BEFORE THE
CALIFORNIA ENERGY COMMISSION

In the Matter of ) Docket No.12-EPIC-01
) 
Electric Program ) Workshop re Clean
Investment Charge Program ) Innovative Priorities

CALIFORNIA ENERGY COMMISSION
FIRST FLOOR, HEARING ROOM A
1516 NINTH STREET
SACRAMENTO, CALIFORNIA

THURSDAY, AUGUST 2, 2012
10:00 A.M.

Reported by:
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APPEARANCES

Commissioners Present:

Robert Weisenmiller, Chair
Carla Peterman, Lead Commissioner, Renewables
Anthony McAllister, Lead Commissioner, Energy Efficiency

CEC Staff Present:

Rob Oglesby, Executive Director
Laurie ten Hope, Deputy Director, Research & Development Division
Garry O'Neill, Efficiency & Renewables Division
Joe O'Hagan
Michael Sokol
Eric Stokes, Research and Development Division
Beth Chambers
Silas Bauer

CPUC Staff Present:

Andrew Schwartz, Procurement Strategies Supervisor, CPUC
Cem Turhal, Procurement Strategies Analyst, CPUC

Also Present: (* Via WebEx)

Frank Goodman, Senior Technology Development Advisor, San Diego Gas & Electric
Colleen Quinn, Coulomb Technologies
David Oliver, Navigant, representing Duke-American Transmission
Merwin Brown, California Institute for Energy and Environment, University of California
Mark Berman, Davis Energy Group
Susan Patterson, Gas Technology Institute (GTI)
Paul Mason, Pacific Forest Trust
Bob Raymer, California Building Industry Association
APPEARANCES (Continued)

Julee Malinowski-Ball, California Biomass Energy Alliance
Ari Patrinos, Synthetic Genomics
Mark Goodstein, Clean Tech Los Angeles
Tad Mason, TSS Consultants
Michael Boccadoro, Agricultural Energy Consumers Association
Valerie Winn, Pacific Gas & Electric Company
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Participants will suggest ideas for EPIC funded activities to bring pre-commercial innovative energy technologies and approaches to market. Break-out session topics can include technologies, environmental considerations, and cross-cutting initiatives.
Breakout sessions: Three facilitated breakout sessions will run concurrently:

- Clean Energy Generation
- Grid Operations (T&D, renewable and EV-grid integration, storage)
- Efficiency and Demand Side Management

Questions for the breakout sessions:

1. What are the major barriers to developing and commercializing clean energy technologies?

2. Where should funding emphasis be placed to maximize the deployment of clean energy technologies? (I.e. where is technology innovation needed versus where is support for commercial scale-up the critical need?)

3. What specific initiatives are recommended to advance innovative energy technologies that benefit ratepayers?

4. Define the ratepayer need for which EPIC investment should be targeted?

5. Prioritize initiatives and identify the benefits that should be anticipated and measured such as:
   a. Energy and cost savings
   b. Grid reliability
   c. Job creation
   d. Economic benefits
   e. Environmental benefits
   f. Likelihood of return on investment
   g. Other

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AUGUST 2, 2012 10:00 A.M.

MS. TEN HOPE: Welcome. We have a nice full house today and I want to welcome all of you to our first Triennial Investment Plan Development Meeting for the EPIC Program. My name is Laurie ten Hope, I'm the Deputy Director for Research and Development here at the California Energy Commission. And before we kick off our meeting and do introductions, I'm just going to do a couple of housekeeping safety announcements for those of you who are not used to our facility.

So the restrooms are outside, across the hall, and we also have a snack bar up the stairs in the atrium, we have two exits, but the exit closest to the restrooms behind us here is alarmed, so unless there's an emergency, we probably won't use that door. In case of an emergency, follow Energy Commission staff out of the building across the street to Roosevelt Park and we'll reconvene there until it's safe to return.

I also want to let people in the room know that this meeting is being WebEx'd and it will also be recorded, so if some of you want to go back and check the information later, it will be available online. And for those of you who are connecting remotely, you will be on mute through most of the meeting, we'll open it up when
we get to public comments. If you have a comment, please raise your hand, your virtual hand, and type in your question, and we'll address questions. We typically take questions from the room and then turn to WebEx. With that, I'd like to introduce our Executive Director, Rob Oglesby, for an introduction to today's workshop.

MR. OGLESBY: Good morning. As Executive Director, let me welcome you to the Energy Commission and also, as we go through today's proceedings, make sure that you use a microphone or have someone repeat the question because we do have quite a bit of participation on WebEx. I'm really happy to have the great showing today for this EPIC workshop.

This is the first of actually four days of workshops that we're going to be having. We're going to be having two days of workshops in Sacramento, and that will be followed next Thursday and Friday by a similar series of workshops in Los Angeles, Downtown Los Angeles. I would encourage everyone who can to participate to their fullest today, but also, if you wish, to monitor what's going on in Los Angeles, that also will be WebEx'd.

Today's format, we'll have this open session which will start very shortly, then we'll have some Breakout sessions, we're going to reconvene in the
afternoon, and then we have another day of topics for
tomorrow, as well.

Let me introduce our Chair, Chairman Bob
Weisenmiller, who would like to say a few introductory
comments and welcome you to it, and as he's walking down,
let me -- or are you going to speak from there? He will
speak from there. So before that, let me also mention
that the Utilities are also having a series of workshops
coming up, so to the extent you want to be fully engaged
on all aspects of the EPIC Workshop process, I would
encourage you also to dial into their agendas coming up,
and they also are having Northern and Southern California
workshops.

In terms of timetable, we're on a very compressed
schedule to produce an Investment Plan, and we'll be
following this workshop process with a Draft Investment
Plan that will then also be workshopped sometime in
September, and at this point in time, we don't have a
date publicized, but it looks like the date for adoption
of the Investment Plan will be the last week of October,
before it moves on to the Public Utilities Commission.

So, without further ado, let me introduce
Chairman Bob Weisenmiller, Chairman of the Energy
Commission.

CHAIRMAN WEISENMILLER: Thank you, Rob. So I'm
the Chairman of the Energy Commission and I'm also in the Scientist/Engineering slot at the Energy Commission, and I am the Lead Commissioner on R&D. To my left is Commissioner Peterman, who is the Lead Commissioner on Renewables, and to my right is Anthony McAllister, who is Lead Commissioner on Energy Efficiency.

In terms of the EPIC process, given something which is called the Bagley-Keene Rules, Commissioner Peterman and I will be directing this process, we certainly -- there will be opportunities like today where all three of us can hear from you, and certainly you are welcome to approach all three of us, but the two of us will only be discussing it between us as we direct this process. But, anyway, it will get done in a fairly public process.

We're happy to be here for the kick-off of basically the Investment Plan process. And as Rob said, we're going to adopt that in late October and this is an important milestone in development of the EPIC proposal.

As everyone should know, innovation in energy is very very important to our Governor, and we see innovation as a way to help deal with the transformation of our energy infrastructure and to deal with the challenges of both climate change and the economic situation in California. So it's a key area. I would certainly like to thank
President Peevey for his leadership in getting this EPIC program set up, and we look forward to working with him on this implementation.

Certainly, one of the backdrops for this is that Senator Padilla sort of looked at it previous, or did a purely intensive review of our previous research activities and we've all learned from that, so going forward, again, as we go into EPIC, we'll certainly heed some of the lessons learned from that process. But again, what we're here today is to implement the EPIC Decision of the PUC. So in a way, we're starting at a zero-based effort for what has been a longstanding research effort at the Energy Commission, but again that effort is -- well, basically this is a new day, a new program. And our goal is to move forward in the public process, to implement the PUC's decision, and we expect these pilot classes to be complemented by the utility process. I mean, our basic goal for research programs is to provide a pathway to basically get things implemented and done, and so that pathway will lead either into the utility programs, or it will lead into the renewable part of this program. And now let me turn to Commissioner Peterman to discuss that part.

COMMISSIONER PETERMAN: Good morning, everyone. Thank you, Chair. I'm happy to be joining the Chair and
working with him on this Draft Investment Plan, and also
joining him in his congratulations of the PUC Board
adopting and establishing EPIC.

As the Chair has noted, there will be a strong
link between the investments that will be in each of the
broader categories, research and renewables. By
utilizing a multi-year investment plan and benefit
metrics, we will be able to better measure success and
failure and use those lessons to further strengthen and,
if needed, adjust future plans.

We have past programs to build upon and lessons
to be learned. Specifically for the renewables space, we
have the Emerging Renewables Program and the existing
Renewables Program. We are looking to stakeholders to
provide feedback on what are some of the best ways to
develop and deploy emerging renewables and other clean
technologies, as well as explain how such investments
will result in ratepayer benefits.

As the public member of the Commission, ratepayer
and public benefits are incredibly important to me, and
we want to make sure we're maximizing ratepayer value. I
am also especially interested in learning from local
governments how EPIC dollars can assist with greater
deployment of renewables in their jurisdictions. What
are the challenges you are facing today? And how can
additional resources assist you in overcoming them? With that, thanks to everyone for participating and I look forward to today's discussions. Thank you.

COMMISSIONER MCALLISTER: So reiterating all the thanks to the PUC, I think this is a really great opportunity for us to all work together on a program that has the broadest kind of input and that works in the marketplace, and really I think supports the RD&D that is so important for all the sectors of energy that both Commissions work on, but in particular, for me, as Lead on Energy Efficiency, I am acutely aware of how important the RD&D efforts have been over the years to identify, flesh out, deploy, test, study new technologies that are relevant for energy efficiency, it's just got such a robust track record in that regard. So I am very very interested in how EPIC can continue that tradition and be as effective as possible in supporting the marketplace, and looking up good ideas and making them relevant for the long term in helping California meet our goals.

I wanted to comment briefly on the Bagley-Keene Rules because one of the reasons I really wanted to be here today was, since I am not on the RD&D Committee, but I am on the Energy Efficiency Committee, this is a rare opportunity that I have to interact openly with Commissioners Peterman and Chair Weisenmiller, and
Bagley-Keene is meant to have open meetings, it's meant to promote open meetings, and that's a good thing, so it's great that everybody in attendance today and on the WebEx can sort of hear us interact about these issues and any ideas come up, or anything that you want to talk to any of us about, you can do that within the restrictions of Bagley-Keene, so I am trying to participate in as much as I can, where I'm not on the committee because I want to create opportunities for us to have that public discussion and I think it's really important to get to a good result. Obviously, I trust the Commissioners here completely to guide and lead and develop the best plan here, but I think, you know, I also want to provide my input and this is one of the ways I can do that. So thanks, everyone, for coming and I'm looking forward to a great discussion.

MS. TEN HOPE: Thank you, Chairman and Commissioners, and Mr. Oglesby. Before we go to our next speaker, could I ask Mr. Chappell if he would mind turning off his webcam? We're working to turn it off here, but it's broadcasting through our WebEx. Thank you very much.

We are here today, as our Commissioners and Mr. Oglesby said, as a result of the CPUC's action and decision on the Electric Program Investment Charge, so I
would like to introduce Andy Schwartz and Cem Turhal from the CPUC, and they're going to walk through a presentation of the decision, and that will set the stage for our discussion today in our role as one of the administrators of this program.

    MR. SCHWARTZ: Thank you so much for the opportunity to speak today. So my name is Andy Schwartz. I'm Supervisor of the Emerging Procurement Strategy Section of the CPUC. My colleague here is Cem Turhal and in a few minutes he'll take you through the framework of the Decision authorizing the EPIC Program creates. But before doing that, I did have a few preliminary remarks.

    First, I do want to thank the CEC for what is truly a Herculean effort here, given the very tight time constraints that we're operating under. As Cem will describe in a few minutes, the schedule, particularly for the Investment Plan, for the first Triennial Investment Plan, is incredibly compressed, so I really want to acknowledge the efforts of the CEC, Laurie ten Hope, Rob Oglesby, and staff for all of their work putting these workshops together.

    I also don't want to forget to thank also the stakeholders who are here today. I understand, you are also operating under very significant time constraints and it is your input that will really shape and inform a
plan that we hope is successful in achieving the
objectives the Commission has laid out.

In terms of the role that Cem and I have at the
PUC, I mean, here today obviously we're here to talk
about an overview of what the Decision lays out, kind of
what the framework is for developing these investment
plans, and process and schedule. But going forward, our
more practical role will really come to the fore when
those investment plans are more fully baked and are being
submitted to the Commission. So we're really the points
of contact for the CPUC for inquiries about the EPIC
program as it was framed in the decision, but then we
also have a really key coordination role, I would say,
within the agency, so I don't think either of us would
claim to be subject matter experts on the very broad
scope of issues that are being encompassed by the EPIC
Program; however, we are there to coordinate the
involvement of those subject matter experts at the
Commission as the Commission evaluates those plans
sometime in the November timeframe.

Also, a few other things that I want to just
mention briefly. I think what we can sort of acknowledge
that there are certain aspects of the Decision that were
highly controversial, particularly to the extent there
were areas that the Commission determined not to continue
to provide ongoing funding for. I don't want to spend a lot of time today kind of re-litigating issues about why or why the Commission should or should not have decided a certain way, I really want to confine the focus on what the Commission did do and kind of how we can best fulfill the objectives that were laid out in the Commission's decision.

And then, lastly, before I turn it over to Cem, if you can table any questions until the end of his presentation, in the interest of time I just want to make sure that we do give Cem time to go through the entire presentation. But then, time allowing, we're happy to entertain some Q&A. So with that, I'll turn things over to Cem. Thank you.

MR. TURHAL: Well, thanks, Andy. Hello, everyone. My name is Cem and I'm also from the California Public Utilities Commission. So I will be giving an overview of the EPIC Program here today.

In the recent series of decisions, the CPUC determined that the Commission has a compelling interest in providing ongoing support for the development and deployment of new and emerging technologies in California, despite this onset of the Public Goods Charge.

The basis for this viewpoint is rooted amongst a
number of considerations. To achieve the goals set forth
by AB 32 and the Cap-and-Trade Program, there will need
to be fundamental changes in technologies and systems
used to provide energy services to Californians. To the
degree in which new technologies will need to be relied
upon, grows more evident if one looks in the 2050
timeframe where, in order to realize the goals of GHG
emissions to 80 percent at 1990 levels, the energy
systems will have to be almost fully decarbonized.
Carbon emissions will become increasingly expensive and,
as a result, providing energy services at reasonable
cost, strongly suggest a need for investing in tomorrow's
technologies today.

Additionally, more broadly, California is an
innovation leader, and programs like the EPIC Program
have a fundamental role in playing -- catalyzing the
industries of the future and maintaining California's
place as the center of innovation.

The EPIC Program is focused primarily on
supporting pre-commercialized efforts with some
additional support for more facilitation activities which
we'll cover in the next slides.

The support the EPIC Program provides is largely
intended to help fill in any gaps of funding that exist
or technologies that are forced to rely exclusively on
private capital. As this technology maturation curve shows, in this particular version of the maturation curve, which is developed by New Energy Finance, there is perceived to be significant funding gaps in areas of research and development, technology demonstration, and certainly some areas with commercialization.

In general, the EPIC Program is built around filling these funding gaps and help move technologies forward, and we can take a closer look at that in the next slide.

In considering what areas should be supported using EPIC monies, the Commission considered four potential areas shown here. Over the four areas, three were chosen to be supported, which are the Applied Research, Technology Demonstration and Deployment, and Market Facilitations. The CPUC decided not to fund market support activities for various reasons. You know, I want to spend a few minutes going into the reasons why Market Support was not supported, was not deemed to be an area that should receive funding via the EPIC Program because the reasonings are varied with the various programs.

Previously the Public Goods Charge funded three market support programs, and these included the Emerging Renewables Program, existing Renewables Facilities
Program, and the new Solar Homes Partnership Programs.

In each case, a decision not to use EPIC monies to provide ongoing support was based on different factors.

For the Emerging Renewables Program, the Commission determined that consolidating this program with the Self-Generation Incentive Program was preferred to continuing funding for a separately administered program, given the similar objectives between the ERP and Self-Generation Incentive Program.

The existing Renewable Facilities Program, the Commission determined that these facilities have ample market opportunities via existing procurement programs such as the Renewable Portfolio Standards Program.

Finally, the New Solar Homes Partnership Program, at the time the decision was issued, the Commission's hands were tied in terms of providing incremental funding for the New Solar Homes Partnership Program because of the statutory cap on the amount of ratepayer monies the CPUC could provide to advance the objectives of the California Solar Initiative, which New Solar Homes Partnership Program was a part of. However, the recently approved Budget Trailer Bill, which is Senate Bill 1018, appears to give us some flexibility in the area and we remain optimistic that future funding will be available to support the New Solar Homes Partnership Program.
The program has an overall budget of $162 million beginning in 2013, adjusted every three years to account for inflation using the Consumer Price Index. I should note that in 2012 of this year, the program budget is $143 million, based on the Commission's Phase 1 decision proceeding, which that amounts to be allocated across different areas in the same proportion as the budget in 2013 and onward. As you can see here, there's going to be of the four -- that I listed earlier, the three areas are the Applied Research, Technology Demonstration and Deployment, and Market Facilitation -- there are going to be four Administrators, which we'll get into, but of the four we kind of divided them into two, the CEC and the Utilities. The CEC will receive $55 million for Applied Research, Technology Demonstration and Deployment will be divided between the Utilities and the CEC, where the CEC will have, of that $45 million, a minimum of 20 percent will go into bioenergy projects, and another $30 million for the Utilities in the Technology Demonstration and Deployment, and $15 million to the CEC to be administered by the CEC, will go to the Market Facilitation area. And the program administrators will receive 10 percent of the funds allocated to them at 12.8 for the CEC and $3.4 million for the Utilities. The CPUC will receive -- the program oversight will receive
$.8 million for the program oversight of the EPIC Program.

So these are the four Program Administrators, as I mentioned earlier, the three Utilities and the California Energy Commission, Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Edison are the three utilities. This slide provides a more detailed breakdown of non-admin EPIC budgets by the Program Administrators.

Under the terms of the Decision, the IOUs are prohibited from using funding they're administering for funding of generation projects. They may propose non-EPIC funding sources to support such projects, but utility administrated EPIC funds cannot be used for generation project purposes. Each of the Administrators are required to develop and submit an Investment Plan to the CPUC for approval, which we'll get into that in a bit, and once the plan is approved by the Administrators, it will be implemented and those plans will use them to directly fund the individual projects. So we'll get into the timeline in a bit. Additionally, once the Investment Plans have been approved, the Administration can -- Administrators can shift up to five percent of any approved spending category into another approved spending category, at their discretion.
The EPIC Program will have three Investment Plan cycles, the first Investment Plan will be for 2012 to 2014, the second being from 2015 to 2017, and the third Investment Plan from 2018 to 2020. Each Investment Plan will have four areas where the Investment Plan will be developed by the Administrators, and then will be submitted to the CPUC for approval. The CPUC will receive these Investment Plans and deliberate upon them and then ultimately announce its decision in May of 2013 for the initial Investment Plan and December 2014 for the second Investment Plan, and finally in December 2017 for the third Investment Plan.

The guiding principle of the EPIC Program is to provide ratepayer benefits, and that's the over-arching guiding principle for the EPIC Program. The CPUC has a mandate to ensure that any monies we direct the IOUs to collect from programs like this under our own authority provide benefits to the ratepayers. There are many components to what is included in the notion of ratepayer benefits, as can be seen in this slide. These types of benefits line up with a variety of State goals, including the reduction of GHG, enhanced reliability and safety, among other things. However, some of the components don't inherently result in ratepayer benefits. For example, not all clean transportation projects provide...
benefits to the electricity ratepayers. To address this, and to further underscore the mutuality of providing benefits that explicitly accrue to electricity ratepayers, the Decision requires that proposed funding activities are mappable to the Utilities' value chain.

The Utilities' value chain is described by the four bullet points here, which are operations and market design, generation, transmission and distribution, and demand side management. In other words, when a project under the EPIC Program would like to be eligible, they would have to provide some sort of ratepayer benefits, as well as be mappable to the utility value chain.

This slide shows various components that need to be included in the Investment Plans. Also, developing these Investment Plans, the Administrators are required to consult extensively with a broad cross section of stakeholders via workshops such as this one, and as well as through other common processes.

Another key expectation that the CPUC has of the Program Administrators is that they will coordinate their efforts across not only the Investment Plans, but also in consideration of activities that are taking place elsewhere, for example, at a Federal level. Lastly, the decision also establishes annual reporting requirements.

Each year, starting in 2013, every February 20th of each
year, all the way to 2020, the Program Administrators will file Annual Reports, which we will discuss later. The decision did not specifically identify what things should be included in the Annual Reports, but I expected the CPUC staff would be working with the Administrators as those reports get closer to being due. And one more thing to add, I guess, is the CPUC will hire an independent evaluator to review the EPIC Program by 2016, at least one independent evaluator will be hired by the PUC by 2016 to see the progress of the program, overall. And finally, you know, that concludes my formal presentation. We're happy to take questions and -- thank you.

MS. TEN HOPE: Do you have any questions in the room for the PUC? Do we have any online? All right. Thank you.

COMMISSIONER PETERMAN: I'll just offer a quick comment. Hello, everyone, this is Commissioner Peterman. Thank you. That was a very good presentation. Just on the New Solar Homes Partnership Program, to make sure everyone is aware that the Energy Commission is still continuing to fund and process applications for that program. Another part of the trailer budget language was to provide a $25 million repayment from funds borrowed from that program to the Energy Commission. That has
allowed us to process and fund all of the projects in the established waiting list, as well as to accept new applications, and so we look forward to opportunities to continue to further fund the program through EPIC, the funds are available in that program at this time. Thank you.

MS. TEN HOPE: Okay, so we've already kicked off the workshop with -- I'm sorry, Chairman, you look like I cut you off. No?

CHAIRMAN WEISENMILLER: No, go ahead. I think the one point I would make again is to reemphasize, reiterate what Andrew said, is that we're here to implement the EPIC Decision, we're certainly not here to litigate it and certainly that is the intent of the Energy Commission's plan to implement that.

MS. TEN HOPE: I think we've had a nice framing of the EPIC Decision by our Commissioners and Executive Director -- sorry? All right. Julie, I believe we need to have you come up to the microphone for a question so you can be heard on WebEx if you don't mind. Ma'am?

We're going to get a mic, but why don't you come up and, then, for future questions we'll have a mic that we can use in the audience. Please state your name and affiliation.

MS. QUINN: Sure. Hi, Colleen Quinn with CALIFORNIA REPORTING, LLC 52 Longwood Drive, San Rafael, California 94901 (415) 457-4417
Coulomb Technologies. Just sort of a question on just about the process, how you anticipate the process to work, so essentially the -- is it the role of the Energy Commission to actually put the content of the Investment Plan together?

MS. TEN HOPE: I'll go over that.

MS. QUINN: Oh, okay, we're not there yet.

Okay, all right. Thank you.

MS. TEN HOPE: It is a little confusing. So basically we are, as Cen discussed, we're one of the four Administrators that are identified in the CPUC Decision, and so this is the kick-off of our development process to create an Investment Plan that is consistent with that Decision. And so we're going to have a workshop today to frame some of the questions that we think you can help us address, so that we can create an Investment Plan that will also go out for public comment before it is submitted to the CPUC.

So this workshop today is evidence of the workshop process that we intend to use, it's the Energy Commission's tradition to have an open transparent process, and it's also the expectation of the EPIC Decision that we'll hold stakeholder workshops so that there's ample opportunity to provide ideas and to watch the processes as it goes forward. We will have this
workshop today, as Mr. Oglesby stated, we'll have a
duplicate workshop in Southern California, and then we'll
have an opportunity for written comments before the
Investment Plan, and then we'll go through a cycle of
workshops again.

So as you heard, there are a lot of elements
that are expected in this research plan, so as we go
through today and you're presenting your ideas, I mean,
it's a big tent and we're interested in all the ideas.
At the end of the day, though, we need to have a research
portfolio that returns value to the electric ratepayer,
that's consistent with the clean energy policy goals of
the State, that's synergistic with other research
activities that the Air Board might be doing, Department
of Energy, and investments that the private sector is
making.

So we appreciate the collaboration with the
investor-owned utilities, who are developing a
complementary plan, and we want to make sure that the
work in these four Investment Plans is non-duplicative
and synergistic.

We've also reached out to the Air Resources
Board and the Department of Energy to enhance a
partnership there, so we also look for opportunities that
we might partner, or be more aware of activities that are
coming up, or establish a line between them, they're better handled somewhere else and so they're not best suited in EPIC.

When we move into our discussion this afternoon, I'd ask you to also think about what shouldn't be in the plan because we need to really come up with the priorities, the highest value, and some focused areas where this funding can make its biggest impact. So just to summarize, we want this Investment Plan to create a robust research development deployment program that catalyzes clean energy innovation in California and is non-duplicative.

You have seen the schedule already, the only thing I'll emphasize here is that we plan to issue a Draft Investment Plan that includes some funding areas and funding levels by early September, and we will have workshops on that Investment Plan mid-September, and then we will take a Draft Final to the Business Meeting at the end of October for our agency to adopt the plan before it is submitted to the CPUC, and then it will go through a deliberative process at the CPUC to adopt ours and the three Utilities', or seek modifications in that plan.

This, I wanted to just highlight the Energy Innovative Pipeline that was articulated in the EPIC Decision, and I think this is -- it establishes the
framework that the CPUC expects in the Investment Plans, and it also kind of frames some of the similarities with PGC Programs that have gone before, but also some unique opportunities to connect programs along an innovation pipeline.

So they've established three funding buckets that you heard already with the dollar amounts, and the initiatives that are put in the Investment Plan need to fit in these three, and also how we intend to kind of pull these technology innovations into the market so that they're available to customers and serve the clean energy goals that we're seeking.

And that brings us to the day's agenda and how we're sort of scoping out the two days, and I think I skipped -- the scheduled slide is somehow missing from the presentation -- no, it isn't, I just went over it. So Day One today, we're talking about the energy innovation priorities across this whole innovation pipeline that you just saw. And this afternoon we are going to break into three breakout sessions that will be held in parallel, one -- and they follow the value chain that you just saw from the CPUC, one on demand side management, which includes energy efficiency and demand response, the other on clean generation, and the third on grid operations. And you'll hear a little bit more about...
this in a minute.

Our second day, tomorrow, is going to be panel-based and we'll have three panels to explore the closer to market portion of the innovation pipeline in market deployment and facilitation. These are kind of new areas in investment for a public program, so we've developed some concepts and we're putting them out for your comments, and we're going to facilitate that through a panel discussion, so there will be a panel of different entities that have energy innovation clusters, or other innovation hubs that facilitate clean tech manufacturing and success within different geographic areas. We'll have a second panel on regulatory assistance and permit streamlining, thinking principally of renewables, but you may have some other thoughts on that, as well, and a third on workforce development. All three in terms of whether they are an asset in accelerating clean technology deployment.

So you have this information in -- if you picked up your handouts, the contact information is available. I next want to introduce Garry O'Neill who is going to walk through the breakouts that we'll be having this afternoon, and following that we'll hear from our investor-owned utilities.

MR. O'NEILL: Good morning. I'm Garry O'Neill.
I work in the Renewable Energy Office here at the Energy Commission. I'm going to be providing a brief overview of the Breakout sessions this afternoon that we'll be attending.

So we broke out the Breakout sessions, sessions were broke out into three groups, the clean energy generation systems, efficiency and demand-side management, and grid operations. Please note that each of these is going to be in different rooms. In Hearing Room A, we're going to have the Clean Energy Generation Systems Breakout session, the Efficiency and Demand-Side Management will be held in the Secretary of State Building, this is 0 and 11th Street, so if you just follow the light rail tracks straight over there, it will be on your right-hand side. And then the third one is the grid operations to be held in the second floor conference room right upstairs, end of the corner over there.

The purpose of these Breakout sessions is to gather input from stakeholders regarding what potential emissions we should include in the Investment Plan, so we're looking for your ideas on what we should be putting into this Investment Plan. We would like to know what technologies, strategies, and topic areas we should be covering. Also, we need to know how to prioritize these
investments, what are the most important investments to make? What are the technologies that are nearest to commercialization and, if we put a little money towards it, it will take off?

We also need to look for ways that the Energy Commission can coordinate the Investment Plan with other funding opportunities that are out there, so we have various funding sources from the State, there are Federal funding opportunities, and there are also private funding opportunities, so who is putting money where, and where can we complement those activities? We also want to avoid duplication -- very very important.

So the schedule of the Breakout sessions will all be fairly the same. We'll start the Breakout sessions with brief presentations to go over the logistics of it, provide any comments, how each one of the facilitators would like to handle that, and then at 3:30 the breakout sessions will end, we'll have a break, and everybody will reconvene back in Hearing Room A and we'll go over a report of what was learned, a brief report about what was going on over at the breakout sessions.

We have some expectations for ourselves and for you at the breakout sessions. We really want you to identify yourself clearly, provide a name and affiliation
if you have one, we want the comments to be limited to three minutes each, we expect there would be a large participation and so we just need to keep the comments short. If you have more comments than will fit in your oral presentation, you can submit written comments to the Energy Commission. Comments should be limited to the scope of the EPIC Decision, we don't want to, as has been said a couple of times, rehash issues, those should be handled over at the CPUC. Any additional input, again, should be provided in written comments to the Energy Commission by August 10th, 2012.

So the Clean Energy Generation Systems, that will be located here in Hearing Room A. For those of you on WebEx, please note the WebEx number; the password to get on the WebEx will be the same for all sessions, ch@4EPIC. The topics we envision to cover at the Clean Energy Generation Systems will be Energy Smart Communities, Distributed Generation, Utility Scale Generation, Environmental and Public Health, and Market Facilitation. We're also open to hearing things we don't have on this list, this is just to set the stage.

At the second Breakout session, we're covering Grid Operations, again, note the WebEx number if you're online, and talks will include such things as Smart Grids, Electric Vehicle Charging and Grid Integration,
Electric Vehicle Efficiency and Battery Use Storage, Renewable Integration, Grid System Monitoring, and other technologies that benefit ratepayers.

The Efficiency and Demand Side Management location for this one, note, will be at the Secretary of State Building, again, WebEx number is on here. Topics will include Building and Use of Energy Efficiency, Zero Net Energy Buildings, and Industrial, Agricultural, and Water End Use Energy Efficiency, Demand Response, Demand Side Storage, and other Environmental and Public Health Impacts. Again, all of these are just suggested topics that we put together to set the stage, you're welcome to bring up anything that we have not covered.

And just another reminder, we will be regrouping back in Hearing Room A. Eric Stokes will be providing a brief summary, and then open the floor to public comments at the end of the day. We're estimating roughly about a half an hour for more public comments later on.

Written comments should be submitted to the Energy Commission, to the Docket Office. Please write down this Docket Number. Comments are due, again, August 10th, 2012. And with that....

MS. TEN HOPE: Thank you. Next, we're going to transition to the complimentary Investor-Owned Utility
Program and Frank Goodman from San Diego Gas & Electric, their Senior Technology Manager, is going to give an overview of the process that the Investor-Owned Utilities are using to develop their Investment Plan and schedule. Frank, thank you.

MR. GOODMAN: Thank you, Laurie, and thank you for allowing us the opportunity to be here. I do speak for three IOUs today, San Diego Gas & Electric, Southern Cal Edison, and Pacific Gas & Electric Company, all of whom have through a team helped prepare this presentation. And they are all represented in the room or on the phone today. So I'll march right into it.

The strategic target for the activities, there's something coming in there -- should I just maybe ask people to hold questions until I finish? Okay. The strategic target for the EPIC activities is here, to find high priority activities, major activities that we undertake and, again, that are directed at ratepayer benefits in terms of the three bullets shown there, which were also shown earlier in another presentation. But I wanted to emphasize key high priority activities because there's a bottomless pit of things that could be done and we don't want to stray off into small things, but through this planning process and writing the Investment Plan, get focused on some of the really essential things that
are needed.

And the guiding principles also were show
earlier, but I have added a thought at the top there that
we want each activity we undertake to have clearly stated
objectives and, from my background, I don't do any R&B
projects that don't have a clearly stated objective. So
as an example, we wouldn't say we're undertaking a
demonstration of Technology X or Product X, we would have
metrics; we would say what we're going to do in that
demonstration: are we going to prove out the viability in
terms of economic or technical terms? And what metrics
would be used?

So we want to undertake these activities, but
we don't want them to be fuzzy and poorly defined, we
want to focus in, as I said earlier, on things that are
significant. And to judge whether they are significant,
you have to define them well before you start them.

This is a slide -- someone had an alternative
version of this earlier, I believe, but this one shows
the policy environment that's shaping the work we do, and
I'm not going to go through it line by line, but you can
see things up there like renewables, rates, and
technology issues for Smart Grid, and integrating all
these new technologies that are coming of age into a
system that works and hangs together, which means you
need to overlay communication and control infrastructure on the system, above and beyond what currently exists. And so there's a number of policy and legislation that we need to try and align with and meet these goals, and the IOUs have collectively in our discussions indicated strong commitment to meeting these, these policies.

Is that little bubble coming up on your screen up there, too? I guess it's the same, we'll just have to ignore it. The importance of Utility R&D Programs is another point we want to talk about, that a lot of what is being done here in the way of Smart Grid evolution, which touches every aspect of utility system operations at this point in time, ranging from customer up to generation, evolution of the Smart Grid and all of its pieces requires active involvement of the utilities across the full R&D cycle, starting from the exploratory research, all the way through the demos, and then ultimately in the deployment phase, which comes after it is commercial available and proven to be a workable piece of the Smart Grid. And we are looking to continue participating across that full spectrum as we go forward.

The EPIC decision focuses the utility activities on demonstration and deployment and that is what we will do, we will abide by what EPIC directs us to do, certainly, but it doesn't mean we will discontinue
other work, we'll be looking to continue outside of EPIC or in partnership with other stakeholders' activities across the full spectrum.

And someone had this slide up earlier, as well. And it does help me make the point I was just talking about, that this Valley of Death that shows up twice, once during research and development, and once during commercialization, and that is where somebody needs to put some dollars in beyond what the developer of the technology or product may be doing, in order to shake out the problems. If there's a good idea that has been nurtured through a laboratory bench model, for example, then you need to move into a field prototyping phase and then into demonstrations after you're sure you have something that works, and finally to commercial maturity.

So the prototyping, even though it's still a developmental step, is something that the utilities have to be involved in because you're taking it out in the field and putting it in an actual utility system, and then helping the developer ring out the problems. We have quite a few things going on right now in my own company in that regard, and I know the other IOUs do, as well. So, again, it's that point about the Utilities must be involved across the full R&D cycle. And even back upstream in the conceptual idea formulation for
ideas, the people with these ideas will come and knock on
our door and ask for feedback and reaction, and is this
something you would buy if we built it, and that sort of
thing.

This slide is a cross-cutting research and
development demonstration. It makes several points, one
is that RD&D for Smart Grid evolution and for development
of renewables and all the other pieces that I mentioned a
little while ago, it cuts across the full utility system
from customer to generation on the high end. And a
micro-grid is like a miniature utility system, it's an
islandable piece of a utility system, and a lot of the
infrastructure you develop for a microgrid really applies
in the inter-connected grid. A microgrid can be islanded
or it can be interconnected with a larger utility system,
and the control system that you might evolve, shown over
there on the left side, really what we want is a
microgrid controller that not only controls when you're
in micro-grid mold, but it acts as a distributed
controller for that substation area or piece of the power
system when the microgrid is not islanded. So what you
see here are basically the Smart Grid concepts that apply
not only at the microgrid level, but in an interconnected
microgrid, which is really part of the larger power
system. But, again, it's cross-cutting, we need to be
involved across the full spectrum, and it is also collaborative because undertaking the development of this infrastructure and the technologies to support it is a large thing, beyond the resources of any one of the IOUs in California. So collaborative is another key and this project here is a collaborative example where there's Department of Energy funding, there's California Energy Commission funding from the old PIER Program, so that brings in funding from all three IOUs through CEC, and then SDG&E has some additional funding in it. And then there's a little bit of vendor funding, too.

Here is the framework for what will be unfolding here in terms of developing the Investment Plans. You've heard a lot already about the requirements and the schedules, and all four Administrators have a requirement to develop an Investment Plan and we are teaming together. We have been working as a team in the three IOUs and we have also had good interaction going here with the CEC and we thank the staff, Laurie and Mike and the rest, for working with us.

We'd like to see evolving here a partnership which makes the whole greater than the sum of the parts, to where we don't have any duplication from one utility to another, or to what CEC funds, but it's all built into an integrated whole with complementary activities that
feed each other.

And you see the budget numbers here, that's the three-year view, whereas what you saw a little earlier was the one-year view. And most of the activities will be multi-year projects. You can't really undertake the kind of projects I was describing in a one-year timeframe. And by the time you define it, set up the contracting that's necessary, deploy it, test it, and report on it, you're probably looking at projects that span three years. And one of the things we'll have to consider is, are any of the major things we want to do something that's going to straddle two of these triennial investment periods? And I'm not going to try and answer that here, but some projects that are of importance, we may have to agree to have it phased to where it straddles more than one triennial investment period.

And then the areas of investment are shown here. These are these phases of the value chain that prior speakers have shown, and in bold you see the ones that we see the IOUs paying particular attention to, with the portion of the EPIC allotment that we get, and the Grid Ops, Distribution and Transmission. And then, up above in the upper half of the screen, Technology Demonstration and Deployment is blocked off and highlighted because that is specifically what EPIC
directs the IOUs to focus on. So in terms of our use of EPIC money, it's going to go into Demonstration and Deployment.

And here are the definitions from the actual Decision, which we will abide by. If I picked five of you and took you to the side of the room and asked you to give me a demonstration definition, I'd probably get five different answers; so it's good that this was put down in paper, solely in terms of EPIC work applied by these. And I will say that "deployment," the usual sense of that word is beyond commercial availability, and wide-scale deployment is frequently used as the meaning of deployment. But when you read what EPIC says about it, it's a step back from that.

All right, now I wanted to compare the value chain concept with what we do in Smart Grid reporting now because we have requirements in the IOUs to report on our Smart Grid program activities. So, first, here is that value chain again that you saw in previous slides, and that is spelled out in very precise detail in the actual EPIC Decision and Order. And then here is the reporting process and how we organize the reports for our Smart Grid activity, and you see overlap -- T&D overlap, and then Asset Management and Safety, and that aligns with the things that I said we would be focusing on in that
prior slide, and it covers the top three items there in
the value chain on the left side of the screen, but we do
not get into the last two items. So you see the
alignment, and that makes our life easier, actually,
because there's two ways we benefit, one is we can better
synchronize what we do in EPIC with what's going on in
the Smart Grid development, and find R&D activities that
actually nurture and improve and enhance what we're doing
in the development of the Smart Grid, and then, secondly,
we'll make the reporting more efficient because we can
synchronize and organize the information the same way.

And then lastly, we have a schedule here and
you've seen the overall schedule before, but I'd like to
point out at the top of the slide there, the 16th and
17th dates, those are the IOU workshops that have been
mentioned by other speakers. August 16th, the Northern
California external stakeholder workshop, you're all
invited and welcome to come and listen or contribute,
hopefully the latter. And that one will be at a PG&E
center near Moscone Center, I don't have the exact
address in San Francisco, and it's been posted, a public
notice has gone out. The second one, it will be at the
Westminster Southern Cal Edison Center, they are hosting
it there, they have a new research facility with some
conference room space in Westminster, which is Orange.
County, and a public notice has also gone out on that one. So that is what I have. And should I now take questions on this presentation? Or how do you want to handle that? All right, we're opening it up for questions.

CHAIRMAN WEISENMILLER: I have a few questions over here, this is Chair Weisenmiller. So the first question is, and I realize this is foreshadowing what you may cover in more detail next week, is have the utilities looked at specific areas where each of you will focus to avoid potential overlap?

MR. O'NEILL: At this point in time, we had a meeting where we each put up a list of things that we would like to focus on individually, and we're pooling that list now to come up with one list and decide which of the things should Utility X do, which should Y do, and which should be done by all three utilities and collaboratively funded, even though you may only demonstrate it at one particular utility.

CHAIRMAN WEISENMILLER: Okay, that would be good. Hopefully, you'll be further along in that thinking for the workshops?

MR. O'NEILL: We intend to be.

CHAIRMAN WEISENMILLER: I think the other one is probably just a reminder. In the first Brown
Administration, when I went through the R&D stuff with the Governor of the Utilities, one of the things that really got my attention, and certainly had his concerns, was to the extent there were affiliated companies that some utilities and, actually, frankly, Sempra was probably the worst, had a policy of doing R&D which could be valuable to their affiliates if it worked, and if it didn't work, it was ratepayer money. And so basically we want to make sure that, as you frame these, that you're pretty careful -- to the extent you have affiliates -- not to have R&D money go into thing that may profit them, unless there's some value back to the ratepayers.

MR. O'NEILL: Yeah, every good point and we will take great pain to do that. I speak for Sempra on this point because I'm only an employee of Sempra, but I'm sure the other utilities feel the same way, and we have compliance training that disciplines the employees on safeguarding against information slipping to affiliates that should not.

COMMISSIONER MCALLISTER: I wanted to make a quick point, too. So, the distribution is one of the areas that you're going to focus on, the IOUs are going to focus on, and demand side management is something that's going to be more with the Energy Commission. And I would just point out that, in the context of everything
you've talked about, and what we all know the Smart Grid
and a lot of the information technologies that are out
there, and sophisticated bandwidth technologies and all
that, I think it's really important that those efforts be
well coordinated because, as you consider what you're
going to do to the distribution grid, and where your
investment priorities are, that demand side management
capability, particularly with demand response, but also
energy efficiency and storage and all that kind of stuff,
I think, is really important that those be highly
coordinated.

MR. O'NEILL: Yeah, you're absolutely right,
and thank you for raising that comment. We speak of
integration of customer systems into Smart Grid
operations, and we do have activities that are on the
list of possibles around demand management, meaning
setting up gateways with customers to where you can first
make smarter demand response activities, and then move to
actually real time automated management over the longer
term, starting with customers in the commercial and
industrial classes and moving eventually to residential
customers in the longer term. And then one other point
is controlling and managing distributed generation
through active control, and that may be behind the meter.

COMMISSIONER MCALLISTER: Yeah, great. And
there are going to be other forums to have this discussion, but if we don't have, for example, the IEPR next year where that is going to likely come up, and if we don't have the funding authority set in this proceeding, then it will make that more difficult to sort of pitch forward into the future. So I'd like to sort of get that explicit that there will be tight coordination between those different efforts.

MR. O'NEILL: Yeah, and I'm in full agreement.

Thank you. Yes.

MS. QUINN: Hi. Colleen Quinn with Coulomb. I just have a question about how, for example, the CPUC Decision in May 2013 -- will that be a process whereby you will submit the plans, and then there will still be a comment process, you know, in a normal kind of proceeding way at the Commission, at the PUC, to respond to the utilities' plans?

MR. O'NEILL: Yeah, maybe I should defer that? Yeah, I was going to do that. Thank you.

MS. QUINN: And let me just say, a second part of my question is there are ongoing proceedings right now at the Commission, including the Phase 2 of the OIR where discussions about, you know, submetering protocol and things such as that, that could arguably, you know, some of the back office integration work, software, etc.,
could possibly be thrown onto a matrix that would
possibly then be funded by maybe one of these priority
programs. How are you integrating the existing
processes, the decisions that are ongoing, that could
possibly be put up there for funding for a solution for
some of these proceedings?

MR. SCHWARTZ: I will try to answer the first
question first. So, in terms of the process of the
Commission, all of the Program Administrators are
required to submit essentially simultaneously, or
relatively concurrently, their Investment Plans. At that
point, the Commission will initiate a proceeding to
evaluate those plans, and that is subject to all of the
procedural processes and public engagement that our
proceedings generally have.

In terms of sort of how the plans will
ultimately be, either revised or whatever, in response to
stakeholder comment, Commission deliberation, I think
remains to be seen. Whether it's the Administrators
would file Addendums, or the PUC would go out with a
Proposed Decision with specific modifications to those
plans, and then get comment on them, that kind of remains
to be seen. But the proceedings will have the full
panoply of public comment and stakeholder engagement that
the Commission is committed to.
Regarding your second question, I think there is a great deal of internal coordination that will need to be done, so to the extent there are ongoing proceedings that relate to certain issues that could arguably be funded via EPIC, I think that kind of conversation, dialogue, will have to happen internally, as well with stakeholders, to figure out what is the appropriate venue for funding. The intent of the EPIC Program, though, is not to derail or through a wrench into an ongoing process that predates the EPIC Program, the Decision was fairly clear about that, I think, and our intent is to, you know, further facilitate things, not cause ideas or projects to have to go to kind of stage 1 again. But there is a great deal of internal coordination that we'll have to do.

MS. QUINN: Just one other question, Andrew. So -- and this is for the CEC, too -- so will the CEC -- if the Investment Plan goes forward, gets approved by the PUC, is what I'm hearing, essentially through their own process, then I'm assuming that the Commission will then put out a series of Opportunity Notices? And so it will be the Commission that puts the Opportunity Notices out, and then where will the -- who will make the decisions on what things get funded? How will that happen?

MR. SCHWARTZ: Yeah, so the intent of the
framework of the EPIC Decision established was that it
would be essentially an upfront approval of an Investment
Plan, that then the Administrators would execute against.
Projects are not going to be coming back to the CPUC for
final approval. The Commission is going to approve an
Investment Plan and all of the metrics, so there needs to
be sufficient detail so that we're clearly, I guess,
honoring our responsibilities to provide sufficient
oversight of those programs. So it's going to be an
upfront approval of an Investment Plan that has all the
details needed to then execute and begin project
selections. So the CEC and the IOUs presumably will be
holding RFPs, or whatever the funding vehicle or means of
selecting -- the project selection approach that they
have identified and has been approved in the Investment
Plan, and they'll move forward with that. Projects will
not be coming back to the Commission once the selections
have been made for final approval.

MS. TEN HOPE: If Andy and Frank don't mind
just staying up here, we'll open it up for questions for
the speakers this morning and, before the audience, I'd
like to turn to see if the Commissioners have any
additional questions or comments, and then we'll take
them in the room and on the phone.

COMMISSIONER PETERMAN: We don't at this time.
Thank you.

MR. OLIVER: Yeah, my name is David Oliver. I'm with Navigant, here representing Duke-American Transmission. Just for this first triennial Investment Plan, the final approval will come almost half-way through the actual plan period. How is this going to -- what is the approach or the actual mechanism that this will work with half the period already gone and funds going forward, and funds that may have already been allocated?

MS. TEN HOPE: Andy can step in. The Investment Plan is a three-year plan, so the solicitations will go out for the funding for that full three-year period, after the Investment Plan is approved.

MR. OLIVER: So there will be --

MS. TEN HOPE: So year one is a planning year, and year two and three are execution of that plan.

MR. OLIVER: Well, for the following plans, though, won't the plan be approved at the end of 2014? For like the next plan?

MS. TEN HOPE: Yes.

MR. OLIVER: And then 2015 --

MS. TEN HOPE: Well, it's a three-year schedule, so if we -- you might have the schedule memorized of when the adoption is of each three-year
period, but we'll be executed solicitations on the first three-year plan, going through a planning process for the next one, and then implementing that, while then planning the follow-on. Is that the question?

MR. OLIVER: I'm not sure -- I guess the funding, the planning period for the following Investment Plans, this whole process will be completed before the three-year -- all the way through the CPUC, will this be completed before the actual planning period, or the Investment period, I'm sorry?

MR. SCHWARTZ: At least for the first year -- I think Laurie ten Hope has it correct -- for the first Investment Plan, we are kind of already behind schedule in the sense that we have a three-year plan and there's not currently -- there's budget available for a three-year period, we're covering a three-year period, and there's not currently a plan available. Presumably the budget will accumulate and that money will be deployed pursuant to the plan that's adopted by the Commission for the first three-year period.

MR. OLIVER: So it will be basically the money will be paid out, or available for a year and a half for the first triennial --

MR. SCHWARTZ: I think that that's correct, yeah.
MR. OLIVER: Okay, thank you.

MR. BROWN: Merwin Brown with the California Institute for Energy and Environment with the University of California. There are a lot of stakeholders involved in this process, but it seems to me there is one particular stakeholder that is tightly integrated with the utility systems, which is the Independent System Operator, who probably has considerable input on some of the research that needs to be done, plus the fact may be a party to some of that research and demonstration, in particular. How will that relationship take place? Has that been considered at this point? Is there a process for that, that's different, separate, or...

MS. TEN HOPE: I believe they're here and I expect they'll be actively engaged in the Breakouts and would welcome written comments from them, as well as other key stakeholders to shape the research agenda and I would expect they'd be active in the IOU workshops, as well. You are accurate in terms of the interconnection there is a strong one.

MR. BERMANN: I'm Mark Berman with Davis Energy Group. So based on the schedule you've outlined, it sounds as if, in about a year, the Energy Commission will be releasing Opportunity Notices, RFPs, and the like. Once specific projects are selected for investment, do
the funds have to be expended by the end of 2014? Or if a project gets started around the end of 2013, funded through this mechanism, can it extend into, say, 2015 or 2016?

MS. TEN HOPE: We have to include these kinds of details in the plan, but for a research project, as Frank indicated, multi-year projects are what make sense, particularly when you're talking about a demonstration project. So, I mean, I would certainly envision that projects are going to -- their completion dates will extend into the next planning period, but the plan itself would govern those projects.

MS. PATTERSON: Hi. Susan Patterson with GTI. So do I understand correctly that there is no money to be given out through the rest of this year?

MS. TEN HOPE: That's correct.

MS. PATTERSON: So the next money we see for solicitations will be after the Decision in May 2013?

MS. TEN HOPE: 2013, after the plan is approved in May, then, you know, solicitations can be issued and awarded in the next fiscal year.

MS. PATTERSON: (Inaudible).

MS. TEN HOPE: Correct. Well, yes, for EPIC. There will be, I mean, the Energy Commission will have solicitations for remaining funds in the PGC area, so
there will be some limited solicitation opportunities
this year, but from the previous program.

CHAIRMAN WEISENMILLER: But, again, today's
workshop is EPIC, not PIER.

MS. QUINN: Hi, Colleen Quinn again. Could you
just clarify the -- it says here, funding $162 million
per year? Is that for three years or each year?

MS. TEN HOPE: Each year.

MS. QUINN: Each year, over a three year
period? Okay.

MR. MASON: Good morning, Paul Mason with
Pacific Forest Trust. Is there a past Investment Plan
for a similar program that might provide some example of
what the desired end product would look like?

MS. TEN HOPE: This is a new process.

MR. MASON: So there's really no analog that we
might look at?

MS. TEN HOPE: No. I mean, we've done planning
processes and roadmaps in the program, but not one
comprehensive Investment Plan.

MR. MASON: And regarding the IOU investments,
are those intended to occur within the service area of
the IOU? Or potentially outside of the service area of
any given IOU?

MR. GOODMAN: A pretty strong preference that
it is within the service area of one of the IOUs in California. And, in fact, I think there are some restrictions on what you can do with the POUs in just so far as not using EPIC money. So, yes, the answer is yes, I would say if there was some shaking reason to go outside of an IOU territory, like do something in a lab environment, that's a maybe. But if it's a demonstration, that's probably not in a lab environment, so I think ninety-nine point something percent is likely to be in a California IOU territory.

MR. SCHWART: Yes, I think obviously we're -- the PUC at this point is largely deferring to the proposals of the Administrators, they can develop their Investment Plans, and the Commission will consider them. In terms of whether or not there were sort of geographic sort of restrictions, I think the decision, if I'm recalling correctly, basically said if a project can demonstrate that it has benefits to the electricity ratepayers of an IOU, that project can take place outside of an IOU's service territory. But, again, there's a requirement that any project that is funded provide a demonstrable or clearly articulable benefits to the electricity ratepayers of the IOUs for the funding source of this. So it's not a specific geographic, you know, there's not a de facto or a categorical exclusion to
projects being funded that aren't in an IOU service territory, but the benefits do have to accrue to those ratepayers.

   MR. MASON: Thank you.

   MS. TEN HOPE: Do we have questions on WebEx?

   All right. Commissioners, we were scheduled to reconvene for the breakouts at 1:00. Would it be your preference to break early and reconvene promptly at 1:00?

   CHAIRMAN WEISENMILLER: Why don’t we do that? Actually, one other thing we need to go over the needs of now, or let's put it at the end of the day, is to make sure we have an opportunity for public comment on the agenda, too, which presumably is dealt with in the questions, but I just want to make sure if there's any public comment, we get those on the record, too.

   MS. TEN HOPE: Okay, we'll make sure we do that when we reconvene, and we're expecting broad participation in the WebEx -- in the breakout sessions, and hope that comments will be provided there, as well. So I need -- Garry, can you come back and put up your slide that has the breakout information? In the back of the room, you've heard "breakout, breakout, breakout," there are three separate flyers, the red one is Grid Operations, and it has the room location for Grid Operations, which is going to be the second floor here,
and the purple one is Energy Efficiency, and we wanted to make sure that if we had a lot of people, we'd have room for you to discuss, that's why we reserved a room at the Secretary of State. Beth Chambers and Silas Bauer, can you stand up? So if you have any questions about where to go, these two staff members will direct you. There is a map on the back, it's only a block and a half away, which is a half a block away from La Bou, which is where a lot of you will probably go for lunch, so it's right on your path. And the third one is the Generation breakout, that will be right here, and that's the one with some blue lettering. Those of you who are participating by WebEx, you will dial into the WebEx number that is on the screen, and we'll see you back promptly at 1:00. Since we're breaking early, we'll want to make sure we start right away at 1:00 to give plenty of opportunity for your discussion and input on the questions that are articulated both on your agenda and on this handout.

Thank you.

(Off the record at 11:28 a.m.)

(Back on the record at 1:10 p.m.)

MR. O'HAGAN: Good afternoon. This is Joe O'Hagan. Once again, sorry for the delay, but we're starting now for the Clean Energy Generation Systems Breakout Session for the EPIC Investment Plan. Michael
Sokol had just spoke a moment ago and he's one of the Co-
Facilitators and also our colleague, Garry O'Neill.

Okay, the purpose of the Breakout Session is
here on the screen, and it's to gather your input on
investment areas of specific initiatives that we should
focus on in the plan, and when we say "initiatives,"
we're not talking about specific projects, we're talking
about a higher level analysis such as things like, you
know, advanced photovoltaic research, concentrating
photovoltaic research on a specific project, looking at
that. So as we get farther into the presentation, I
think it will be clearer what we're speaking about there.

This is for EPIC, this is all new, this is a
new territory for me, anyways, in terms of what we're
looking for, and we really need your input in this, and
it's very important. When you do make comments, please
be clear about your name and affiliation, that will
really help. If you do make comments, if you have a
business card, if you could leave one with us, we would
greatly appreciate that. We are setting a three-minute
limit for speaking. I don't think we should adhere to
that unless people are really going on quite for a long
time, or being redundant, I think we can -- with the
people we have here, we can certainly be a little more
expansive, and we do have people participating through
the WebEx, as well, and we'll certainly give them opportunities to speak.

And if you attended this morning's session, you certainly heard that this is to address the EPIC program as laid out in the California Public Utilities Commission's Decision. There are certain things we can do, and certain things we can't do, and so we're limited to that, and so there's really not a need to re-litigate the Decision here at this workshop.

And then you have a week from tomorrow to submit written comments on EPIC to the Docket here, and we'll have that information posted, and it should be also available on your Notice. I would urge you to keep your comments fairly succinct today, and the written comments, really the opportunity to be expansive, and provide much more detail.

Okay, and here is the schedule of activities, we're already running a little late, and what we're going to do is I'll go through a short presentation, and I ask you to hold off any questions until after the presentation is over, and this will give you an idea of how we're trying to structure this discussion. And then, after this breakout session, then we'll sort of take the highlights from this conversation and, when everybody reconvenes this afternoon at 4:00, here in Hearing Room
A, we'll do a short summary to the whole audience.

Okay, the EPIC decision really clearly laid out goals for what the program needs to do. And here is a list of them, and clearly we need to provide benefits to the electricity ratepayers and the investor-owned utility districts. And there's a lot of ways to figure out benefits, we don't need to go into that there, but you can see some of them here.

One of the big issues, of course, of what we'll need to grapple with here is how to overcome both the technological and commercialization Valleys of Death, as was discussed earlier today. And then, down below here is a couple of our key policy drivers. Obviously, the RPS is a significant one, Governor Brown's Clean Energy Jobs Plan talks about having 8,000 megawatts of large scale renewable, as well as 12,000 of localized, and 6,500 megawatts of combined heat and power. So that's a large challenge for the state and we hope the EPIC Program can help facilitate that happening.

Okay, you probably saw this graphic, as well, it's just the Energy Innovation Pipeline, and there are actually several variations on this. This shows, though, that the money allocated in the EPIC Decision to the programs, Applied Research and Development got $55 million, Technology Demonstration and Deployment got $45
million, with a set aside of 20 percent for demonstration for bioenergy projects, and then market facilitation of $15 million, and the decision was fairly specific in those aspects of market facilitation. And tomorrow's workshop will address the market facilitation aspect in great detail.

So here staff has identified some Potential Clean Energy Generation Investment Topics. Obviously, there's Distributed Scale Generation, there's Utility Scale Generation, Environment and Public Health, Market Facilitation, and Energy Smart Communities, and there may be others that we haven't thought of, and so that's certainly an opportunity for people to comment.

And here are the six questions that should be on that handout you have, so you can refer to it throughout the conversation, that we would like you to address. And I'm not sure the handout has all six. The fifth one may be -- yes, it does, I'm sorry. So these are the things we want to know -- what can we do to facilitate developing and commercializing clean energy technologies? Where should we put the priority? You know, what are the greatest needs? What is the best bang for the buck, if you will, from what we are doing? What other funding, like from DOE, that's going on in certain areas that we don't need to duplicate, that instead we
want to leverage as much other research funding as possible, and certainly complement these other efforts.

Okay, Energy Smart Communities, you can see some of the potential initiatives, these are just sort of suggested ones, there's been nothing specifically developed, but we are looking for comments on what would be appropriate under this category, or whether this is even an appropriate category. So, certainly, Zero Net Energy Buildings and Communities is a high priority for the State, and I suspect that will be a major emphasis of the program. Energy Storage on a Community Level is very important, as well.

Then the next topic is the Distributed Generation, developing distributed generation technologies, storage, community scale bioenergy, and integration technologies and strategies.

Utility Scale Generation, once again, you're looking at the technologies, preferably renewable energy technologies, we're looking at utility scale storage, potentially offshore renewables. California has great resources potential and wave energy, and especially in offshore wind should that be something we start focusing on now; integration technologies and strategies, and potentially others.

Environment and Public Health. As you are
aware, a lot of the challenges that the state faces in reaching the Renewable Portfolio Standard are environmental concerns, so we are already seeing climate change impacts on electricity infrastructure, so that's a possible initiative, environmental barriers to clean energy deployment, sustainable energy generation supply chains, that's talking about alternative materials, energy security, electricity generation impacts on public health, generation effects on disadvantaged communities. Those are all potential initiatives. Then, tomorrow there will be the full discussion on market facilitation, but a lot of these really tie in to the generation question and some of these are here with the help, with the performance data clearinghouse, permitting and deployment facilitation tools, those sort of things, and that will be discussed tomorrow, like I said. And then here are some of the information on the breakout sessions, which I believe are correct, except the password for the remote access, there's no "T" after the "@" symbol -- there is a "T?" Sorry, scratch that, so they are correct. Also, the information for submitting written comments a week from tomorrow, by COB August 10, and that's the last of that. So I'd like to open it up to discussion of any
general questions right now before we get back to the specific categories. And we have microphones here, so please speak into the microphone clearly and state your name and your affiliation, and once again, if you have a business card, we'd love to get that, as well.

MR. RAYMER: Yeah, thank you. Bob Raymer with California Building Industry Association. My apologies for getting here late. This is the appropriate breakout session for discussion of the New Solar Home Partnership, isn't it?

MR. O'HAGAN: Yes. Okay, well, if there are no more general questions, I will go back up to our first topic, Energy Smart Communities, and I'll turn the mic over to Michael Sokol.

MR. SOKOL: Hello, everyone. I'm Michael Sokol here with the Energy Commission. Thank you, Joe, for the introduction and just a brief overview of what we're looking at for potential initiatives within the energy generation breakout. And so, really, what we're looking for at this point is for each and everyone that has comments related to the questions that are posed right here specifically relating to any initiatives that you can recommend within energy generation, and relating them back to these questions for the ratepayer benefits, what sort of issues would be driving the initiatives that you
propose. And so I think at this point, we can open it up to anyone that has a comment or response to any of these questions. And we could start off with the Energy Smart Communities, so just thinking in terms of communities, what are the technologies that we'd be looking to demonstrate in communities? What are the needs to make advances towards Zero Net Energy Communities? And how does the EPIC funding fit into that overall big picture? So is there anyone that has comments at this time?

MR. LONG: Thanks. Noah Long from NRDC and I guess my real question is, it seems like a lot of the categories overlap a little bit and that's probably impossible to avoid altogether, but this one in particular really seemed to overlap with the next one, and then also some of the energy efficiency or grid integration issues. And I'm just wondering if, in the interest of reducing commenting, you know, we might just integrate this into a couple of the other areas, rather than having it be a standalone area because each of those, you know, Zero Net Energy Buildings, to the extent that it's about generation, it really fits into DG, and then obviously there's a big efficiency component and there's a whole other working group for efficiency. And then storage and microgrids really fit pretty well into the Grid Integration Working Group, which is a separate
working group. So I'm just thinking about writing
comments over the next 10 days and then wondering if it
might make sense to sort of collapse most of this one
into another one. And I don't want to, you know,
obviously we can do that on our part, but it might be a
general recommendation, as well.

MR. SOKOL: Okay, thank you. We'll take note
of that. And, yeah, some of these initiatives are
definitely looking to be cross-cutting, you know, across
technology types and everything, so does anyone have
comments specifically relating to maybe the technologies
or initiatives that would fall within this Energy Smart
Communities category? You know, what are the main issues
that communities are facing when looking to develop
renewable energy generation or clean energy generation
systems?

MR. RAYMER: Thank you. Can you hear me? Bob
Raymer with California Building Industry Association.
And particularly on the Zero Net Energy Buildings --
Communities -- we have some of our largest builder
members that are already planning and have on future
plans effectively putting solar on not as a design, not
as an option, but as a standard feature. This is sort of
a new thing that I've seen happen over the past 18
months, it's sort of a function of the downturn in the
economy. During 2009–2010, we were building about 15 percent of normal. As we're coming out of that, builders are trying to seek ways of differentiating themselves from product that may be in foreclosure, maybe that they built themselves, or other competitors. And so this is starting to happen and, to the extent that EPIC can help promote the massive application of distributed generation on, let's say, this type of development, so much the better. We're already seeing that with the New Solar Home Partnership Program that's been very effective, we just got the $25 million back that Commissioner Peterman spoke of this morning, that's been very helpful, but we need -- industry needs to kind of make plans usually in a two, three, four-year time period because these entry level homes, these phased projects, are where the lion share of housing will be coming from over the next 10 years. That's been kind of the strategy that we've seen over the last 15 years. Small builders unfortunately are taking a much smaller part of the market, and so we're trying to find ways of getting this new technology into the design and construction of these homes on a massive scale, as opposed to, when it's offered as a design option, solar is taken one to two percent of the time, if that much. But as a standard feature, you skyrocket to the 80 to 100 percent; the only thing that constrains you
is maybe the orientation of the house, but usually just
about every home in the community would get it, so just
food for thought.

MR. SOKOL: So can I ask you just as a follow-
up, so can you think of some activities maybe in the
Applied Research or Technology Demonstration categories
that would fit into that mold of what you're talking
about?

MR. RAYMER: Applied research, one of the
curious things that I've seen is that three years ago if
you would have asked me, I would have said Integrated
Roofs were the wave of the future, that doesn't seem to
be the case right now. We're going through a period of
time where, for a large production builder, a lot of
solar, right now, at least, is being put on by a third-
party entity, and so that is bolt-on, the older style
bolt-on systems where you effectively have floor
penetrations to the roof per panel, and you've got X
number of panels on the roof. And so, to the extent that
we can find a way perhaps to, well, we've got to figure
out a way of financing and taking the newest level of
technology, the most productive level of technology, and
getting it into the industry as quick as possible. But
given past practice with construction defect litigation,
or whatever, a lot of builders are a little bit
apprehensive of grabbing on to something new that doesn't have a tested track record. And so, to the extent that we can find a sound historical basis, no matter how short that history is, to give them some level of comfort, that would be very helpful.

MR. SOKOL: Thank you. And can I ask, in addition to clearly stating your name and affiliation in the beginning, if you do have a business card with you, if you wouldn't mind just turning in, too, when you hand back the microphone that would be very helpful. Thanks.

MR. MASON: Thanks. Paul Mason with the Pacific Forest Trust. Our interest is largely in the forested areas of the state and how we can use forest biomass facilities, energy facilities, to dispose of the waste from a lot of the forest restoration that needs to happen, and it seems to me that one of our challenges is in a lot of these small communities scattered around the forested regions of the state, is how do we create facilities that are small enough that you don't have to feed them from a long distance where hauling the material becomes uneconomical, so you either have small facilities that are viable at that scale, or portable facilities that could come in, be there for five or 10 years, move to another place where you're accomplishing that waste disposal function and creating energy at the same time,
reducing the fire risk in the forest where you're going
to reduce the risk of damage to infrastructure,
sedimentation, and to reservoirs, some of those things
that would otherwise impact ratepayers.

MR. SOKOL: Okay, thanks.

MR. RAYMER: Bob Raymer with California
Building Industry Association, again. I'd like to say
ditto to what Paul just mentioned. With the defensible
space strategies of the State Fire Marshall has been
pushing for the last eight years, something that would
involve a limited amount of transport could be very
helpful to a lot of these jurisdictions that are on the
Urban Wildland Interface. So we strongly support what he
just said.

MR. MASON: And then just to follow-up on that
a little bit more, one thing that's going to be really
important here is to put some boundaries on what sorts of
fuel removal activities are happening so we're actually
driving back towards a natural forest condition, and
accomplishing some restoration activities, and not
actually drawing so much from the forest that we end up
degrading the forest over time, so there will presumably
need to be some studies and/or some guidance that help
put some boundaries on there because right now the
utilization of the forest biomass is pretty wide open.
MR. SOKOL: Okay, thank you. I think we had a question back here.

MS. MALINOWSKI-BALL: Yeah, Julee Malinowski-Ball on behalf of the California Biomass Energy Alliance. CBA actually is a trade association of the State Solid Fuel Biomass Power Producers, there's about 33 of them around the state. The average size is not small, but we would like to see opportunities where it's appropriate to do that and we actually see EPIC funds as being a key factor in trying to address some of the issues that Paul brought up. We absolutely agree with him. The Urban Wildland Interface Zones are an incredibly big deal. We actually did propose at the PUC that money be set aside for possibly a fuel incentive program, that one of the biggest issues for this plant is just what Paul pointed out, was getting this fuel out of the forest and to the facilities, and you definitely don't want to do it, you know, with a 100-mile radius around those plants, you want to get it in closer, but you want to get at that harder to get, that more expensive, but more environmentally beneficial fuel to get. And we want to figure out where that fits into this.

Now, at the community scale level, this is Energy Smart Communities, exactly what you were talking about, and almost every single topic that you presented
just a few minutes ago, there was a fit for it in every single topic. And the ratepayer benefits are actually quite boundless on this when you talk about, you know, the reduction of catastrophic wildfires, and removing this waste from around power lines, and so on and so forth. We would be more than happy, actually, to put together specific language on how that would work.

MR. SOKOL: Sure. If you want to submit some written comments, those are certainly welcome and we encourage as many written comments as --

MS. MALINOWSKI-BALL: And it's not a new idea. The Energy Commission has actually been the administrator of funds just like this for this purpose, but the target was agricultural wood waste and residue. There's no reason why we can't expand that to forest.

MR. SOKOL: Yeah, thank you. Are there any general questions on the Energy Smart Community category, or should we get a little more into the specifics? So, what about Community Energy Storage? Is there a role that EPIC funds can play to advance energy storage for the purpose of mitigating variability of renewable generation? Or are there any comments in general on basically Energy Smart Communities and how they fit into the innovation pipeline that has sort of been discussed all day and that is up here? You know, if someone has a
good idea on technology-wise, and they want to get it
through to market, how can we help that?

MR. RAYMER: Bob Raymer with CBIA again. With
regards to storage, particularly for multi-family
housing, you've got a very limited amount of roof space
for PV and particularly the common three-story apartment
design, where you've got only one story, the top story,
that has immediate access to the roof, but you've got two
units under that, along with the unit on the third floor,
it's difficult to get to Zero Net Energy from a design
perspective without the use of off-site, or without the
use of storage. And so, to the extent that at least
starting off with a lot of multi-family projects, that
advancements in storage -- affordable storage facilities
-- can be created, focusing in on the multi-family sector
might be a real great way to start; that's your most
affordable housing stock and, to the extent that we could
find a way to use storage to help even that peak load
issue out, that would be very helpful.

MR. SOKOL: Thank you.

MR. PATRINOS: My name is Ari Patrinos. I'm
with a company in San Diego called Synthetic Genomics.
But I also have an affiliation with the J. Craig Venter
Institute. I assume that when we talk about sustainable
communities, as you had, we also include communities like
Universities and so on. It turns out the J. Craig Venter Institute is currently building a zero carbon zero net energy facility within the U.C. San Diego campus. We expect to break ground within a year, a year and a half. I just bring it to the attention because, as I mentioned, academic or university -- universities also could be energy smart communities, so it dovetails very well with this particular initiative in EPIC.

MR. SOKOL: So can I ask as a follow-up, so in communities like that, that are progressive and have high goals, is there a way that those communities can be leveraged to accelerate technology commercialization for emerging technologies?

MR. PATRINOS: It could be the basis for some of these technologies -- is this better -- I agree with you entirely because, if they are so progressive they can be used in places where the technology can be demonstrated and the public can be convinced about the merits of such approaches.

MR. SOKOL: And then, just as one other question related to Communities, that brings up a question of scale. You mentioned University campuses, and somebody mentioned multi-family housing, is there an appropriate scale that we should be looking at or should we be looking across the board?
MR. PATRINOS: Some of the campuses within our state are of significant scale and could really transfer into the broader communities. Again, for the reasons you've described earlier, it's the place where progressive thinking has a greater chance of making an impact, a significant impact. I have another question, a subsequent, so I'll give you my card.

MR. SOKOL: Yeah, thank you. Is there anyone that has a question or comment on Communities?

MR. GOODSTEIN: So I'm Mark Goodstein. I'm with Clean Tech Los Angeles, which is a public/private collaborative of the research universities, utilities, business associations, and industry in L.A. And just to follow-up on this comment, we are -- I am relatively new to the scene, but one of the programs that we are launching now is an innovation grant pool that will take industry input into specific needs they have, which we think are good proxies for where the market is going, combined with funds they provide, and we're here specifically with regard to EPIC because we think that finding public agencies that will match industry money in this grant pool would be a fairly large leverage point for, well, convincing industry to come on board, but also to help us with one of our main missions, which is to reduce the friction of getting clean technologies from
MR. SOKOL: Okay. So are there any immediate questions or comments? If not, let me pose to everyone whether there are any initiatives that are not included on this list, that maybe should be included, or vice versa, if there is anything included that should not be included and why. Yeah, just for the Communities, we'll keep going through the progression. Are there any comments on the WebEx? Okay, well, in that case, oh, there we go.

MR. LONG: Noah Long from NRDC again. And I apologize because this definitely gets into the issue I was mentioning earlier of cross-cutting issues, and it doesn't really fit very clearly under Generation, but I do think it fits under Smart Communities, which is integration of Electric Vehicle charging stations and grid upgrades necessary to make those possible. I think there's probably some crossover issues of application of PV or other micro-generation technologies and the grid upgrades necessary for those technologies, as well as the grid upgrades necessary for charging stations, but it's not, of course, exactly the same thing, but I hope that whatever efforts are made here are at least thought of in conjunction with efforts on integration of electric vehicles.
MR. SOKOL: And just to clarify, there is a little more extensive discussion of electric vehicle integration in the Grid Operations breakout session, but it's important to include, so thank you.

MR. RAYMER: Which is why I didn't necessarily want to bring it up here, but, following on to that, we are seeing a bit of a problem normally with projects where the utility line extensions have already been built up, because the economy thing didn't move forward quick enough, particularly in the Edison area, we have seen where, when you've got more than two homes with EVs that are charging at the same time in the evening, we're seeing transformers trip, and that is something that could probably be easily addressed. Senator Corbett had a stakeholder meeting in her district about a month ago and there is some technology that's coming online that two of the manufacturers spoke of, which seem to address this, but the sooner we can kind of get that integrated into common phase project design, the better. Right now, there's very little understanding of it, if at all. The manufacturers seem to have a grasp of it, but effectively you can plug your car in, but it doesn't necessarily start charging until later on when you're lying in the queue, you know, you're up. And so at 3:00 in the morning, you start getting juice, and then at 4:00 in the
morning, your next door neighbor gets it. So I'm a
mechanical engineer, and I don't quite grasp how it
works, but if they say it works, I'm going to take their
word for it. Thank you.

MR. SOKOL: All right. So are there any other
questions or comments on the Energy Smart Communities?
Or else we'll move on to the next section. And the WebEx
is -- okay, so moving on to Distributed Generation, first
off, maybe we should go back to the questions that are in
everyone's handouts, really looking at what are the major
barriers to commercializing clean energy technologies,
thinking about distributed generation here. Where should
funding be placed in order to maximize deployment of
these technologies? And, you know, some specific
initiatives within that that can help to advance
technologies and to provide the benefits to ratepayers.

MR. MASON: Yes, my name is Tad Mason. I'm
with TSS Consultants. I'm a Forester and we -- our
clients include everything from investment banks, to
project developers, to tribes, to community-based
organizations, NGOs, and we are heavily involved in
development of community scale forest bioenergy projects,
combined heat and power. I'd like to concur with my
colleague, Pacific Forest Trust. I'm not related to
Paul, but we both share the same last name, and Julee
Malinowski-Ball, Julee has been doing great work for the California Biomass Energy Alliance for a long time. But the bottom line is, to get to your questions -- and they're really good questions, by the way, what the major barriers are to developing and commercializing clean energy technologies -- in the context of community scale forest bioenergy, it's the CapEx, the capital expense to build, install, and operate, if you will, build, own or operate, say, a three MW or less facility, you're looking at $4,000 to $5,000 per KW and, you know, ultimately between $12 million and $15 million for a three MW unit. So if in this process of implementing EPIC, in the spirit of technology demonstration these new gasification technologies, which are quite promising, if there could be some allocation of that $9 million or so a year that are carved out for bioenergy, if there could be some allocation to specifically force bioenergy, that would be very helpful. We'd like to see it scaled at three MW and less, we consider that to be community scale. Looking at all distances of 15 to 20 miles, maybe to get the forest biomass energy in, we agree with Paul and with Julee, the cost of transport is significant and, also, you're mitigating air emissions by hauling shorter distances. Speaking of air emissions, some of our clients are Air Districts, and what I can tell you is much of the
forest biomass today that is being disposed of, as Paul mentioned, is actually being piled and burned, and you can imagine what the contribution of those emissions are to the greenhouse gas climate change issues. If we can gather that up and employ some rural community members by gathering that up, processing it, and transporting it into a small scale facility, and then converting that into the gasification process, controlled conditions, mitigating those emissions, it's a win-win-win.

Then lastly, this goes to ratepayer value. We know that the IOUs are paying out significant cost settlements as a result of power line started fires. Between 2006 and 2010, so far, 23 fires have -- cost settlements have been made with Cal Fire, U.S. Forest Service, and BLM, amounting to about $60 million. So it's very significant. There's a huge settlement that has still yet to be made in San Diego County for the Witch, Rice, and Cajito fires, which may actually come out to be about $1.2 billion. So that's sort of the 800 pound gorilla in the room are these wildfires that are actually being started by transmission distribution systems, and if we can populate California's forested landscape with these community scale facilities, we can to a long ways to treating those facilities and on a sustainable basis, of course, which is the only way to do
this, probably sustain those facilities for 30 or 40
years of services lives, so to answer your number one
question, though, it's all about CapEx, if there can be
some sort of a carve-out to cover that capital expense,
then the small project developers in these communities
can leverage that by going to the private financial
sectors and securing a balance of the CapEx to get those
projects up and running. So, a very promising field and
I think I'm going to yield the microphone. Thank you.

MR. SOKOL: Thank you.

MR. BOCCADORO: And thank you. Michael
Boccadoro on behalf of the Agricultural Energy Consumers
Association. I'll broaden the bioenergy discussion a
little bit. I think we're very supportive of what
forestry is looking to do. We would concur with Mr.
Mason's recent comments that the real barrier is capital
expenditure, both directly and indirectly, and when I
mean indirectly is bioenergy projects today are not
economic in the procurement programs that the utilities
are operating, whether it's existing feed-in tariff
program, or the renewable auction mechanism that the
Public Utilities Commission is implementing. Our
projects aren't competitive in large part because they've
got significant environmental compliance costs and
because of the capital expenditures. And to the degree
that you can either offset some of those environmental compliance costs, or bring down the capital costs of the project directly, those projects should be in a better position to compete in procurement programs at the PUC. So we're very supportive of what Tad Mason just suggested, but broader than just forestry, it's all bioenergy projects, whether they're wastewater, dairy, agricultural, food processing, and the like. If you're going to design a program, that should be broad in nature and it needs to be tied back to the procurement programs that the Public Utilities Commission is operating so that these projects can be competitive in that environment.

MR. SOKOL: So, as a follow-up, within the scope of the EPIC Program, can we think of any initiatives that can help to reduce those barriers, so the CapEx barrier. Are there innovations that need further investment, that aren't currently being invested in by private funding, or DOE, or anyone else, that we can follow-on with? Okay, well, how about -- oh, here we go.

MR. LONG: Noah Long from NRDC again. I guess two points, one on this bioenergy discussion, just in response to the last couple of questions, and then a response to your previous question. First, on bioenergy, I think, in line with the Commission, the PUC's decision
on this issue, I think, it'll be really important for any funding for bioenergy projects to demonstrate the environmental performance of the kinds of projects that it's picking or it's supporting, and in particular I think the question of which feedstocks are available to these projects is going to be a very key one. There is a mention of fuels that are being piled and burnt, I think those are examples potentially of feedstocks that would be appropriate to have environmental performance increases for use as biofuels, but not all feedstocks are alike. And I think it will be very important to the extent that the Energy Commission does engage in supporting these projects either directly by subsidizing capital expenses, or other ways of bringing down the costs of these projects, or indirectly through increased innovation to bring down those costs in the long term, that they do it in a way that ties those funds to improved environmental -- improved and high environmental performance of the projects. So I think it will be important to develop those guidelines simultaneously to any project specific applications. And then, secondly, just getting on an entirely different topic relating to your first question here, I think -- I'm not sure this is a specific recommendation for the kinds of project, but the area of innovation that I think is really important
for distributed generation is installation costs
investments, and I think there's probably both physical
innovations that could happen with regard to solar PV
technology, I've seen a couple of companies recently come
up with panels that have built in essentially racking --
light-weight racking that allows for very low cost
installation. But potentially other kinds of innovation,
business model innovation that also reduces the cost of
installation. We've seen really remarkable reductions in
per watt costs of the PV panels in the last few years,
I'm sure you all know, as well, or better than I do about
that, but I think the costs of installation have not
reduced at the same rate. So I think there's real room
there for innovation and I would recommend analysis of
that and then ultimately some investment in that.

MR. SOKOL: Okay. So something that you sort
of touched on in the response, too, is relating to the
integration technologies and strategies, and that's
really getting in to think about some of the deployment
strategies to make optimum -- to take advantage of the
optimum resource that's available, some of the other
system components that would go into it, like the racking
you mentioned. Is there room for innovation? Or can we
think of any initiatives that can cover some of those
innovations that are needed? Or maybe I should ask, so
we've covered bioenergy a little bit, but are there innovations that are needed within other technologies, specifically distributed generation? And what is the role for EPIC to complement the existing funding sources for those innovations?

MR. LONG: Sorry to keep monopolizing the microphone here, but I didn't see anybody else jumping up, so I thought I'd jump again. Noah Long, NRDC. On integration, this is related but, again, somewhat different. I think there's room for improved communication between distribution grid technologies, so generation located on the distribution, rather than transmission grid, for finding ways to have those generators communicate with the ISO. I know there have been some pilots here and elsewhere and I was actually at a very interesting meeting here at the Commission where there was a presentation from a gentleman from Germany that talked about their system capabilities and their grid capabilities with regard to communication onto the distribution grid. I think there's definitely room for some work there.

MR. SOKOL: Okay. Are there other issues or potential initiatives within the distributed generation category that maybe are not listed here, but do merit some investment? Okay, so, yes, then on that note, we'll...
move on to the next category which is Utility Scale
Generation.

MR. O'HAGAN: Hi, this is Joe O'Hagan again. Here's a list of the potential initiatives. Clearly, there's a vast number of renewable energy technologies that we could possibly use to help the state reach its 33 percent, or RPS goals. There's really a need for technologies to reduce the cost of utility-scale renewable energy. There's a need for efforts to address the intermittency issue associated with a lot of our utility scale renewable energy generation. And so, as I mentioned earlier, here are several possible initiatives under this area, but the question we have is, where should we focus the EPIC funding in terms of what technologies are close to commercialization and that funding for a demonstration project could actually help those technologies reach that stage. There's also a need for applied research that would be sort of either lab scale, or pilot scale, or just modeling efforts, or things like that, to address this issue. The same can be said for storage. There's a lot of efforts going on in energy storage, there's a number of demonstration projects. Are there still opportunities for the EPIC Program to demonstrate or conduct applied research on utility scale storage? So if there are any questions or
comments. Well, just in general, you know, one of the questions is should we focus on very near term technologies or maybe something like offshore wind that we might not see for 10 years or more there. So, please, go ahead.

MR. LONG: Yeah, this is Noah Long from NRDC. I would definitely endorse looking into offshore wind, you know, floating wind turbines if there's definitely some pilots out there. I know there have been some interests in floating wind turbines, pilot programs in California. I think that's an excellent area that would really expand our capability to bring in a diverse array of wind and also renewable technologies. I think I would definitely endorse putting some resources there. And then, sorry, oh, and the other area -- I had another point and I lost it for a second -- the other thing I would mention here, it's not explicitly mentioned, although it does say integration technologies and strategies and I think it's covered under that general point, which is forecasting technology and balancing area integration, or some of the work that's being done under Order 1000, between various balancing authorities to work together to better move renewable energy between balancing authorities, and also develop communication abilities between balancing authorities so that variable
technologies that are coming on and off at different
times can support one another and reduce the need for
fossil back-up.

MR. O'HAGAN: Thank you. Is there another
question?

MR. RAYMER: Thanks. Bob Raymer. And this is
more of a political observation. I've noticed over the
last 12 months under the dome, particularly with the two
energy related committees in the Capitol, in the Senate
and the Assembly, that both Chairs and, to a large
degree, probably the majority of both of those committees
are very interested in seeing results of something funded
today, to see those results yesterday. So, in essence,
they seem to have a strong desire for incredibly short
term results. I don't know if term limits has any impact
on that, but the fact here is that interest seems to have
grown substantially in just the last 12 months. And so,
to the extent that -- and this has been going on with
PIER and other endeavors for such a long time. You want
to fund everything, but to the extent that you can sort
of focus -- like utility scale storage, that has
obviously short term benefits, major short term benefits,
particularly the peak load strategies and a host of
others. So, to the extent that you can focus primarily
on those things that will in a matter of years show some
manner of positive result would be fantastic, I mean, from a political standpoint because, as was mentioned this morning, you've got three different tracks, you know, three different three-year tracks coming on and, like I said, the Legislators seem to be incredibly interested in seeing those results yesterday.

MR. O'HAGAN: Well, thank you. Certainly the point is, you know, our renewable portfolio's goal for 2020, that's only eight years off, and clearly we have a long way to go, so the question is what can EPIC do, recognizing it's just starting up, to get some results that can help us reach that goal. Any other questions? One of the things that's going on with offshore wind, for example, is that the Department of Energy, the U.S. Department of Energy, is putting a lot of money into offshore wind. A lot of that is focusing on shallow water situations on the East Coast, but they are also looking at doing demonstration projects, possibly off California, or Oregon, or Washington, you know, they had a solicitation out there. So the DOE is putting a lot of money towards that. Do you see opportunities for EPIC in terms of California specific issues to address offshore wind, you know, whether it's technology, better anchoring systems, better ways to lay submarine cable, environmental issues? Okay, it's just a thought.
Integration Technologies and Strategies, we discussed some of those with the community scale one. Certainly a lot of opportunities for utility scale, PV racking systems, thermal solar racking systems that support, any thoughts in that regard? Okay, I get this a lot, so... Okay, well, in terms of our list of utility scale initiatives, can you identify any others that we may want to address?

MR. LONG: Noah Long from NRDC again. And I probably sound a little bit like a broken record, but a slightly different tweak on what I said about distributed generation. I think there's room for innovation in racking and mounting technology for PV, and particularly if there's area to reduce need for grading in order to facilitate PV, or potentially other solar technologies with minimizing the landscape impacts and wildlife impacts, minimizing need for roads potentially, as well. But I think a real focus on reduced need for grading in order to have lessened landscape impacts would be a really interesting area for some innovation.

MR. O'HAGAN: Okay, thank you. Is there anybody on the WebEx? No, okay. Well, I think we're going to keep the agenda -- okay, the next topic is Environment and Public Health. This would include climate change effects on the electricity system,
environmental barriers, as Noah just mentioned, in terms of large scale of solar developments in the desert, you know, five square miles of graded effects on the Desert Tortoise; is there research we can do to address those issues to help facilitate deployment of those?

MR. LONG: This is Noah Long from NRDC again, thanks. Yeah, I think this is a really important area and I would highly encourage collaboration with the effort being done at the Commission within the context of the DRECP, in particular. I think there's a real need for analysis of landscape level impacts, appropriate mitigation, and best design of reserve areas. Some of that analysis is being done already at the DRECP. I think one of the areas that's least far along is analysis of avian impacts in the context of wind within the DRECP, migration pathways, current population dynamics, and appropriate distances for particular bird species, endangered bird species, Bold and Golden Eagles, Condors, as well as migratory birds and bats. I think that data is -- there's some efforts to collect some of that data, but a lot of that data is sorely lacking. And if there's funding to facilitate that quickly, I think the DRECP will be a far more effective effort and more likely to garner accounting support, which is so important. In addition, I think there's a real need to help support
counties with their own analysis and energy planning within the context of the DRECP and ensure that they are supported, so direct grants to counties within this context, I think, could also be very useful.

MR. O'HAGAN: Okay, thank you. That latter issue may be discussed in somewhat more detail tomorrow as part of the market facilitation discussion. Okay, is there any other questions here in the audience in regards to this issue? Yes.

MS. WINN: Hi, Valerie Winn with PG&E. One of the other issues, you know, as we look at research in these particular areas, or identification of barriers and identification of impact on species and cultural resources, I think we also need to think about how do we gather that data, and how do we develop sort of an information architecture so that that information is readily available for people. It's not just doing the research, but then how do you leverage those results?

MR. O'HAGAN: Okay.

MS. WINN: Yes, for longer term. You know, because we can gather a lot of this information and do the research, but if we can't leverage that research into streamlining processes, and helping people know more upfront about what they're dealing with, then that research won't be -- we won't be able to capture the full
value of that research.

MR. O'HAGAN: All right, thank you. I mean, one of the -- EPIC is public interest, so the research we conduct will be public information. Obviously there might be some confidentiality issues, but for the most part that information will be available to the public.

Okay, one of the topics for the environment that the EPIC Decision addressed is public health. You know, California is blessed that we don't have a lot of coal, where you have a lot of the issues associated with coal-fired generation, mercury and whatnot, but yet there are public health effects, so are there any thoughts on what initiatives we should look at for public health?

Okay, another issue is one of the concerns for electricity generation in urban areas, lots of times it's located in the more disadvantaged communities and you may have sensitive receptors. Is there a need for research on those, you know, people that are more susceptible to PM emissions than maybe the regular populations and that sort of thing. So that's also a possible initiative.

Any thoughts on that? Yes.

MR. LONG: Yeah, next -- for tomorrow, I'm going to get my own mic, or maybe I'll just stand up there with you guys. I think I just want to commend here the work that the Energy Commission has done in the past
on research on the effects of electric generation on
government programs have also been initiated to study the climate change and its impact on electric generation; I think both of those areas -- I know of several workshops in this area, but I think both of these areas are really critical. There are a couple of examples, but increased impacts of heat on
electric grid functionality and dependence, increase or
decrease in rain levels on our hydro system, there's been
really great research that's been funded by the Energy
Commission in that regard, I think. Changing wind
patterns, the effect on the availability of wind resource
for electric generation, I think is going to be a really
critical area going forward. I think there's a number of
areas that the Energy Commission has already identified
over the last years through the PIER Program, and I just
really want to commend the Commission for that and
recommend that that area is a continuing priority going
forward.

MR. O'HAGAN: Thank you. It will certainly be
considered. One of the other initiatives we identified
is sustainable energy generation supply chain. One of
the issues there is we're looking at security, there is
rare metals that might be needed for some of the
technologies, access to that. So that's something to
consider and we have -- please go ahead.
MR. MASON: Hi, Paul Mason with Pacific Forest Trust again. Going back to the climate change impacts on energy infrastructure, I think it will be important to take a look at, right now, huge swaths of California's forests are already overly dense, threatened by disease, unhealthy, and it's one of the reasons why we're very interested in trying to utilize some of the waste products from thinning as an energy source. As the climate changes and those stresses on the forest change further, I think it will be, again, important to look at what sort of structure do we want to be creating and leaving in these forests that is both more representative of historic conditions, but also appropriate to this new climate that we're going to be working in, and make sure that we're trying to leave forests in a resilient condition going forward and, again, provide some guidance to how any forest materials are being used in this EPIC Program, that we leave the forest in an appropriate condition going forward.

MR. O'HAGAN: Okay, thank you. Let's see, on the WebEx -- oh, I'm sorry.

MR. MASON: No, it's fine.

MR. O'HAGAN: Please go ahead.

MR. MASON: Tad Mason again, Forester, TSS Consultants. Speaking to the climate change discussion,
impacts on electricity infrastructure, we know, and Paul Mason mentioned this, that due to climate change we've seen some really significant changes in our forest structure, both health and resiliency to fire. But where the nexus is regarding infrastructure, between 2006 and 2010, we saw the Catastrophic Event Memorandum Account which is maintained by the IOUs, come in at $244 million request for ratepayer compensation to address Park Beetle infestation and mortality, primarily in Southern California. But this is that nexus, though, with electricity infrastructure, if you will, and basically the Bark Beetle infestation is primarily due to climate change, I mean, we understand that and, in order to get around that, of course, and address this, we need to reduce our stocking levels in our forests, thin those forests, and hopefully divert that forest biomass into distributed generation along the lines of community scale, that is very important. Now, the other item here in number 4 on your list is public health. We know, and several of our clients are Air Districts, we know from monitoring air emissions during wildfire events that there are significant impacts on local populations. We're actually seeing communities get up and leave as these wildfire events transition through their nearby landscapes, so if we can proactively thin those forests
and divert that unnaturally high levels of forest biomass into a controlled gasification or a controlled combustion environment, we'll mitigate those air emissions and also return our forests to a more healthy condition, so just an observation.

