

California Energy Commission DOCKETED 12-EPIC-1
TN # 2864 AUG 24 2012

BEFORE THE
 CALIFORNIA ENERGY COMMISSION

In the Matter of)	Docket No.12-EPIC-01
)	
Electric Program)	Workshop re Clean
<u>Investment Charge Program</u>)	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:
 Tahsha Sanbrailo

APPEARANCESCommissioners 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

*Kevin Wing, San Joaquin Unified Air Pollution Control
District

Niall Mateer, California Institute for Energy and
Environment, University of California

*Carol Denning, NRG Thermal

Omar Siddiqui, Electric Power Research Institute

Ken Krich, California Institute for Energy and
Environment, U.C. Berkeley

Sarah Pittiglio, Air Resources Board

Tobias Park, U.C. Davis.

INDEX

	PAGE
Day 1: Clean Energy Innovation Priorities	6
Laurie ten Hope, Deputy Director, R&D Division	
Introduction	
Rob Oglesby, Executive Director, CEC	7
Opening Remarks	
Robert Weisenmiller, Chair	9
Carla Peterman, Commissioner	11
Anthony McAllister, Commissioner	13
Overview of the EPIC Decision	
Andrew Schwartz, Procurement Strategies Supervisor, CPUC	15
Cem Turhal, Procurement Strategies Analyst, CPUC	17
Overview of CEC Process & Schedule for Developing the EPIC Investment Plan	
Laurie ten Hope, Deputy Director, Research & Development Division, Energy Commission	
Garry O'Neill, Staff, Efficiency & Renewables Division, Energy Commission	32
Overview of IOU Process for Complementary Investment Plans	
Frank Goodman, Senior Technology Development Advisor, San Diego Gas & Electric	36
Break-out sessions	58
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.	

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

INDEX (Continued)

PAGE

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

Regroup and Recap on Breakout Sessions	125
Adjournment	154
Certificate of Reporter	155

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

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

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

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

20 I also want to let people in the room know that
21 this meeting is being WebEx'd and it will also be
22 recorded, so if some of you want to go back and check the
23 information later, it will be available online. And for
24 those of you who are connecting remotely, you will be on
25 mute through most of the meeting, we'll open it up when

1 we get to public comments. If you have a comment, please
2 raise your hand, your virtual hand, and type in your
3 question, and we'll address questions. We typically take
4 questions from the room and then turn to WebEx. With
5 that, I'd like to introduce our Executive Director, Rob
6 Oglesby, for an introduction to today's workshop.

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

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

23 Today's format, we'll have this open session
24 which will start very shortly, then we'll have some
25 Breakout sessions, we're going to reconvene in the

1 afternoon, and then we have another day of topics for
2 tomorrow, as well.

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

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

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

25 CHAIRMAN WEISENMILLER: Thank you, Rob. So I'm

1 the Chairman of the Energy Commission and I'm also in the
2 Scientist/Engineering slot at the Energy Commission, and
3 I am the Lead Commissioner on R&D. To my left is
4 Commissioner Peterman, who is the Lead Commissioner on
5 Renewables, and to my right is Anthony McAllister, who is
6 Lead Commissioner on Energy Efficiency.

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

16 We're happy to be here for the kick-off of
17 basically the Investment Plan process. And as Rob said,
18 we're going to adopt that in late October and this is an
19 important milestone in development of the EPIC proposal.
20 As everyone should know, innovation in energy is very
21 very important to our Governor, and we see innovation as
22 a way to help deal with the transformation of our energy
23 infrastructure and to deal with the challenges of both
24 climate change and the economic situation in California.
25 So it's a key area. I would certainly like to thank

1 President Peevey for his leadership in getting this EPIC
2 program set up, and we look forward to working with him
3 on this implementation.

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

24 COMMISSIONER PETERMAN: Good morning, everyone.
25 Thank you, Chair. I'm happy to be joining the Chair and

1 working with him on this Draft Investment Plan, and also
2 joining him in his congratulations of the PUC Board
3 adopting and establishing EPIC.

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

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

19 As the public member of the Commission, ratepayer
20 and public benefits are incredibly important to me, and
21 we want to make sure we're maximizing ratepayer value. I
22 am also especially interested in learning from local
23 governments how EPIC dollars can assist with greater
24 deployment of renewables in their jurisdictions. What
25 are the challenges you are facing today? And how can

1 additional resources assist you in overcoming them? With
2 that, thanks to everyone for participating and I look
3 forward to today's discussions. Thank you.

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

20 I wanted to comment briefly on the Bagley-Keene
21 Rules because one of the reasons I really wanted to be
22 here today was, since I am not on the RD&D Committee, but
23 I am on the Energy Efficiency Committee, this is a rare
24 opportunity that I have to interact openly with
25 Commissioners Peterman and Chair Weisenmiller, and

1 Bagley-Keene is meant to have open meetings, it's meant
2 to promote open meetings, and that's a good thing, so
3 it's great that everybody in attendance today and on the
4 WebEx can sort of hear us interact about these issues and
5 any ideas come up, or anything that you want to talk to
6 any of us about, you can do that within the restrictions
7 of Bagley-Keene, so I am trying to participate in as much
8 as I can, where I'm not on the committee because I want
9 to create opportunities for us to have that public
10 discussion and I think it's really important to get to a
11 good result. Obviously, I trust the Commissioners here
12 completely to guide and lead and develop the best plan
13 here, but I think, you know, I also want to provide my
14 input and this is one of the ways I can do that. So
15 thanks, everyone, for coming and I'm looking forward to a
16 great discussion.

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

23 We are here today, as our Commissioners and Mr.
24 Oglesby said, as a result of the CPUC's action and
25 decision on the Electric Program Investment Charge, so I

1 would like to introduce Andy Schwartz and Cem Turhal from
2 the CPUC, and they're going to walk through a
3 presentation of the decision, and that will set the stage
4 for our discussion today in our role as one of the
5 administrators of this program.

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

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

22 I also don't want to forget to thank also the
23 stakeholders who are here today. I understand, you are
24 also operating under very significant time constraints
25 and it is your input that will really shape and inform a

1 plan that we hope is successful in achieving the
2 objectives the Commission has laid out.

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

21 Also, a few other things that I want to just
22 mention briefly. I think what we can sort of acknowledge
23 that there are certain aspects of the Decision that were
24 highly controversial, particularly to the extent there
25 were areas that the Commission determined not to continue

1 to provide ongoing funding for. I don't want to spend a
2 lot of time today kind of re-litigating issues about why
3 or why the Commission should or should not have decided a
4 certain way, I really want to confine the focus on what
5 the Commission did do and kind of how we can best fulfill
6 the objectives that were laid out in the Commission's
7 decision.

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

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

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

25 The basis for this viewpoint is rooted amongst a

1 number of considerations. To achieve the goals set forth
2 by AB 32 and the Cap-and-Trade Program, there will need
3 to be fundamental changes in technologies and systems
4 used to provide energy services to Californians. To the
5 degree in which new technologies will need to be relied
6 upon, grows more evident if one looks in the 2050
7 timeframe where, in order to realize the goals of GHG
8 emissions to 80 percent at 1990 levels, the energy
9 systems will have to be almost fully decarbonized.
10 Carbon emissions will become increasingly expensive and,
11 as a result, providing energy services at reasonable
12 cost, strongly suggest a need for investing in tomorrow's
13 technologies today.

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

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

23 The support the EPIC Program provides is largely
24 intended to help fill in any gaps of funding that exist
25 or technologies that are forced to rely exclusively on

1 private capital. As this technology maturation curve
2 shows, in this particular version of the maturation
3 curve, which is developed by New Energy Finance, there is
4 perceived to be significant funding gaps in areas of
5 research and development, technology demonstration, and
6 certainly some areas with commercialization.

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

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

23 Previously the Public Goods Charge funded three
24 market support programs, and these included the Emerging
25 Renewables Program, existing Renewables Facilities

1 Program, and the new Solar Homes Partnership Programs.
2 In each case, a decision not to use EPIC monies to
3 provide ongoing support was based on different factors.
4 For the Emerging Renewables Program, the Commission
5 determined that consolidating this program with the Self-
6 Generation Incentive Program was preferred to continuing
7 funding for a separately administered program, given the
8 similar objectives between the ERP and Self-Generation
9 Incentive Program.

10 The existing Renewable Facilities Program, the
11 Commission determined that these facilities have ample
12 market opportunities via existing procurement programs
13 such as the Renewable Portfolio Standards Program.
14 Finally, the New Solar Homes Partnership Program, at the
15 time the decision was issued, the Commission's hands were
16 tied in terms of providing incremental funding for the
17 New Solar Homes Partnership Program because of the
18 statutory cap on the amount of ratepayer monies the CPUC
19 could provide to advance the objectives of the California
20 Solar Initiative, which New Solar Homes Partnership
21 Program was a part of. However, the recently approved
22 Budget Trailer Bill, which is Senate Bill 1018, appears
23 to give us some flexibility in the area and we remain
24 optimistic that future funding will be available to
25 support the New Solar Homes Partnership Program.

1 The program has an overall budget of \$162
2 million beginning in 2013, adjusted every three years to
3 account for inflation using the Consumer Price Index. I
4 should note that in 2012 of this year, the program budget
5 is \$143 million, based on the Commission's Phase 1
6 decision proceeding, which that amounts to be allocated
7 across different areas in the same proportion as the
8 budget in 2013 and onward. As you can see here, there's
9 going to be of the four -- that I listed earlier, the
10 three areas are the Applied Research, Technology
11 Demonstration and Deployment, and Market Facilitation --
12 there are going to be four Administrators, which we'll
13 get into, but of the four we kind of divided them into
14 two, the CEC and the Utilities. The CEC will receive \$55
15 million for Applied Research, Technology Demonstration
16 and Deployment will be divided between the Utilities and
17 the CEC, where the CEC will have, of that \$45 million, a
18 minimum of 20 percent will go into bioenergy projects,
19 and another \$30 million for the Utilities in the
20 Technology Demonstration and Deployment, and \$15 million
21 to the CEC to be administered by the CEC, will go to the
22 Market Facilitation area. And the program administrators
23 will receive 10 percent of the funds allocated to them at
24 12.8 for the CEC and \$3.4 million for the Utilities. The
25 CPUC will receive -- the program oversight will receive

1 \$.8 million for the program oversight of the EPIC
2 Program.

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

10 Under the terms of the Decision, the IOUs are
11 prohibited from using funding they're administering for
12 funding of generation projects. They may propose non-
13 EPIC funding sources to support such projects, but
14 utility administrated EPIC funds cannot be used for
15 generation project purposes. Each of the Administrators
16 are required to develop and submit an Investment Plan to
17 the CPUC for approval, which we'll get into that in a
18 bit, and once the plan is approved by the Administrators,
19 it will be implemented and those plans will use them to
20 directly fund the individual projects. So we'll get into
21 the timeline in a bit. Additionally, once the Investment
22 Plans have been approved, the Administration can --
23 Administrators can shift up to five percent of any
24 approved spending category into another approved spending
25 category, at their discretion.

1 The EPIC Program will have three Investment
2 Plan cycles, the first Investment Plan will be for 2012
3 to 2014, the second being from 2015 to 2017, and the
4 third Investment Plan from 2018 to 2020. Each Investment
5 Plan will have four areas where the Investment Plan will
6 be developed by the Administrators, and then will be
7 submitted to the CPUC for approval. The CPUC will
8 receive these Investment Plans and deliberate upon them
9 and then ultimately announce its decision in May of 2013
10 for the initial Investment Plan and December 2014 for the
11 second Investment Plan, and finally in December 2017 for
12 the third Investment Plan.

13 The guiding principle of the EPIC Program is to
14 provide ratepayer benefits, and that's the over-arching
15 guiding principle for the EPIC Program. The CPUC has a
16 mandate to ensure that any monies we direct the IOUs to
17 collect from programs like this under our own authority
18 provide benefits to the ratepayers. There are many
19 components to what is included in the notion of ratepayer
20 benefits, as can be seen in this slide. These types of
21 benefits line up with a variety of State goals, including
22 the reduction of GHG, enhanced reliability and safety,
23 among other things. However, some of the components
24 don't inherently result in ratepayer benefits. For
25 example, not all clean transportation projects provide

1 benefits to the electricity ratepayers. To address this,
2 and to further underscore the mutuality of providing
3 benefits that explicitly accrue to electricity
4 ratepayers, the Decision requires that proposed funding
5 activities are mappable to the Utilities' value chain.

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

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

19 Another key expectation that the CPUC has of
20 the Program Administrators is that they will coordinate
21 their efforts across not only the Investment Plans, but
22 also in consideration of activities that are taking place
23 elsewhere, for example, at a Federal level. Lastly, the
24 decision also establishes annual reporting requirements.
25 Each year, starting in 2013, every February 20th of each

1 year, all the way to 2020, the Program Administrators
2 will file Annual Reports, which we will discuss later.
3 The decision did not specifically identify what things
4 should be included in the Annual Reports, but I expected
5 the CPUC staff would be working with the Administrators
6 as those reports get closer to being due. And one more
7 thing to add, I guess, is the CPUC will hire an
8 independent evaluator to review the EPIC Program by 2016,
9 at least one independent evaluator will be hired by the
10 PUC by 2016 to see the progress of the program, overall.

11 And finally, you know, that concludes my formal
12 presentation. We're happy to take questions and -- thank
13 you.

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

17 COMMISSIONER PETERMAN: I'll just offer a quick
18 comment. Hello, everyone, this is Commissioner Peterman.
19 Thank you. That was a very good presentation. Just on
20 the New Solar Homes Partnership Program, to make sure
21 everyone is aware that the Energy Commission is still
22 continuing to fund and process applications for that
23 program. Another part of the trailer budget language was
24 to provide a \$25 million repayment from funds borrowed
25 from that program to the Energy Commission. That has

1 allowed us to process and fund all of the projects in the
2 established waiting list, as well as to accept new
3 applications, and so we look forward to opportunities to
4 continue to further fund the program through EPIC, the
5 funds are available in that program at this time. