that are required to get that

1 work ultimately adopted into various policy.

2           So in summary, I have a briefer checklist  
3 of five criteria that I believe the Commission  
4 should use in any competitive solicitations to  
5 select Research Centers for such multi-year  
6 funding: the first, I believe that successful  
7 Centers should have a broad mission-based focus  
8 that of course starts with an energy saving  
9 potential of the Center's work, but I believe  
10 should also be combined with human impact factors  
11 that are essential for getting those technologies  
12 adopted because if you have energy efficient  
13 technologies that don't provide good environments  
14 for the people in those buildings, those  
15 technologies are going to fail; second, I think  
16 successful Centers that are selected for such  
17 multi-year funding should have a demonstrated  
18 history of getting their research findings both  
19 into practice and into Codes and Standards;  
20 third, there should be examples of where those  
21 research results may have led to patents or  
22 start-up companies, thereby increasing the  
23 potential for commercialization; fourth, I think  
24 you should look for broad collaboration between  
25 those Centers and with industries and with

1 industry co-funding because that, I think, is  
2 evidence of the value of the Centers' research  
3 mission to private industry; and fifth is about  
4 Centers that have a connection to academic  
5 programs because I think these represent our  
6 future generations and I think increases the  
7 likelihood we will be able to more actively  
8 engage women and minorities into EPIC's programs.  
9 This is all about feeding the pipeline that was  
10 introduced earlier this afternoon and, please  
11 don't get me wrong, a lot of my best friends are  
12 white guys, many in this room, but I think we all  
13 know that diversity is really important for the  
14 stakeholders and I think the Universities is  
15 where the pipeline really needs to start. Thank  
16 you.

17 MS. TEN HOPE: Thank you. Let's -- I  
18 think we've heard from everybody who is here.  
19 Right now we have three more people that wanted  
20 to speak on this, Mitch Sears, Jerry Mix and  
21 Merwin Brown. Let's see, Mitch.

22 MR. SEARS: Yes, thank you. I'm Mitch  
23 Sears, I am the Sustainability Manager for the  
24 City of Davis. And I'm not sure that there's any  
25 other public agencies that are taking the

1 technology and applying it that have been a part  
2 of this conversation, so I wanted to provide a  
3 little bit maybe different perspective on this.

4           Specifically I'm here to talk about the  
5 City's engagement with the CLTC and the Western  
6 Efficiency Cooling Center. And I really  
7 appreciate the most recent comments about  
8 adoption, that's really where we at the local  
9 level are interested in real world solutions to  
10 the problems that are presented and dealt with at  
11 the local level, I think unlike other levels of  
12 government.

13           So the City has collaborated with the  
14 CLTC specifically on numerous projects over the  
15 past decade, but most recently and extensively on  
16 our multi-million dollar LED Outdoor Lighting  
17 Retrofit Project. We have thousands of lights to  
18 replace across our community, and it's a big big  
19 deal for our local jurisdiction. The community  
20 expects, well, we got a lot of feedback on the  
21 LEDs that were installed and our community was  
22 expecting the latest advanced low glare  
23 technology delivered cost-effectively. The CLTC  
24 engaged and provided objective data driven  
25 analysis that allowed the Davis City Council to

1 make an informed decision. In the end, the City  
2 selected LED fixtures that met the community's  
3 desires while saving 33 percent more energy than  
4 the LEDs that were originally scoped for the  
5 project. That's real world dollars that are  
6 flowing back into the community as a result of  
7 engagement of one of the Centers that have been  
8 talked about.

9           This outcome would not have been possible  
10 without CLTC's unique research capabilities,  
11 practical market knowledge, and its ability to  
12 provide expert information in a timely way. And  
13 I want to emphasize "timely" because the City of  
14 Davis has also participated in a number of PONs,  
15 and we appreciate the opportunity, I could have  
16 spoken on subject number one as well, so we  
17 understand what that process is.

18           In the case of a community trying to make  
19 decisions in a political setting, without timely  
20 information that is objective it makes it much  
21 much more difficult for communities to make those  
22 kinds of informed decisions that understand what  
23 the local sort of landscape is when it comes to  
24 these decisions.

25           The community-scale transfer of this

1 technology has direct and immediate triple bottom  
2 line impacts for us, it's saving energy, it's  
3 saving cost, and it's making our neighborhoods  
4 more livable and better.

5           So we believe that investing in CLTC and  
6 other Research Centers has direct application to  
7 the issues that are dealt with at the local  
8 level, specifically we think that CLTC does a  
9 great job of engaging in our particular case, and  
10 it's not just the City of Davis, but our  
11 understanding is that they're able to engage in  
12 other jurisdictions across the state in these  
13 types of effective ways, as well. So again, the  
14 City of Davis wanted to provide that kind of on-  
15 the-ground experience that hopefully is helpful  
16 to the Commission.

17           MS. TEN HOPE: Thank you. I think it's  
18 particularly helpful, I mean, I have great  
19 respect for all the research organizations, but  
20 it's particularly helpful to hear from users of  
21 the research products and we've had companies and  
22 yourself speak to that, so I appreciate you  
23 taking the time. Jerry?

24           MR. MIX: Yeah, thank you. I'm Jerry Mix  
25 and I'm with Finelite and I've been in the

1 lighting industry for 34 years and I've been  
2 working with the CLTC for 12, and so from a  
3 Research Center perspective, it really is just  
4 the California Lighting Technology Center. But I  
5 do think it applies to all of the Research  
6 Centers that when you have a winning model, that  
7 you figure out what make it win, I would like to  
8 say in business, what I like to say is that we  
9 feed the winners and we starve the losers, and  
10 that's not what's happening with the Research  
11 Centers today, okay? We're starving the winners,  
12 all right? And I don't know if we're feeding the  
13 losers, I'm not sure about that. But it's just a  
14 business perspective. So we're a strong  
15 supporter of them, and I have some written  
16 comments that I've submitted, but I've put some  
17 things down in writing that I'd like to bring up  
18 today, that I haven't submitted yet.

19           One thing is that the Department of  
20 Energy released a report in August of 2014 titled  
21 "Energy Savings Forecasts of Solid State Lighting  
22 in General Illumination Applications." And the  
23 key bullet there was "Suddenly Solid State  
24 Lighting is everywhere," yet Solid State Lighting  
25 technology is actually in its infancy when it

1 comes to U.S. energy and carbon savings more than  
2 95 percent of its potential remains untapped.  
3 That alone says to me that there's never been a  
4 time where we need Research Centers more than we  
5 need it now because the money is pouring into  
6 things like this, and it's not just pouring in  
7 from California, it's pouring in from DOE, it's  
8 pouring in from private companies like the one I  
9 run, and Energy Centers do a whole lot of work  
10 that those companies won't do.

11           And a couple of other quick comments is  
12 that this revolution is creating excitement,  
13 interest and opportunities for better lighting  
14 and energy savings at the same time and, as  
15 stated in the DOE report, modest investments are  
16 producing extraordinary impacts. We believe that  
17 the CLTC fills a vital role in making sure this  
18 revolution continues to achieve its potential.  
19 Our next step and collaboration as a company with  
20 the CLTC is to make sure that the market is  
21 educated to effectively maximize the use of high  
22 quality solid state lighting, and we believe  
23 that's done through education and demonstrations  
24 for leaders, building owners, architects,  
25 engineers, they learn the best practices. That's



1 really -- they're kind of on the forefront,  
2 they're not necessarily figuring out how to make  
3 the next great LED, but they're saying how do we  
4 take the great things that are happening in  
5 technology and apply those to the real world.  
6 And the City of Davis is a perfect example of  
7 where they really really matter and they have  
8 effective results.

9           A couple other quick comments. When you  
10 put up the things earlier about the CLTC, do they  
11 have a proven track record of direct benefiting  
12 IOU customers? I'd say absolutely. Do they have  
13 strong industry partnerships? Absolutely. I  
14 don't know if it's at 100 or 125 industry  
15 partners. Do they demonstrate a path to market  
16 to inform policy? They've done those things. So  
17 the results that you're looking for have been  
18 clearly demonstrated by many of the Research  
19 Centers, and I'd like to think that that's what  
20 we want to do, we want to feed the winners. It  
21 is about the value for the dollar and, as a  
22 business owner, everything is return on  
23 investment. So things like the CLTC and the  
24 other Research Centers, I mean, make sure we hold  
25 them accountable, goal-oriented yet flexible

1 structures, measured results. And I think if we  
2 do that, we will continue to be the model for the  
3 rest of the world regarding Research Centers. I  
4 mean, California has led this everywhere and I  
5 just think we have to keep it going. It's a way  
6 of having broad portfolios and Centers of  
7 Excellence. So those are my comments.

8 MS. TEN HOPE: So do you have, as a  
9 private business owner with lighting products,  
10 you know, you're speaking to the value of the  
11 Center, I'll ask the question I asked the other  
12 gentleman in terms of the tradeoff between  
13 funding to Centers versus individual projects  
14 that the private sector might bid on, and if we  
15 went forward with a solicitation for Centers, how  
16 do keep a really healthy competition among the  
17 private sector funding for technologies, getting  
18 technologies to market --

19 MR. MIX: Yeah, I mean --

20 MS. TEN HOPE: -- and how to balance  
21 those.

22 MR. MIX: So as a private company, we  
23 have only done projects where we've worked in  
24 collaboration with the CLTC and we've done it,  
25 Finelite has done it twice or three times in

1 about the last 10 or 12 years. We've worked with  
2 them on a lot of other things, all right, to get  
3 education and pieces like that done. From my  
4 perspective, I don't see any benefit to putting a  
5 solicitation out for Centers, I think you've got  
6 winners. And I agree with the statement earlier  
7 regarding from the person who was running that  
8 center, all of the things that she said are  
9 exactly true, is that these things take a long  
10 time to have an impact, so as a company we're not  
11 going to actually submit for any of the research,  
12 we're just not going to do it because it's being  
13 done everywhere else. And for us it's about  
14 actually applying the research that is in the  
15 public domain and working on our products.

16 MS. TEN HOPE: Thank you. Merwin Brown?

17 MR. BROWN: Thank you. Yes, I'm Merwin  
18 Brown. I'm Co-Director of Electric Grid Research  
19 with CIEE. I'm also a member of the Department  
20 of Energy Electricity Advisory Committee, and I'm  
21 also on their Leadership Committee, and I'm also  
22 a Chairman of their Energy Storage Subcommittee.  
23 And I also do pro bono work for some start-up  
24 companies in Clean Energy. I don't represent any  
25 of those three here in this in what I'm going to

1 say, but it's my observations from experience  
2 with those positions that I want to talk about.

3           What I want to address is some  
4 suggestions of topics to look at for future  
5 research for EPIC and the topics I'm going to  
6 give you probably aren't new to you, so this is  
7 more of an emphasis, a change in emphasis,  
8 perhaps, than saying that you haven't addressed  
9 these in the past at all.

10           One of these that has come up fairly  
11 recently, well, a lot of these the emphases have  
12 changed since your early plans were done, and so  
13 as you go into future planning that's why I'm  
14 bringing this to your attention. One of them is  
15 resiliency of the electric grid. This has become  
16 an increasingly important factor for the electric  
17 grid, this is somewhat in contrast to reliability  
18 which is kind of, in an over-simplified way, the  
19 N minus 1 criteria of managing the grid, the  
20 resiliency looks at those other events where  
21 there are many things that go wrong at once, and  
22 it's becoming less and less acceptable to  
23 electric consumers that the grid is not reliable  
24 or secure or usable under those conditions, as  
25 well. So it's a new topic area that's come

1 about.

2 Another one is this area of security and  
3 privacy, cybersecurity is a buzz word, it's been  
4 around now for quite some time, but another form  
5 of security that is coming about is the physical  
6 security of the grid. I'm hearing more and more  
7 cases of physical assaults on the grid, and it  
8 seems to be a real situation that it is  
9 increasing, so it's another area to look into as  
10 far as where there might be some research of  
11 benefit there.

12 Another area has to do with a topic,  
13 again that I know you're aware of, it has to do  
14 with institutional barriers. The pace of  
15 technology development has been growing rapidly  
16 to the point I see many cases of technology being  
17 held back by institutional problems. The  
18 institution factors are not mature enough to be  
19 able to issue a let the technologies be deployed.  
20 This may be market-type institutions, they may be  
21 regulatory, tariff-based, Codes and Standards,  
22 safety, and so on. Now, many public funded  
23 research groups sort of stay away from that area  
24 because they see themselves getting involved in  
25 policy making, which is usually done in a

1 different venue than the research one, but for  
2 example on the Electricity Advisory Committee  
3 we've been working with the DOE to point out to  
4 them there are a lot of things in the technical  
5 research area that they can do, such as in Codes  
6 and Standards, or in developing tools and models  
7 for use by policy makers as they develop new, you  
8 know, rules and laws and things like this that  
9 impact the ability to deploy new technology, so  
10 this is another area.

11           And somewhat in accord with this, and it  
12 was mentioned earlier, is the human behaviors  
13 research. I think this is becoming more and more  
14 critical, particularly as the electricity  
15 consumer takes on a more active role in the  
16 operation of the electric grid, human behavior's  
17 understanding of that would go a long ways, not  
18 only with helping with policies, but also helping  
19 with technology development.

20           And then another one that I know you're  
21 aware of, but I'll point it out for emphasis, is  
22 the integration of different devices into the  
23 distribution system. The distribution system is  
24 playing, if you will, technological catch-up with  
25 the transmission system and this is an area

1 that's ripe for a lot of development, and it's  
2 also an area that's being pushed rather hard,  
3 particularly in California, with the goals of  
4 putting in rather large amounts of distributed  
5 generation demand response and things like this.

6           Having said all that, though, we haven't  
7 solved all the transmission problems yet, either.  
8 So you can't really abandon transmission and run  
9 off to distribution, I think, and have a well-  
10 balanced program.

11           One thing I might suggest is that the  
12 PIER Program did a lot of research in the  
13 transmission arena and some of that research  
14 didn't get finished for various reasons, and I  
15 went back and looked at these projects. Some of  
16 them where the research hadn't been completed yet  
17 had only reached a milestone, other entities have  
18 picked up the research and gone on with it such  
19 as the Electric Power Research Institute, the  
20 Department of Energy, and some private companies  
21 have commercialized some of these technologies,  
22 but there are other projects that still remain  
23 there fallow and I would suggest to go back and  
24 look at those projects to see if the ultimate  
25 goal for them is still valid, and see about

1 building on those technology developments that  
2 you've done so far and finishing the job, if you  
3 will. So that pretty much concludes my comments  
4 in that area.

5 MS. TEN HOPE: So with that list, that's  
6 a list of technology areas that you think are  
7 critical to be included in the program, as  
8 opposed to areas that you would suggest for a  
9 Center or a multi-project type solicitation?

10 MR. BROWN: Yes, this is somewhat to the  
11 discussion of Centers. This could very well  
12 apply to Centers or not, it wasn't in that  
13 intent, this was in the area of topics to bring  
14 your attention. And again, I want to emphasize  
15 that this is an emphasis statement, it's not  
16 coming from the point of view that I believe  
17 you've ignored these things, you haven't, you've  
18 touched on almost all of them to one degree or  
19 another, I was just bringing to you the benefit  
20 of the observations I've made by serving in my  
21 jobs.

22 MS. TEN HOPE: I appreciate that and I  
23 thought that's what it was, but I wanted to just  
24 clarify to make sure we were because we had two  
25 topics here, technology areas of focus, and



1 Centers.

2 MR. BROWN: For what it's worth, I'll  
3 second almost all the comments made on Centers.

4 MS. TEN HOPE: Thank you. We have two  
5 more people in the room who have asked to speak  
6 on this, Ron Durbin, U.C. Merced, and Masoud  
7 Rahman, U.C. Davis.

8 MR. DURBIN: Thank you. My name is Ron  
9 Durbin and I'm with U.C. Merced, I'm actually the  
10 Executive Director of the U.C. Solar Institute,  
11 we're a nine-campus research collaborative based  
12 at U.C. Merced, but we include all nine U.C.  
13 campuses, except U.C. San Francisco, we let them  
14 focus on their medical stuff.

15 From the beginning we participated in the  
16 planning process for the initial Triennial  
17 Investment Plan and we've been big supporters of  
18 the idea of funding Centers, and I think all of  
19 the presenters here today have done a good job of  
20 expressing the value, in fact, they've maybe even  
21 done a better job than I have of expressing the  
22 value of these Centers. And I just wanted to add  
23 that we believe competition is good, that it  
24 helps you sharpen your mission, it helps you  
25 sharpen your focus, and we look forward to a

1 possible solicitation in this area, we believe it  
2 should be an open solicitation, that's the best  
3 way to find out what everybody is doing. Just  
4 the act of the solicitation has helped us  
5 greatly. We recently got a four-year grant  
6 renewal from the U.C. Office of the President and  
7 that was based in part on the idea that we would  
8 be able to pursue other types of funding, kind of  
9 let's match that grant with other types of  
10 funding including state and federal funding. So  
11 we're excited about this message.

12           With regard to Research Centers, we're  
13 excited about the work we do in facilitating  
14 greater solar penetration in California's  
15 electrical grid; we have a worldwide mission and  
16 we look forward to working with all of you in the  
17 future.

18           MS. TEN HOPE: Thank you, Ron. Masoud.

19           MR. RAHMAN: Good afternoon. My name is  
20 Masoud Rahman. I'm a Lecturer and Post-Doc at  
21 U.C. Davis, Department of Chemical Engineering  
22 and Material Science. Also, I am a Research  
23 Engineer in California's Solar Energy  
24 Collaborative, which is part of California  
25 Renewable Energy Collaborative located in U.C.

1 Davis.

2           And I would like to share my experience  
3 of working in one of the CEC-funded projects  
4 which we gave the report last year. It was about  
5 integration of renewable technologies, or  
6 assessment of integration of renewable  
7 technologies for California. During this  
8 project, five different groups in U.C. Davis  
9 worked with each other, the solar group, which  
10 I'm part of that, the wind, the hydro turbine,  
11 geothermal, and biomass groups.

12           And this collaboration resulted in a lot  
13 of new ideas, a lot of brainstorming. Also, we  
14 had a collaboration with the company, Black and  
15 Veatch. So I just wanted to use that experience  
16 and emphasize here that two things are important  
17 about a Center, one is that the Center should be  
18 the knowledge, data and technology manager. So  
19 in this case, the Center is not competing against  
20 small businesses, but also small businesses can  
21 collaborate with Centers. But the main idea  
22 behind a Center could be that the Center looks at  
23 the general scope and privatize the projects and  
24 use the subcontractors and small business  
25 companies to really perform that project.

1           The other thing that I would like to  
2 mention is looking at integration because one way  
3 of innovation is to integrate the currently  
4 available technologies. So regarding the concept  
5 of what Research Centers are required in the  
6 future, think those Research Centers which focus  
7 on integration of the current technologies, how  
8 to integrate them in a way that new benefits  
9 could be the outcome.

10           Lastly, I would like to ask the CEC to  
11 increase the length of the funding so that the  
12 Centers, and especially the University Centers,  
13 can have enough opportunity to continue the  
14 research and come up with the results that could  
15 benefit California and ratepayers.

16           MS. TEN HOPE: Thank you. We have a  
17 couple people on WebEx. Le-huy, can you  
18 introduce them?

19           MR. NGUYEN: So first on the line we have  
20 Rob Hammond.

21           MS. TEN HOPE: Go ahead, Rob.

22           MR. HAMMOND: Thanks. And thanks for the  
23 opportunity to speak, especially from a distance.  
24 This is Rob Hammond. I'm the President of Bier  
25 Energy, a consulting firm that has been working

1 with the Energy Commission for some years. And I  
2 just wanted to make a few comments regarding the  
3 value of the Energy Centers, two in particular,  
4 the WCEC and the CLTC. I've submitted letters  
5 and I won't go over those for lack of time, but I  
6 think a question that you've asked a couple  
7 times, Laurie, is how would it work to do  
8 competitive solicitations for the Centers. And I  
9 think that is not a very good idea because, 1)  
10 you have excellent centers already, but more  
11 importantly I think that you would lose -- they  
12 have large start-up costs and you would lose the  
13 ability for them to do things that are not in  
14 their discrete or -- they wouldn't have to do  
15 focused work that where right now they come up  
16 with ideas on their own and they follow those  
17 either to failure and let them go, or they bring  
18 them to market, and you would lose that, that key  
19 benefit. Also, they're positioned now to work  
20 with Universities and with students, and I think  
21 that would potentially be lost, as well.

22 I also think that it's important, given  
23 that they exist and they have history, that gives  
24 them power to inform policy and fill in gaps that  
25 solicitations just wouldn't allow. And so that's

1 a quick summary of why I think we should say with  
2 what we have, maybe thin the group a bit based on  
3 their success in the market, but I think they  
4 serve a very key role and should be maintained.  
5 Thank you.

6 MS. TEN HOPE: Thank you.

7 MR. NGUYEN: Next up we have Kristin  
8 Holdsworth.

9 MS. TEN HOPE: Go ahead, Kristin.

10 MS. HOLDSWORTH: Thank you. Hi, I'm  
11 Kristin Holdsworth. I'm a Project Manager at the  
12 California Center for Sustainable Communities at  
13 U.C.L.A.'s Institute of the Environment and  
14 Sustainability -- lots of names, we will be  
15 submitted formal written comments and we are, in  
16 fact, a creation, we are a Research Center  
17 created under the PIER System.

18 This state leads the nation for energy  
19 efficiency goals, renewable technologies, GHG  
20 reductions, green jobs, EV rollouts, the list  
21 goes on and on. But in short, we believe that  
22 the CEC EPIC funding should support Research  
23 Centers to help meet these policies and goals.

24 One reason is because funding the  
25 Research Centers allows for the flexibility of

1 multi-projects across multiple locations  
2 throughout the state, and it's a flexible  
3 platform, so we can leverage the partnerships  
4 with other UCs and private sectors. So,  
5 frequently these Centers are not purely  
6 theoretical, but there's a lot of applied  
7 aspects, and so finding the funding to fund those  
8 types of positions and hire the qualified, more  
9 advanced practitioners can be difficult when you  
10 have a limited one to two-year funding cycle --  
11 or two to three-year funding cycle, I'm sorry.  
12 So to reduce the turnover it's really important  
13 that we do have this long term structure for the  
14 EPIC funding.

15           An example of this, under our current  
16 funding we did a map of energy consumption and it  
17 enabled the analysis of consumption at a granular  
18 level with actual data tied to land use policies,  
19 and then going forward is a really valuable  
20 platform that can be used for analysis of all of  
21 these technologies in terms of cost-  
22 effectiveness, the evaluation of different  
23 climate objectives, and air quality, GHG, ARB  
24 goals; and then also looking at other energy-  
25 related questions to support the state goals, so

1 evaluation of DG, DR, micro grid and smart grid,  
2 etc.

3           Again, developing these partnerships,  
4 we've heard it again and again it takes time, and  
5 so being able to leverage the Centers that are  
6 around and to leverage those existing  
7 partnerships is extremely useful, and the ability  
8 to work with the ratepayers and local governments  
9 and the utilities on the roll-out is also  
10 something that the Centers have worked hard on  
11 being able to do.

12           So finally, Research Centers, they are  
13 able to maintain their unbiased evaluation which  
14 is critical, and something that is unique to  
15 these types of Centers, they have the ability to  
16 monitor and track changes in consumption and  
17 emissions over time, and we're investing a lot of  
18 money in the programs that we're financing, and  
19 so having that evaluation component is very good  
20 and these Research Centers do a good job on that.

21           And then also it is tremendously useful  
22 as we move forward to have these Centers that can  
23 provide input and forward thinking on the future  
24 funding priorities and goals, and looking at  
25 future technologies. So thank you so much for



1 your time. We look forward to participating in  
2 the written comments portion and are happy to  
3 continue this conversation.

4 MS. TEN HOPE: Thank you. So there are  
5 several comments that want to be read into the  
6 record. Oh, you have another public -- thank  
7 you.

8 MR. NGUYEN: Next up we have Bill  
9 Eisenstein. Go ahead, Bill.

10 MR. EISENSTEIN: Hi, yes. This is Bill  
11 Eisenstein, I'm the Executive Director of the  
12 Center for Resource Efficient Communities at U.C.  
13 Berkeley. Coincidentally, we are also actually  
14 one of the organizations funded under the  
15 umbrella of the California Center for Sustainable  
16 Communities Research at UCLA that you just heard  
17 from, Kristin, who coincidentally was right  
18 before me. I had to drop off the call for about  
19 an hour, so I apologize if anything I say is  
20 redundant with what other speakers have said, but  
21 I wanted to just make a general comment about the  
22 importance of Centers, and then also to talk for  
23 just a moment about an important topic which I  
24 think the EPIC Program should pay more attention  
25 to.

1           With regard to Centers, it sounds like  
2 you've heard several strong endorsements of their  
3 value, so I'll save most of my argument in that  
4 vein for written comments. But I do want to  
5 underscore a topic that potentially maybe hasn't  
6 received as much attention and comment and that's  
7 the issue of developing human capital in the  
8 research community and how important Centers are  
9 for doing that. Kristin alluded to this a minute  
10 ago, but the stability of a Center makes it much  
11 easier for the research community at large to  
12 develop careers, essentially, talented staff and  
13 faculty can devote their attention on a  
14 continuing basis and accumulate expertise over  
15 time on specific topics that are obviously of  
16 importance to EPIC and the Energy Commission and  
17 the State. And that's just much much harder to  
18 achieve when everybody is living on a proposal  
19 treadmill where you work on a project for a  
20 couple of years, and then there may or may not be  
21 a direct follow-up and the human talent that was  
22 associated with that project then has to scatter  
23 and find other things to do. So there isn't  
24 really a powerful accumulation effect that I  
25 think occurs. Faculty are not really so much the

1 issue, but really at the level of staff and  
2 graduate students, people who are trying to build  
3 continuing careers in these areas and who are  
4 really essential to the execution of good  
5 research.

6           With regard to topics, I would just like  
7 to suggest that the EPIC Program perhaps devote  
8 more attention to the issue of how electricity  
9 consumption in the state is related to land use  
10 patterns, and this is becoming increasingly true  
11 as the state tries to achieve Zero Net Energy  
12 goals for buildings, also as the vehicle fleet  
13 electrifies gradually over time due to a variety  
14 of policy mechanisms at play in the state right  
15 now, and also just due to longstanding  
16 relationships between land use development  
17 patterns and electricity consumption, in general.  
18 So just to site one specific example, Zero Net  
19 Energy construction is a very different  
20 proposition when you're talking about single  
21 family housing as opposed to, say, much more  
22 dense multi-family housing, the kind that I'm  
23 trying to emphasize through other policy  
24 mechanisms, other legislative and policy  
25 initiatives in the state. There really needs to

1 be analysis done of how those building choices,  
2 things like road orientations, configuration of  
3 parcels, and so forth, and zoning policies affect  
4 the ability to reach Zero Net Energy status for  
5 buildings, it's a complicated issue that does  
6 deserve more attention. And likewise, as we move  
7 into an era with more electric vehicles, we do  
8 need to start thinking about issues like suburban  
9 sprawl, vehicle miles traveled, unmixed, single  
10 purpose zoning, things that drive high usage of  
11 vehicles and which therefore become issues for  
12 electricity consumption, again, as the vehicle  
13 fleet becomes more electrified over time.

14           So I think that package of issues is an  
15 important topic that could be the focus of a  
16 Center, and as others have said, I think  
17 leveraging existing Centers is a very valuable  
18 idea and so I think this expansion into the issue  
19 of land use and sort of urban scale drivers of  
20 electricity usage is a potentially really  
21 important topic. So I'll be submitting written  
22 comments to the same effect, and I appreciate the  
23 opportunity.

24           MS. TEN HOPE: Good, thank you. You have  
25 additional comments to read?

1 MS. NGUYEN: The first comment comes from  
2 Steve Jones from ITM Power, Inc. "My comments  
3 relate to how the EPIC Program intends to tackle  
4 crosscutting technologies that tackle both energy  
5 and fuel. For example, my company manufactures  
6 hydrogen electrolysis equipment which has the  
7 capability to store energy as a gas that can be  
8 used for electricity generation, heat and fuel.  
9 I feel like the EPIC Program focuses too much in  
10 silos and does not allow for crosscutting  
11 technologies."

12 MS. TEN HOPE: Thank you.

13 MS. NGUYEN: The next comment comes from  
14 Hal Slater. "I have successfully completed new  
15 ventless water heater concept testing with great  
16 results. Water heating represents 10 percent of  
17 home energy use and will be important in reaching  
18 the Governor's carbon reduction targets. I have  
19 another idea I would like to submit. Does the  
20 CEC have plans to continue its small grants  
21 program?"

22 The next comment calls from Paul  
23 Fortunato representing Western Cooling Efficiency  
24 Centers at U.C. Davis. "I'm unclear as to how  
25 EPIC will fund cutting edge technologies like the

1 Interagency Agreements used to fund. An example  
2 of a huge success due to IA Agreements that  
3 likely would not have been funded through a  
4 specific proposal or through the IOUs, WCEC  
5 created a technology that seals boating leaks  
6 automatically. The IA funding we received  
7 allowed us to direct and change the scope of the  
8 project as it made sense to do. Today we have  
9 successfully sealed over 24 homes with ceiling  
10 rates of nine percent of available leaks under  
11 two hours.

12 MS. TEN HOPE: I'm just going to take  
13 these as comments and not respond. So go ahead  
14 and just read through everyone's comments.

15 MS. NGUYEN: Next one comes from Candace  
16 Keys. "After putting together teams for 10-14-  
17 301 application and 3-14-307, I'd like to suggest  
18 doing repeat offerings, but expand the micro grid  
19 operations to integrate emergency preparedness  
20 and emergency response programs. Longer lead  
21 times would be necessary to put together the  
22 cross discipline academic, government and  
23 industry teams."

24 The next comment comes from Michael Boehm  
25 from E4 Advanced Transportation Center. "We see

1 great value in integrating EV charging with the  
2 Grid, especially integrating microgrids to help  
3 incorporate solar energy. How do we help in  
4 defining a research agenda that gives California  
5 leadership in this space? I also wonder if this  
6 should be a Research Center from the Energy  
7 Commission's point of view."

8           The next question comes from Bill Torre,  
9 who is representing UCSD Center for Energy  
10 Research. "When would solicitations for Research  
11 Centers be issued? What specific topics of  
12 energy research would be requested?"

13           MS. TEN HOPE: To be determined. I'll  
14 open it up for any final comments if people have  
15 been waiting to speak. We have certainly in this  
16 session heard quite a bit about technologies that  
17 we should consider and a dialogue on the Centers.  
18 I would urge people who submit comments to look  
19 at the full scope of questions because in some  
20 cases we have heard from participants that  
21 provided context for what a topic might be, what  
22 the criteria for selection might be, what the  
23 value of a Center or programmatic award is,  
24 beyond the value from an individual project, but  
25 in other cases, you know, we don't have that full

1 scope and I think there are several questions  
2 that are on this open discussion page and in the  
3 slide before on Slide 29 about if we look at an  
4 existing Center, how do we balance geographic and  
5 applicant diversity, you know, where are the  
6 openings for other players that are maybe not  
7 included in that center, the counter to  
8 flexibility is accountability, you know, the sort  
9 of where the funding might come from, we really  
10 want a healthy balance of private and public.  
11 All the Centers we've heard from are from --  
12 well, they're all from U.C., and I was going to  
13 say we didn't hear from LBL. So really having a  
14 program that is very accessible to public and  
15 private sector is really important, so I urge you  
16 to think about some of the more challenging  
17 questions and the counterpoints that we've put  
18 forward. And I'd like to open it up if there's  
19 anyone who hasn't spoken that would like to speak  
20 to either topic 1 or 2, you know, please come up  
21 to the podium. I'd like to keep comments to  
22 three minutes or less so we can hear from anybody  
23 who might be here and conclude by 5:00. Anyone  
24 we haven't heard from, or a final thought? Yes,  
25 on the line?



1           MR. HARLAND: One is from Jasna Tomic  
2 from CalStart. "I would like to second the  
3 comments that the description of the upcoming  
4 solicitations are very useful, but do need  
5 clarification on occasion. Can you please  
6 provide contacts for Program Officers that are  
7 available to answer questions or provide  
8 clarifications regarding anticipated  
9 solicitations?"

10           MS. TEN HOPE: We'll do our best to  
11 provide clarifications, but not with a program  
12 contact person. The solicitations, we want to  
13 make sure that all communication with anyone who  
14 has any role in developing or scoring a  
15 solicitation is done in public so that nobody has  
16 access to information that everyone else doesn't  
17 have. So that's why we have a pre-bid conference  
18 and we ask for people to submit their questions,  
19 and we respond to them and post them for  
20 everybody. If we do want to have opportunities  
21 where we can dialogue with researchers when we're  
22 not in an active solicitation mode, so you know,  
23 suggestions on how we have an active dialogue of  
24 technology opportunities and getting technology  
25 to market, make sure we're aware of the newest

1 and greatest, I'm interested in that, but it  
2 won't happen in the solicitation process.

3           Anyone else? Going once, going twice. I  
4 want to thank everybody who came. We will digest  
5 all the comments that we received.

6           Again, the written comment should be  
7 submitted by 5:00 p.m. on March 4th and we take  
8 your input seriously, we really want this to be a  
9 useful program that's going to get research for  
10 technologies that are going to help us solve our  
11 energy challenges and we need the collaboration  
12 with all of you, so thanks for taking the time.

13           MR. HARLAND: And Laurie, real fast  
14 before we break, I just wanted to remind  
15 everybody that if you have a survey that you  
16 filled out, or you're about to fill it out,  
17 please do so and you can either leave it with  
18 Josh or you can put it on the table on your way  
19 out.

20           And the presentation from today will be  
21 posted to the website shortly and a notification  
22 will go out once that's available. And once we  
23 have the recording from this workshop, as well as  
24 the transcript available, we'll post those to the  
25 website.

1                   So thanks so much for all your comments  
2 and time today.

3                   (Whereupon, at 4:31 p.m.,  
4                   the workshop adjourned.)

5                                   --oOo--

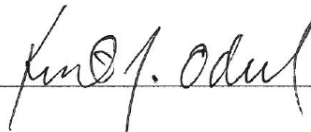
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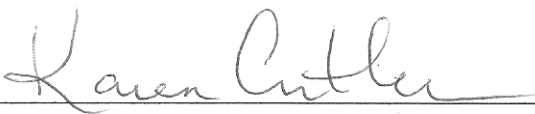
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