MR. O'HAGAN: Thank you. Are there any other comments in the audience? Okay, if not, I'll turn it over to Kevin Wing on the WebEx had a question, or a statement.

MR. WING: Good afternoon, thank you. This is Kevin Wing. I'm with the San Joaquin Unified Air Pollution Control District. And, you know, I wanted to hold my comments for the public health section, knowing that it was coming up, but like Mr. Long said, I know that there are some big crossover with other sections like the Distributed Generation. You know, we would like to see progress and technologies that are going to be zero and near zero emission technologies. I know that I, here at the District, have worked directly with our Technology Advancement Program, and we've been developing that over the past couple of years and are looking to do demonstrations on that type of project and would like to, you know, going to the purpose of the breakout session on one of the earlier slides, work and see how we can cooperate and make sure that we're collaborating our
efforts and our work towards determining where we can
meet these distributed generation needs in the future
with technologies that are zero or near zero emission for
NO\textsubscript{x} and PM, and you know, the criteria emissions that
we're primarily concerned within meeting the National
Ambient Air Quality Standards. You know, I'd love to be
able to work with the EPIC Program in the future with our
program and find ways where we might be able to
coordinate our funding opportunities. This current
fiscal year we have budgeted almost $8 million towards
demonstration projects, and we'll be opening a Request
For Proposals for projects that would that include
looking for renewable energy technologies that overcome
barriers to bringing zero and near zero renewable
energies into the Valley, to meet that Valley need, where
we have this tremendous NO\textsubscript{x} and long term projects where
we're looking at 2023 attainment standard deadlines and
2032, you know, even further down the road. I just
wanted to mention that and see if there's something that
we could work with, you know, together and collaborate
those efforts. And also, when we're selecting our
projects and we're doing that, it would be nice to be
able to work with CEC and maybe somebody at EPIC to help
us make sure that the projects that we do favor and
select for funding are things that really do meet
California energy needs, in addition to, you know, valuing energy needs and then how that works, we don't have the same kind of connection with the energy grid that you guys do, so I do hope that we have an opportunity to collaborate and meet some of those broader term goals with our program, going forward.

MR. O'HAGAN: Okay, thank you, Kevin. I'm sure we'll explore opportunities for cooperative research efforts. Well, if we're -- oh, okay.

MR. PATRINOS: I'm Ari Patrinos from Synthetic Genomics. As my colleagues spoke about the forests, I've been thinking about our own predicament. We have made a significant investment and have great plans about an algae facility in the Imperial Valley, and in the process, of course, have become acutely aware of the dangers that have come about, both dangers and maybe an opportunity with shrinking of the Salton Sea. And it is related to some of the items on this particular category that you show here, both in terms of the environmental barriers perhaps to clean energy deployment, as well as the impacts on public health from the shrinkage of the sea, although I can't blame the electricity generation in this respect. But the energy generation in disadvantaged communities is certainly something we've become more and more familiar and aware. I recognize, of course, that
all these problems are very much associated with almost
intractable water problems that are faced, especially in
Southern California. But I wanted to raise that because
it is a part of the country that faces a particularly
acute problem that requires quick solutions. The sea is
shrinking almost by several inches every year and, at the
current pace, it will disappear by the end of this decade
with a whole lot of very serious problems in both
environment, sustainability, water, and energy. Thank
you.

MR. O'HAGAN: Thank you very much.

MS. WINN: Hi. Valerie Winn with PG&E again.
I think, also, as we look at a lot of these initiatives,
I've been hearing a lot of focus on, you know, electric
generation, and so when I looked at that first initiative
that's talking about the climate change impacts on
electricity infrastructure, I'd also like for us to think
a little bit more systematically, not just on the supply
portion, but also climate change has impacts on air
transmission system, it has impacts on transformers, it
has impacts on all parts of the system. So I think as we
look at analyzing what are the impacts, then also
thinking about what are some of the solutions, like what
are some of the engineering solutions for making
transformers more resilient if there's a sustained, you
know, heat wave, as opposed to always thinking about how
do we get more generation, but also how do we use our
existing system more effectively.

MR. O'HAGAN: Thank you.

MR. MATEER: This is Niall Mateer with the
California Institute for Energy and Environment with the
University of California. I would just like to put on
the map the notion of carbon capture and sequestration
and the utilization, something that the PIER Program has
supported, and I think this whole process is going to be
essential for California's future in meeting its AB 32
Greenhouse Gas Emissions Program. And I think without
carbon sequestration and utilization, there could be some
real challenges meeting that goal. So support for that,
and I won't articulate here what that might be as far as
EPIC is concerned, we'll do that in writing, but I just
wanted to make sure it gets on the agenda.

MR. O'HAGAN: Okay, thank you. The impact was
only clearly part of the picture in terms of climate
change effects, so mitigation will certainly be an
aspect. Any other comments or questions in the audience?

MR. O'NEILL: I just wanted to ask some follow-
up questions from our earlier commenters. I'll try to
keep them very broad, but I think they might be mostly
focused on bioenergy. We were talking about more
bioenergy facilities and forested regions, or Urban
Wildland Interface regions. My conversations with folks
is there may be infrastructure issues specifically with
tying into the electric grid, things like that and,
should EPIC funds be used to kind of address those
issues? Or are those even a big enough barrier that we
even need to address?

MR. BOCCADORO: Michael Boccadoro on behalf of
the Ag Energy Consumers, and I'll focus again on
bioenergy. The interconnection barrier is a very
significant barrier to projects, it varies from project
to project, and I don't know that I have a proposal for
you today on how to address it, but we would definitely
put it on the list of potential funding items. It's
thwarting several projects in the San Joaquin Valley that
I'm familiar with today.

MS. MALINOWSKI-BALL: Julee Malinowski-Ball,
California Biomass Energy Alliance. I'll let Paul and
Tad correct me if I'm wrong, but we have a little
different situation from the digesters, you know, since
the fuel comes to us, it's generally not a problem, we're
probably not going to build where there's no transmission
line, but that's the perspective of my membership, and
there may be others out there trying to do something
different, but because the fuel comes to us, transmission
isn't usually our problem.

MR. O'NEILL: But I think for the community scale bioenergy projects, they will be building closer to where the fuel is, as well as similar to what the dairies, so that's just some of the issues that I've heard. Do you think there will be an issue with that, Tad? Sorry to put you on the spot.

MR. MASON: No, no, that's why I'm here. This is an opportunity, actually. The three projects we're working on all have existing infrastructure as far as distribution and transmission because some are old sawmill sites, for example. As we know, California is populated with hundreds of sawmills and those are typically located in strategic locations where highways and road systems facilitated movement of forest products, and that being the case, then, they're traditionally a pretty good location for these community scale facilities and there is existing distribution transmission there because there had been an industrial facility there. Some of the other projects we're working on are co-located with transfer stations and those, too, have existing infrastructure, so we try, as Julee mentioned, you know, you can locate unlike wind or solar, you have some flexibility when locating forest bioenergy facilities. So I can yield this to Paul. Paul, did you
want to -- and there we have a consensus.

MS. WINN: Hi, Valerie Winn with PG&E. I think as we talk a lot about the bioenergy, I think one area of research that could be helpful would be, you know, it's not necessarily providing incentives for generation, but I think an evaluation of, you know, how would you optimize that? How sustainable is the feedstock in various areas? I think one thing that we want to try to avoid is, you know, an over-concentration of generators in an area where there's not sufficient feedstock to make them sustainable. So I think if we do some evaluation upfront and look at perhaps what makes sense, what's the right size, and what's sustainable for the long term, rather than over-building and then not having a market for it.

MS. MALINOWSKI-BALL: Two comments, actually, in response to that. First of all, I think the Energy Commission actually does a pretty good analysis on a fairly regular basis about the availability of biomass material out there, stuff that I've seen from them in the past has been quite good. And Tad may be able to answer this better than I can, but it's probably a smart business decision not to put a plant, really, if there are competitors in your fuel markets. Nothing you can do, really, about the plants, the existing infrastructure
that's there now, but if you're going to build a new
plant, you're not going to build it next door to an
existing plant, especially if you're going to build it
smaller, community scale, because you're never going to
be able to afford that. So, I'm not sure that's the best
place to put money because I think, you know, smart
business decisions say that you're not going to do that.
And Tad does fuel surveys all the time, and I'm sure he
advises his clients similarly.

MR. MASON: Tad Mason again, TSS. Many of our
clients are investment banks that are looking at
investing in both community scale and industrial
commercial scale facilities, and the question of
feedstocks is very high on their list. Initially, many
of these investment banks were involved in the 1980s
during the tool-up, if you will, on the biomass industry,
and there's a lot of lessons learned from that and one of
them is this feedstock question. So it's extremely high
in their mind that there be affordable feedstock on a
sustainable basis, for at least the service life of the
facility, 30 to 40 years, and that is one of the first
gates, as Julee mentioned, that these investment banks go
through before making a decision to pull the trigger and
actually issue capital funding or debt funding for a
project. So, while feedstock is a great question, and
sustainability is really key, many times -- most times -- the private sector answers that very quickly when looking at investing in a project.

MR. O'NEILL: Since you brought up feedstock, I will jump to that question now. I've heard two comments based on providing funding from EPIC for feedstock to biomass facilities. I'm not going to ask you guys to provide this now, but at least in your written comments, I think we would need some sort of justification why you think that EPIC funding could be used for that because it's not clear to staff that that would not be a market support activity. So if you would like to provide comments now, you can, or you can just provide those in written comments.

Okay, and the next one I want to move on to is to highlight air emission control technologies, both at existing and new facilities. Should this be an emphasis for bioenergy funding from EPIC? I know this might be an issue for dairy digesters, it may be an issue for forest-based biomass, I'm not sure, but I know that this emissions control equipment, or the emissions from dairy digesters, has been a problem in the past, so should EPIC be focusing some of the bioenergy funds towards that end? Kevin from San Joaquin?

MR. WING: Yeah, thank you. I think that the
shorter answer, half of that is, yes, we definitely would like to see EPIC address air quality at these sources, and this is a place where we would love to be able to collaborate with those projects and see how we can work together to make those projects as successful as possible, it's a big need that we have here in the Valley and I want to make sure we address it appropriately.

MR. BOCCADORO: And Michael Boccadoro on behalf of the Ag Energy Consumers Association. We would concur with that, particularly from the dairy standpoint, there still are ongoing air quality issues that can be addressed. We'd really like to see it focused on helping to buy down the costs of some of the environmental compliance technologies that are necessary to meet the Air Districts' requirements. Our focus has always been on wanting to see actual projects get built; we're less inclined towards additional research and more inclined to putting some of the technologies we know can meet the air quality requirements actually in place, so we can actually get the environmental benefits that these projects promise, rather than continuing to study them.

MR. O'NEILL: Those are all the follow-up questions I had. Are there any other comments from the audience? So I guess we're going to move on to the market facilitation. This is going to be covered in
depth tomorrow. The potential initiatives for this category are performance data clearinghouses, high resolution, regional resource assessments, and planning tools, permitting and deployment, facilitation tools, innovation clusters, workforce development, and potentially some others. So the whole idea behind this is how can we help facilitate the market? What can we do to provide more data out there, permitting assistance, guidance, information? What is needed out in the marketplace so that we can provide some help? And with that, I'll actually just open it up to the floor, see if there's any comments or questions, or --

MR. RAYMER: Thank you. Bob Raymer with California Building Industry Association. And it's been kind of hard as we've gone through these individual topic areas to figure out where I should really get into the New Solar Home Partnership Program. This probably seems to be the most obvious. After passage of SB 1 in 2006, we unfortunately saw the price of residential solar, PV in particular, sort of skyrocket, about 25 percent, and it went up and stayed there and plateaued for about three years. On a positive note, it's really taken a drop now, the price is coming back down. I couldn't even begin to tell you where it is today. We're getting facts and figures that, you know, there's a wide variation, but one
thing is clear, the price is coming down. Having said
that, as I mentioned at the beginning of today's breakout
session, we've seen an interesting thing occur over the
last year and that is several large production builders
who have started putting solar in as a standard feature,
as opposed to an option. There's a gravitational effect
to that and that is, over the course of 2012 and 2013, as
these large production builders have these projects that
have installed solar as a standard feature, there's going
to be a variety of other builders who are on the fence,
who are going to have to make a decision, "They seem to
be marketing their homes quite well, what's the problem
with putting solar on the roof? Maybe I'll do it, too."
And we suspect there will be a natural synergy on that
that will effectively sort of snowball. The problem that
we ran into as we left 2011 and into 2012, as you may
know, the financing of the New Solar Home Partnership was
disrupted for a variety of reasons. We got the loan
repayment, there's some other loan repayments that may
well be coming forth in 2013, next June, I'm not counting
on that, but the fact of the matter is we have a very
aggressive goal, to have all new residential zero net
energy by 2020; that is a steep hill to climb. And to
get there, we've got to make some big steps in the next
couple, I'd say, two to three years. And so with that,
to the extent that the Energy Commission in developing
the Investment Plan here, can focus on mass application
of solar, potentially the production housing stock, I'm
not saying discount small individual homes, or whatever,
that's not at all what I'm saying; but, to the extent
that they can help with the permitting and the
administration of the New Solar Home Program and make
sure that that funding has some level of certainty, at
least over the next, I would say, 24 months to 30 months,
that is going to be sort of the game changing time period
that we're focusing in on. And so, to the extent that
that money can be used to help offset further that
upfront cost, it will have an extraordinary impact. And
I suspect you're going to see significant percentage of
the industry doing this in a short period of time. If we
run into another disjunction in the funding, it could
take us three to four years to recoup from that. And
that almost happened back in May and June with the likely
prospect of that funding simply stopped, and you had
major builders who would have just said, "We're not going
to do this now." And given the way that the decision
making process works with all large companies, it might
have taken two to three years to get back to the point
where they are right now. Fortunately, that funding came
through, that funding is also going to be eaten through
very very quickly, as Carla mentioned this morning. So
with that, to the extent that we can place a priority on
at least the short term financing incentives for the New
Solar Home Partnership, that would go a long way to
getting us to 2020. Thank you.

MR. O'NEILL: Are there any permitting barriers
that we need to address for solar that haven't been
addressed so far?

MR. RAYMER: Yes, there are. And I've been
working on a task force with a few others in this room,
that the Office of Administrative -- the OPR -- has been
working on this for the past six months, they just
published a guidebook, it's a nice 80-page document that
local jurisdictions can use so that they don't have to
reinvent the wheel, or they can simply look at this
document and a number of important questions at the local
level are answered. We're also making some changes to
the Building Code where, at the time the Building and
Fire Safety Provisions of the Code were developed, in
some cases 20 and 30 years ago, it didn't envision
photovoltaics. And there's no reason that you need to
insulate the bottom of the photovoltaic system, there's
no reason to put a sprinkler system under the bottom of
the photovoltaic system, depending on where it's located
on a building. So that being the case, we've been able
to identify a host of these, we're already going through the State Fire Marshall with some regulatory changes in this building code cycle, so with that, to the extent that the Energy Commission, the Fire Marshall, the Building Standards Commission, and a few others, could continue to work together to take this document that OPR has produced, and to enhance it down the road, that's just one more thing that local jurisdictions aren't going to have to invent on their own. And I think you're going to find probably within a year a lot of these huge variations in permitting fees, sometimes a thousand fold, won't be happening anymore. I mean, there's no reason a local jurisdiction should be charging more than $130.00 or so to permit a PV system on a residential dwelling, you've got some that are $1,500. It's awful. But this is so new to them, they're trying to figure out how to do it, and hopefully this document is going to help.

MR. O'NEILL: Any other comments or questions?

MR. MASON: Paul Mason with Pacific Forest Trust again. I would just echo that I do think there's a role for some higher resolution resources that's been planning to identify where some of the greatest ecological benefits would be from dealing with some forest thinning activities to support a forest biomass operation. There's been a number of those over time.
I'm not sure all of them have been at a particular useful resolution, and so I think, in terms of potential ways to spend some of the EPIC funds, that may be a useful way to do a higher resolution evaluation of that.

MR. O'NEILL: Are there any other resource investments that would be beneficial for any of the other technologies? Any other comments or questions? WebEx?

Okay, we're going to go ahead and run through the questions again, to take a look at these from a broad scale throughout the entire scope, all along the pipeline. Are there any major barriers? Where should funding be placed? Where should we be prioritizing our funding? Any comments, let us know where the priorities should be, where the funding should go, those types of things, what barriers we should be addressing, overarching comments, we'd appreciate those.

MS. WINN: Valerie Winn with PG&E. I think we might get into some of these questions tomorrow, like during some of the permitting and the regulatory streamlining panels, but certainly, you know, as PG&E has done work in the past on trying to commercialize some of the clean energy technologies, like WaveConnect was a project that we were looking at with wave energy, what we discovered was that sometimes that's an awful lot with an emerging technology to take on that responsibility for a
single company, and so we've actually been advocating
that perhaps the State should be looking at some of these
technologies and permitting particular areas that could
do the environmental reviews, and do some other things,
so that developers would know upfront that this is a go
area, and it's ready to go, and the State could perhaps
auction off development rights, then. I think as we look
at permitting and how to make that easier for folks, that
that could be one way to really help get some of these
newer technologies out and deployed.

MR. O'NEILL: I have a question from Carol
Denning on the WebEx. Go ahead, Carol.

MS. DENNING: Hi, this is Carol Denning with
NRG Thermal. One of the major barriers to developing
clean energy technologies for us, our chief focus is
combined heat and power and district energy systems, is
the current cap-and-trade issues de-incentivized CHP and
District energy, the way it's currently set up. So
that's a barrier for us as an industry, as a whole, and
how we're going to move forward from there. So I don't
know if that falls under permitting hurdles, or what have
you, but it's definitely an area that we're focusing on
right now. It would really hobble CHP development in the
state.

MR. O'NEILL: Do you have an idea what a
particular initiative would be, or something that EPIC --
a program that could be developed under EPIC that could help overcome that barrier?

MS. DENNING: It's more the incentives that are in place under cap-and-trade do not benefit CHP, and on the same token, district energy. So I'm not exactly sure what the solution is, but it's an area that needs some focus.

MR. O'NEILL: Okay, thank you.

MR. LONG: This is Noah Long from NRDC, just a quick comment on market facilitation, two things. One, just to sort of cut and paste my previous comments on large scale generation analysis and environmental analysis input, you know, I think appropriate support for DRECP and appropriate research for permit requirements for wildlife impacts would be really helpful as a market facilitation tool. So whether it's done under the guise of environmental impacts, large scale generation, or other market facilitation, I think it could be helpful and hopefully those efforts will all be aligned, whichever pool it comes from and, of course, the focus might be somewhat different depending on which pool it comes from. But then, secondly, I just want to mention another area here, which is the PUC has done a fair amount of work in market creation, obviously, and the
different procurement programs that they've developed, and then the Legislature is never shy about developing additional procurement programs. And I think the PUC has done some work analyzing the effects of those programs and deciding how to go forward, which of them to emphasize. I think, you know, there may be a role for the Energy Commission to play in that record in terms of deciding which of the existing procurement programs are most effective and how they might be improved going forward, but I would be cautious there in not -- just to make sure that that effort is fully coordinated with the PUC and that you're not doubling up that effort -- although the effort is really important, so if the PUC is not doing it, I would encourage you to do it. And then, secondly, I think sort of a more particular quest within that larger area of procurement programs is that there's a lot of emphasis, or interest, in obviously distributed generation and smaller scale generation, and there's being quite a bit of interest by particular developers in large DG applications, wholesale applications for commercial rooftops. And very few, in my view, of those developers have really cracked that nut to figure out how to get large -- or larger -- we're not talking about very large, but larger systems on commercial rooftops. I don't know how many presentations I've been in where you
see the pictures of L.A. and all of the big rooftops of L.A. and what an amazing resource that would be, if only we could figure out how to get solar on those roofs. And I think that this may be an area, not -- well, this may be an area where the CEC could be helpful to the PUC in deciding how it might refine some of its existing procurement mechanisms to focus on market creation on the existing built infrastructure. So are there tweaks to the RAM, for example, or to the feed-in tariff, I won't list all of the procurement programs because we'd be here all day, but are there tweaks to any of those procurement programs that might be useful in attracting at low cost, or even lower cost, further development to the existing built infrastructure, rather than out in the desert, or on open space. I think, without laboring the point too much, I think there was a lot of hope, for example, that the RAM Program would concentrate development into existing built environment, and I think the existing evidence on that is that it hasn't done exactly that, their projects are all over the place, sometimes in disturbed lands, but certainly not only or exclusively on the existing built environment. So to the extent that there are ways to facilitate the commercial building owners and other building owners, to enter that market, and it may not be through further subsidy, but through
analysis of existing contracts, cracking the triple nut
lease, or other kinds of work in that regard to refine
the procurement programs, I think it could be very
useful. Thanks.

MR. O'NEILL: Do you think this is just kind of
a financial barrier? Or do you think there's some sort
of technical hurdle, or technical barrier there that we
can address through EPIC?

MR. LONG: My sense is that there are probably
legal, financial and technical barriers there that have
prevented that market from really opening up in the way
that people would like to see it open up, and that the
easiest tool that people have responded with is, well,
maybe if we just pay a little bit more money, we'll get
those contracts. And, of course, that is one way to do
it, you know, if you pay for all the potential liability,
you pay for all the potential grid upgrades upfront,
eventually you're going to get a developer that's willing
to put a solar panel just about anywhere, I mean, I'll
wear one on my head all day if you pay me enough to do
it. But I think, hopefully we can do it in a little bit
smarter way, rather than just paying more and more for
that energy, if we can actually reduce the cost. And,
again, that might be through innovation in contracting,
in lease amendment, in liability sharing, or it might be
through technical innovation, as well, in terms of
lighter racking systems like I mentioned earlier, that
have reduced leak risks for commercial roofs, that reduce
liability in that regard, and then obviously there's been
a lot of work by the PUC, again, in the context of the
RAM, of looking at the integration requirements of how we
can figure out where the lowest cost place to integrate
in the existing building and built environment, I think
-- I don't recommend repeating that work, but leveraging
that work so that we can figure out where on the
distribution grid those systems can go at low cost, and
then potentially identifying what grid upgrades would be
useful, or in the public interest, in the sense of
maximizing distributed generation in the alternative of
further renewable generation out in the open space.

MR. MCNEILL: Thank you.

MS. WINN: Thanks. We'll just keep the
microphone over here in the corner. And, you know, Noah
would make a lot of money today walking around with the
solar panel on his head in Sacramento. But I think --
and Noah touches on some good points about looking at
existing programs and how do we improve them. But I
think in some ways, again, we're very focused on
procurement here and I'd really like to think a little
bit broader and more holistically about when we talk
about clean energy, you know, we also talk about energy
efficiency. And the state has a big program for moving
forward, you know, some pretty aggressive goals for
retrofitting existing buildings. And so I think we need
to think creatively and this could be some research
that's done, you know, how do we tap into some of these
existing programs and break down the silos that exist
across the technologies? I mean, we like to look at
what's the most effective way to reduce carbon in the
atmosphere, and so how do we leverage not just buying the
energy, but then reducing the energy need, as well? How
do we link those programs up?

MR. GOODSTEIN: Time for the microphone to be
up here. A lot of the conversation today -- I'm Mark
Goodstein from Clean Tech L.A. -- has been about
downstream innovation, so inasmuch as it is appropriate
for EPIC funding to be spent upstream, I want to make a
more generalized case for what we're doing, which is a
regional ARPA-E, if you will, upstream, so where the
stuff -- where technology is being developed on the bench
at UCLA, Cal Tech, etc. And specifically, ARPA-E, they
have the benefit of having tax money to spend, we don't,
so we're seeking funds from industry and we think that
EPIC should be used as a matching source, which would
make it more likely that industry would participate. But
specifically what I want to model about ARPA-E is that they did a level of due diligence on technology that inspired private capital to put a lot of money into the projects they funded, and that is what we are trying to replicate. So there's a huge amount of money sitting on the sidelines in the form of venture capital, or even angel money, especially in Los Angeles, that's not being deployed, but not because they don't want to, but because they don't know what to invest in because there are so many deals. So what ARPA-E did is they did a level of due diligence that was so spectacular that venture capitalists said, and have said publicly, they view it as a proxy for their own investments. So they did not do the due diligence that they would ordinarily have done, which would never have gone to the level that ARPA-E did, and they put money in. So we want to start a virtuous cycle, and so inasmuch as EPIC money can be used for stuff that's that far upstream and fix a problem that right now is happening with venture capital putting all their money downstream to de-risk their portfolios, we think this is a good way of spending money.

MR. PATRINOS: Just in reference to Los Angeles and angel funding was a play in words, huh? My name is Ari Patrinos from Synthetic Genomics, and I want to really support what my colleague just said from L.A., and
the importance of leveraging private funding with public  
funding, in this case, the EPIC funding. I am also  
particularly encouraged by what our colleague from the  
University of California mentioned with respect to the  
importance of carbon capture and sequestration as a way  
to deal with the climate change concerns that we have,  
and I want to make the case for our particular interest  
that I've already mentioned in the Imperial Valley, and  
the algae facilities that we are building. We are  
certainly interested in the products that will come about  
from algae, whether they are fuels, or food, or  
pharmaceuticals, but we are in fact very very interested  
in exploring how algae could be used as a way to take out  
CO₂ from the atmosphere in an effective way, and in a way  
that doesn't have all the lifecycle problems that some  
other ideas have been put forward, and also the expense,  
you know, there should be something that we get out of  
the CO₂ as opposed to just sticking it in the ground, for  
example, as a technology. I can't express as much --  
anymore support than what I did, and with what my  
colleague said with respect to the leveraging of the  
public and the private money, and I agree with him that  
there's a lot of money sitting on the sidelines waiting  
for a good opportunity, and this would be one of those.  
Thank you.
MR. SOKOL: So I just wanted to follow-up real quick on the Clean Tech L.A., and the innovation hub concept, in general. I would highly encourage you to come tomorrow if you're not planning to already, for the conversation, as well as submit written comments on how EPIC can capitalize on that concept.

MR. O'NEILL: Do we have any other general comments or questions from the group?

MR. SOKOL: Okay, just as one or two more follow-up questions, we touched on this a little bit and it was discussed across the board a little bit, but in the spectrum of clean energy generation technologies, and if California is to achieve its energy goals, which technologies really need drastic innovation, you know, huge advances in efficiencies and reliability? And which technologies really need more support with the scale-up? And how can EPIC fit into that spectrum of supporting versus innovating? Then, if there are no questions, no comments on that, one other question is how can EPIC facilitate a discussion and collaboration between the entire value chain of clean energy generation, so from the builders to the installers, or manufacturers, the workforce development, you know, across the board? And if there is no responses on that, I would just encourage you to keep those questions in mind and going into

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tomorrow, they will be brought up again. Are there any questions on the WebEx?

Okay, so as mentioned, we really encourage everyone to please submit any written comments, if you have further comments, to elaborate on your ideas. We would really like to thank everyone for coming today. And we would really like to thank Suzanne and Sarah for helping out, taking notes on the WebEx. And we will reconvene here at 4:00 if there are no other comments just to provide a quick summary and some final discussion, comments maybe across the board on the EPIC Program and everything that's been discussed today. Otherwise, thank you all for coming.

(Off the record at 2:51 p.m.)

(Back on the record at 4:06 p.m.)

MR. STOKES: Good afternoon, everyone. My name is Eric Stokes, I'm with the Energy Commission's Research and Development Division. First off, I just want to thank everyone who stuck around towards the end of the day here. For this last hour, we're going to hear from each of the breakout sessions, they're going to give a brief summary of some of the key talking points, some of the key highlights that were discussed in each session, and then we're going to turn it over to comments, first to the Commissioners, and then to the general public.
And I think our first breakout session is the Efficiency and Demand Side Management.

MS. CHAMBERS: This will just take a moment.

Okay, thank you. We had a lively group and everyone was able to come up with some summarizing points at the end of it, and we were able to capture them in type, so a really big factor that kept coming up was consumer behavior, human factors that we would consider in efficiency situations and demand response, and demand side management. We wanted to focus on -- give opportunities to low income individuals, different areas of that, and look at alternate metrics for considering zero net energy, zero net carbon, zero net peak loads, looking at motivation of building owners to act, interoperability of control systems, efficiencies in existing operations, clarifications of interaction, biogas as a renewable and a storage. And also taking advantage of new Smart Meter damage -- damage? Data! Typo. But that's okay. Accounting for both comfort and health productivity. We wanted to look at cradle to grave with these technologies, what do we do with them when we're done? Do we have a landfill full of PV panels? That's a good question. Streamlining policy and regulation, there was a lot of discussion about regulation, you know, how can we make it easier to make
some of these things happen? And then, of course, Codes and Standards, and also back to Zero Net Energy, whether you get to zero net energy at some level, stepped approach to Zero Net Energy, almost Zero Net Energy, and what should be done -- what is considered to be valuable. Also, there was another -- some chat earlier, we didn't capture that in this particular list, was what's the definition? We need to come to consensus on the absolute definition of Zero Net Energy. And that was about all we had. Thank you.

MR. STOKES: Okay, so the next breakout session we're going to hear back from is going to be the Grid Operations --

CHAIRMAN WEISENMILLER: One question, I was assuming we were going to see if there was any public comment on that. I certainly had a few questions or comments, but my impression was we were going to do sort of breakout session by breakout session on --

MR. STOKES: We could do it either way.

CHAIRMAN WEISENMILLER: Yeah, let's ask for public comment on that specific one. And then we'll certainly have some comment.

MR. STOKES: Okay.

COMMISSIONER PETERMAN: And then can you put that slide back up again as we see any comment? Thank
CHAIRMAN WEISENMILLER: So question one is any public comment on this? Either in the room or on the line?

MS. CHAMBERS: Of course, you can always submit your written comments, but if you have -- this is another opportunity to add an item that you might feel is a big point, a summarization point. Yes, Frank.

CHAIRMAN WEISENMILLER: Hang on.

MS. CHAMBERS: Get to the microphone, sorry.

MR. GOODMAN: This is a very high level, terse summary, and what will you do now with the transcript of the tapes? How will you take this and develop it into something that is then used in the investment planning, including linking it with whatever comes out of a session of this kind next week -- Frank Goodman, San Diego Gas & Electric.

MS. CHAMBERS: Very carefully, very closely, yes, we're going to spend a lot of time working on collaborating all the points from the L.A. Group, and Laurie might have some more to add on that, it sounds like.

MR. GOODMAN: And from the transcripts you took in these sessions?

MS. TEN HOPE: I think this is all interesting
food for thought, I mean, the summary is a nice summary, but we have the record and the participation of each of the groups, which in combination with experience in these areas, we will begin to formulate initiatives that we think are reflective of public comment, public policy, and meet the Decision. So it's -- we're not going -- we will capture these comments and have them standalone and influence the drafting of the Investment Plan. The Investment Plan itself will go back out for public comment and, in that area, we'll be summarizing people's comments on how we reflected or how we responded to the public comments in the Investment Plan process. So it's part of the overall background.

MR. GOODMAN: Yeah, my concern was basically that this doesn't stand alone to anybody who wasn't at the workshop.

MS. TEN HOPE: Uh-huh.

MR. GOODMAN: It needs to be developed.

MS. TEN HOPE: Uh-huh.

COMMISSIONER PETERMAN: And I think it's correct, is that you mentioned, Laurie, that people can submit written comments regardless of which group you're in, and all those will be considered --

MS. TEN HOPE: Absolutely. Written comments would be extremely helpful because, I mean, we couldn't
be in all the sessions and particularly written questions
tailored to the questions that were on the agenda,
because then it's much easier to organize and
consolidate.

MS. CHAMBERS: Any other comments?

MR. SIDDIQUI: Omar Siddiqui, Electric Power
Research Institute. I was in this breakout, but one
question that I had was, obviously there was an end use
focus here with regard to energy efficiency, and a
question that I had was, is there consideration in this
process for efficiency improvements that could be made on
the utility grid, either in transmission distribution
efficiency, or upstream, in that way, is that something
that really falls on the grid operations side? And is
that explicitly covered there?

CHAIRMAN WEISENMILLER: Well, it may even be in
the Utility Investment Plans, frankly -- I said it may
well be under the Utility Investment Plans, frankly.
But, again, I'm not making a conclusion on that, but
obviously to the extent that they're looking for
applications on their system, you would think they would
start off with energy efficiency.

MS. CHAMBERS: Anyone else?

CHAIRMAN WEISENMILLER: Yeah. I'll just give a
few comments. First of all, interesting action list to,
having said that, when you think a loading order, I've never seen biogases listed as an energy efficiency, as opposed to potentially renewable, but you know, then we sort of take everyone's comments. I tend to think in terms of our priorities, first looking at the potential to save energy. One of the things that's really been hammering, you know, we've been struggling with for decades, is the existing buildings. And certainly 758 is part of that, so certainly anything we can do to deal with capturing energy efficiency in existing buildings is a very high priority. And a lot of the specifics here are certainly part of that. And the other thing is, one of the really strong points historically has been the research has provided the basis for our Building and Appliance Standards where, again, if you look at what California has done over the decades, having those Building Appliance Standards continually refined has really led to this consistent record of energy savings. And so what we're really hoping is that EPIC provides the technologies we're going to need for our next updates and subsequent updates, and so, again, as you think through some of these, you know, obviously one of the things is always to keep in mind what the potential savings are, at the same time realizing that, for some of the affected groups like low income, you know, there are other reasons
than simply energy efficiency potential, that you're
going to target that.

MS. CHAMBERS: And actually, when you look at
the full transcript of all the comments that were taken
from this area, from this particular group, existing
residential and existing buildings was a focus, it didn't
necessarily get on this particular summary list, but it
was discussed quite a bit.

CHAIRMAN WEISENMILLER: Exactly. As I said, I
think this as a summary, you're talking about how going
forward, then to the extent, I assume one of the next
steps is sort of looking at things and saying what are
some of the natural categories, you know, and then how do
you start framing that under those categories.
Commissioner?

COMMISSIONER PETERMAN: Yeah, I agree, Chairman.
I think the existing buildings should be near the top of
this list, if not at the top. Can you explain what
"taking advantage of new Smart Meter damage" means?

MS. CHAMBERS: Typo. Smart Meter Data.

COMMISSIONER PETERMAN: Data, okay. Thank you.

I thought that was a very specific and somewhat
shorthand, so --

MS. CHAMBERS: Yeah. I was reading that and I
said that can't be right!
MR. STOKES: New health effect, huh?

COMMISSIONER PETERMAN: I figured I'd ask now because that's the time I have to do it. So thank you for clarifying.

MS. CHAMBERS: Any other comments? Questions?

Okay, thank you.

MR. STOKES: Okay, so Jaime Patterson will provide a recap on the next breakout session which covered Grid Operations, Transmission, Distribution, and Electric Vehicles.

MR. PATTERSON: I'm Jamie Patterson. We covered quite a number of things in the area of Grid Operations, Transmission & Distribution, and Electric Vehicles. As you can see, forecasting was hit on a number of points around here, Stochastic versus probabilistic forecasting is something that everybody things we ought to look at, along with just plain getting visibility behind the meter because, with residential renewables, everybody wants to see back there, plus we need to see behind the meter for areas in microgrids and other types of smart community aggregated areas.

Okay, one of the things that they're looking at also is fleet flexibility to meet the 33 percent goal at the ISO. And we are also, with all the information coming out of the Smart Grid and the Smart Meters, we
need to come up with a way to best use and manage all that information, both at the distribution level and at the Smart Grid level. Okay? Then we also -- some of the areas of which they could use now would be to develop better real time Nomograms, better state estimators, these types of things, and to look at the instability problems that are occurring from some of these new generation resources that cause things like low frequency oscillations, and those types of areas. Research need was identified there. Not to mention, to bring in greater use of CHP, biomass, and these other new generators, we need to look at metering and telemetry. What data do we really need? How can we make it less expensive? And how do we make better use of that?

In the areas of transmission, we're still looking at synchrophasor applications and real time control, we've done quite a little bit at the Energy Commission in synchrophasor research, people would like to see that continued. We need some work on incorporating some dynamic thermal line rating systems across there, looking at flow control technologies to make the grid truly smart so you just don't flip the power in at one end of the grid, and have it kind of take the path of least resistance. So there's some interest in flow control technologies across transmission lines,
things like BACS and other technologies. And the grid needs intelligent protection systems to enable two-way power flows, okay. And then general hardware for all current controllers, we should continue research into those areas. Other electronic devices, BACS, and other types of equipment that's out there on the grid.

Then, it seems that geomagnetic induction is something that is coming to the forefront here in California that we haven't really seen, and that we should do some research to look into the effects of geomagnetic induction, and how we can mitigate some of those impacts at the distribution system, it's the AISO again, needs visibility. We need to look into load and generation forecasting, weather on the day ahead at a local level, storage, better controls of storage and more application across there. We should study the delivery of ancillary services at the distribution level and how we can supply ancillary services that will cascade up to the larger grid.

Okay, we have, needless to say, more synchrophasor applications at the distribution level, they haven't been applied yet, this gets into distribution automation, and partially some distributed generation intermittency, using intelligent inverters, auto DR, some controls and dynamic voltage control.
need more grid analytics. The big question across many people's minds is just what is happening out there, so we need to get some better grid analytics going and research into that sort of thing so we can view that down into -- get some visibility as to what is going on, and then you have distribution planning for the Smart Grid, and disaggregating generation from load because right now they tend to look the same.

Then, in Electric Vehicles, we have demand response outside of the current AMI system to support third-party services. Some of the -- this was highlighted that some of the people that can supply some of the -- that does the aggregation of electric vehicle charging -- needs some information that needs to run outside of the current utility backbone, things like -- well, I won't get into it now. There are sub-meter protocols, certification of meter for the sub-meter will be at the actual vehicle charger. We identified seams issues associated with that where people want to drive their electric vehicle across utility service territories. Then we have integrating EV charging with nighttime wind. Many people want to take into integration of EV charging with both nighttime wind and also there's the interest with solar, as well. But at night when the vehicles are sitting there, you should be
able to -- it was brought up that they should be able to be coordinated with the wind generation. Okay, EV can support ancillary service and grid frequency, particularly with battery and stocking use, as well, we need to do some basic research to establish how that can be done and done effectively. We need better research on the cost-effectiveness of HANS, third-party, and other aggregation to come up with like the basics and choices across for the cost-effectiveness to show what kind of the cost we can expect, depending on the solutions that we look forward to.

Behavioral studies need to be done on how people will actually be using their vehicles. One of the highlights of that was mileage shifting from EV to other types of things, along with market facilitation and education, standard operability -- that's that seams issue I mentioned across IOU territories. Okay, and to lower the cost of smart charging infrastructure. Currently, smart charging infrastructure is rather expensive, but we feel that there should be some basic research and it shouldn't be too hard to lower the cost of this, and do some gaps analysis across our research to decide, in the first year of our research plans, so that way we can see what really is necessary in the changing marketplace going forward.
Then we also identified a few additional topics, okay, that were kind of outside, such as the use of water heaters for DR, okay? Price responsive demand programs need to be responded -- we didn't know exactly if that one fit here or in a different breakout area. People would like to see an inventory of research projects, so that way they can see what we have done and what could be done going forward. And an evaluation of research projects to see what else could be done and how well those research projects could lead to some breakout technologies. And that's it. So does anybody -- Frank, do you have questions?

MR. STOKES: Actually, let's go to the Commissioners first. Commissioners?

CHAIRMAN WEISENMILLER: Actually, let the public go first, you know, I'm sure that we'll wrap up. I'd like to hear their input.

MR. GOODMAN: Just a quick question to clarify your last point about -- I'm sorry, Frank Goodman, San Diego Gas & Electric -- an inventory of projects, or whatever that last point was, does that mean prior to EPIC?

MR. PATTERSON: If that was the consensus, I believe that was the consensus of the group.

MR. GOODMAN: I was in the other group.
MR. PATTERSON: Jim, there you are out in the back.

MR. GOODMAN: What's active now and --

MR. PATTERSON: Yeah, it's basically what's active now and what's missing, is part of -- yeah, Jim?

MR. LECHFORD: This is Jim Lechford from the ISO. That was my comment or suggestion about an inventory of projects that are going on through EPRI, through the DOE, and all the other funded -- NREL -- so we don't duplicate that, and we can add to that, or maybe either add to it or just build on their studies that are already being done, so just to avoid duplication, to build a document library, if you would.

MS. WINN: Hi, Valerie Winn with PG&E. You know, I was in the Clean Energy Group work breakout, which I know we'll get to next, but one of the things that really struck me as we were all talking was that we were in three very discrete groups and really one of the things that I think is going to be very important is how do we look at the system holistically and look across these different technologies and sectors, so I think some research in those areas, you know, how do we look at things, break down some of those silos and look at the system as a whole, and not just at little pieces of it.

And then one of the other topics, the whole
electrification of transportation and how is that going
to affect our electric infrastructure when we combine
that also with the climate change impacts that we're
hearing more and more about. So those are some of the
topics that I'm not necessarily seeing through some of
these other breakout sessions. Thanks.

MR. PATTERSON: And thank you. I'll add that
to the sheets. Any other questions?

CHAIRMAN WEISENMILLER: Yeah, I think, Jaime,
the one thing that was pretty clear is the need for
coordination, particularly -- well, what we're doing here
and, I mean, ultimately as we'd be developing the
Investment Plans, the Utilities are, you know, obviously
there are subsets of this that strike me as probably
what's going to be meat and potatoes to the utilities,
you know, and other things where we need to have, as
these Investment Plans are coming together, a sense in
this area of what we should do versus what the utilities
are going to do, or frankly, what EPRI is already doing,
and I know, in talking to the ARPA-E people, that
obviously under Jeannie they're doing a lot of flow
control and stuff, so one of the things which we're doing
is certainly reaching out to the Federal Government to
get a better linkage into the ARPA-E folks and certainly
we have a lot of preexisting relationships there. But
again, this might be a pretty good subset, a vision of what to do here. Obviously, we're not going to do all of it and there are parts that would be better to -- and we're going to build off of, but certainly as the utilities go into their workshop, it's going to be very valuable to have their sense of exactly what in this universe of stuff they're going to take the lead on or, for that matter, exactly what EPRI is trying to really make progress on, you know, in that context, so that we can be defining what we're doing. And ultimately, it may become some sort of a web portal where everything is sort of linked together under the EPIC umbrella, but, again, the more there is a coherent "we do this, utilities do that," you know, that will help. And certainly to the extent that's feeding into what the ISO and others need, that's going to be important.

MS. WINN: And I think that the workshop today and the discussions we'll have tomorrow, the workshops today have been really helpful. I do know that my colleague from NRDC said, "Well, why aren't all of these plans, the utility plans and the CEC plans, being presented together. So I think perhaps once we file our plans on November 1st, there could be an opportunity there for more public discussion and seeing how this work fits together collaboratively.
CHAIRMAN WEISENMILLER: That would make sense and I think certainly it would be useful to have, obviously you have different things here which have to be digested and sorted out, I assume you're going to have the same issue coming out of your workshops. And as the thinking evolves, it would be useful to stay in contact on some basis.

COMMISSIONER PETERMAN: Jaime, I'll note that -- hi, Jaime -- I'll note that it was interesting that many of the items on your sheets were items or issues or possible research areas identified as well in our workshops with the Renewable Action Plan earlier this year, so that's good to see that we're having some consistency among those various participants, especially what came up a lot during that series of workshops was a request, the need for more good analytics, as well as more transparent and comprehensive distribution system planning. And I also want to note, it's good as well to see an Electric Vehicle component, I think, on that list. As we're thinking about some of the distribution system upgrades, we'll need to do, for EVs, it would be good to do that in coordination with what we're doing with the Smart Grid, as well as DG renewable deployment.

MR. KRICH: Ken Krich, California Institute for Energy and Environment at U.C. Berkeley. I'm sure
everybody is thinking about this, but I didn't see it on
the list, which is the transmission system is going to be
operating in a different physical environment 25 years
from now, or 50 years from now than it is operating in
today, it's going to be hotter in the Central Valley,
you're going to have sea level rise affecting where
transmission lines are, you're going to have electrical
demand changes, wild fire, so I'm hoping in the
background on the grid work that this is being
considered, not just the environment we're in today, but
the environment we may expect to see in 40 years.

MR. PATTERSON: I'd like to thank everybody for
their comments. Are there anymore?

MS. PITTIGLIO: This is Sarah Pittiglio from
the Air Resources Board. Behavioral research came up a
couple times for energy efficiency and buildings, and
also EV charging, but I feel like I've heard in previous
meetings with EPIC staff that you wouldn't be able to
cover behavioral research. So before I go back to ARB
staff to form a collective response, I was just wondering
if there was some sort of list of areas that you couldn't
cover, so we wouldn't waste our time providing feedback
on those topics.

MS. TEN HOPE: Not my understanding from
reading the Decision that it would be precluded, as long
as it is tied to energy use and to providing value back
to the ratepayer, that it wouldn’t be abstract studies
for the sake of the study, but that it was going to
inform technology, innovation, and successful deployment
of technologies in the marketplace. But this is an
iterative process with us and the CPUC, so it's a good
question for clarification that we can take back. Other
questions on this section before we do the final
breakout?

MR. STOKES: Okay, our final break session for
the night is going to be Clean Energy Generation Systems,
and Michael Sokol will be presenting the recap.

MR. SOKOL: Hello, I'm Michael Sokol and I'll
present the Energy Generation Breakout Summary. So we
had a broad spectrum of comments across the board, and so
I'll give you a brief summary. The conversation started
off with a discussion of sustainable community biomass
development and collection, especially mentioning that
capital expenses is a huge barrier for biomass systems,
and really looking at the biomass and forest waste
disposal with minimum transport, looking at what radius
of sustainability is appropriate; also, being aware of
forest degradation and climate change impacts on forest
biomass. It was mentioned that EPIC should promote
standard installation of DG in new developments wherever
possible, also that it should look to accelerate the
industry adoption of new technologies by demonstrating
reliable performance over a historical period.

Electric Vehicle Integration was mentioned,
although I know it's covered to more extent in the grid
operations section. I just wanted to reiterate that it
needs further attention.

In the context of Zero Net Energy Communities,
it was mentioned that universities should be looked at as
a potential model for ZNE, there's some ambitious plans
going on, on university campuses. Also, touching on
storage applications and multi-family housing, and in
community settings, particularly to offset peak demand.

There was a question of how EPIC can best
support existing biomass facilities, what innovations can
come up the line, and there was no clear answer on that.
There was discussion of PV racking and lower cost
integration technologies, we called it, for renewable
generation.

There was also a discussion of these innovation
hubs that are regionally located and Clean Tech LA has a
potential model for that, as well as opportunities to
leverage funding and cooperatively work towards a common
goal. Also, with San Joaquin Valley Air District, they
also were mentioning leveraging and complementing EPIC
funds and strategic investments. And that's related to that there needs to be further study of air quality for bioenergy projects. So also, in terms of public health and safety, there was a mention of the possibility of reducing fire hazards and especially investigating fire impacts of climate change and electricity transmission lines, various components of grid operations.

It was mentioned that there could be room for an update for communicating with small generators with the California ISO, how could that possibly be upgraded or implemented? Offshore wind had a brief discussion and there was some discussion that it deserves a little further merit, how best to complement existing DOE efforts in California was a little unclear.

There was a discussion that it's going to be important going forward to encourage cooperation among balancing authorities to prioritize renewable energy and reduce fossil fuels wherever possible. Also, looking at the environmental side of things, reducing the installation impacts of utility scale generation and complementing the existing DRECP effort, and to carry that forward, especially looking at how we can reduce the grading or roadway impacts, as well as all other installation impacts.

The data that is gained from EPIC investments
should be used to streamline processes and decision-making, and not only that, but we should be looking for solutions to make better use of the existing electricity infrastructure, and not just focus on new generation and getting new technologies into the market.

There was a need for high resolution resource assessments for biomass, and a comment that we should think more holistically about the way to reduce carbon emissions across the entire electricity value chain. And finally, there was a mention that carbon sequestration does deserve some consideration under EPIC, going forward. And that's the gist of our discussion. Any questions?

MR. RAYMER: Thank you. Bob Raymer with the California Building Industry Association. I attended this breakout session and we were strong supporters of distributed generation, new development. In particular, we've had rather remarkable success with the New Solar Home Partnership. As most of the Commissioners know, and those related to the program, we've seen sort of a dynamic change occur, probably identified over the last 12 months, where instead of offering solar as an option, we've had some of the largest builders not only in the nation, but California-based, starting to use solar as a standard feature. And in each of these cases over the
past 12 months, we can attest to the fact that it wouldn't have happened if it hadn't been for the leveragability of the money from the New Solar Home, along with the other financing packages that they were putting together. And what I didn't testify to at today's breakout session was that so often it's very difficult at the Legislature and with our friends in the media to identify at least short term very direct benefits of a governmental program, but that wasn't the case with the New Solar Home Partnership. As we were pushing in support for SB 1018 back in June, and in previous efforts prior to that, we have not had a problem showing very direct benefits, of course reduction in overall energy impact to the grid, but also a direct and visible showing of jobs. We can point to these 100 homes here and those 200 homes there that have solar on the roof, without the New Solar Home Partnership, that key little integral amount of funding for the overall leveraging of the rest of the funding would not have happened and those jobs would not have gone forward. And that is something, Republican or Democrat, everybody seemed to embrace. And so, for a change, this was an easy sell at the Legislature, quite frankly. In many efforts, they might have had different ideas on how to do the funding, but at least they could see this was a
program that was working. Nobody told us it was a bad
program. So with that, we're strongly supporting the
continuation of this program and whatever we can do to
make that happen, we'll do what we can. Thank you.

MR. SOKOL: Do we have any other comments?

CHAIRMAN WEISENMILLER: Let me make two
comments, one of them is that, as with the other areas,
certainly a lot of emphasis here on biomass, and it would
be very important to figure out our role there vis a vis
the Utility Investment Plan roles, and also in terms of
NREL, or EPRI, or other sources of funding or, for that
matter, you know, some bear more fruit, anyway, the
different groups and, again, to try to have a somewhat
coherent theory of what we're going to do in this area,
biomass, as opposed to what the utilities are doing.

And I think sort of interesting in terms of the
three groups, as mentioned earlier, Energy Commission
this week released a major study of the implications of
climate change particularly for our energy systems. In
terms of at this point, it's pretty clear that most ways
produce energy have environmental impacts, and at the
same time, climate change is starting to impact our
ergy systems, and again trying to figure out where that
sort of research is going to continue and where that fits
going forward, it's certainly an important issue for
California as we try to figure out where those
implications are picked up.

MR. SOKOL: Thank you, Chairman. I think we
had one more comment from the public, too. Do you guys
want to finish up, or should we go to -- okay.

MR. PARK: Hi. I'm Tobias Park from U.C.
Davis. I just had a quick comment that kind of relates
to all three areas that I wanted to mention, and it seems
to be a reoccurring theme from the summaries, and that's
sharing data, sharing the information from this research.
And one thing that I hope the Commission will address is
really publishing these reports and getting these reports
out quicker. I think that was maybe one criticism I
could say over the last program that's been a challenge
is getting these reports to the Commission and published,
and I just would like to suggest that you consider --

CHAIRMAN WEISENMILLER: Actually, we'd like to
see better written reports as part of the process.

MR. TOBIAS: Excuse me, I'm sorry, I didn't get
that.

CHAIRMAN WEISENMILLER: It is two stage; we
need to make sure that the researchers actually write up
the reports well, and so we can move them through faster.

MR. TOBIAS: Great. Thank you.

MR. SOKOL: Okay, so are there any other public
comments? Or otherwise we can go to Commissioner Peterman.

COMMISSIONER PETERMAN: Thank you. You can feel free to comment after I do. I would say on this last breakout, this is the one probably closest to the words the words that I've been engaged in, more related to renewables, and it's hard to comment really because it's such a broad topic and, you know, we got a list of different areas, but again, what I heard in the breakout aligns with what you've been hearing as part of our Renewable Strategic Planning process, and I'll just reference back, we did seven workshops there and there was a significant transcript, and to the extent that that could be looked at, there was participation by all the utilities, as well as many of you who are in this room today. And so we were able to do that over a longer period, but in general, I want to echo the Chair's comment about obviously a number of comments around biomass, but we want to make sure that we think about what the resource needs are for other DG resources, including wind and solar and such, and particularly there's a lot of overlap between these three categories, the efficiency, the clean generation, and the grid operations, and how successful, for example, the clean generation will be is really dependent on what activities
are pursued under grid operations. And so although you
have to, for management and process sake, separate these,
how I will be approaching it and looking in terms of my
eventual voting on the Investment Plan is to look at what
extent there's some more opportunities for integrating
these concepts, and not having them be duplicative.

MR. SOKOL: Do the Commissioners or the
Executive Director have any closing remarks or comments?

CHAIRMAN WEISENMILLER: Well, again, we want to
thank everyone for their participation today and I think
this has been a good experience for us, this is the first
of a two day session here. Obviously, as we build off of
this experience, we will then go down to L.A. and replay
this, and then, after that, the Utilities will have an
opportunity to build off of these four days, as they
structure theirs, but again, it's sort of a dialogue
process and I think it's definitely one where there's
been a lot of food for thought, so I certainly want to
thank people on that. I think -- we talked today -- and,
I mean, this is the kick-off of EPIC and, of course, one
of the key focuses here is how to maximize the benefit
for the electric utility ratepayers. And so certainly we
get that, and I think it's important that everyone get
that and, again, realize this is a good opportunity to go
through and sort of Zero-based, the existing programs,
you know, certainly we've got a much broader program at this stage in many respects, you know, limiting funding, and I'm sure as usual, I don't know what the factor, if it's pie or order of magnitude, but there will be more good ideas than what we'll be able to fund.

COMMISSIONER PETERMAN: Yes, also thank you to the staff at all the agencies, particularly the Energy Commission and the PUC that have been working collaboratively to get us to this workshop point, and who will be working, I’m sure, extensively over the next few months to get the Investment Plan out in a timely manner. And I'm really looking forward to all your comments once the Draft Investment Plan is released and there's something to be responsive to. But thank you already for what you've provided today.

COMMISSIONER MCCALLISTER: I guess I would just add that I want to recognize and acknowledge the tremendous investment of time and energy that you've put forward to participate in these proceedings and that it's a transparent process, and it's really rewarding to see how much interest and breadth that has come to us. And thanks again, and let's do it again tomorrow.

CHAIRMAN WEISENMILLER: Yeah, Rob, actually I do want to thank Laurie and her staff for sort of really jumping in and taking -- pulling this together and,
obviously, also to thank the PUC for their participation in sort of organizing things today.

MR. SOKOL: Day two starts at 9:00 tomorrow, just a reminder.

(Adjourned at 4:48 p.m.)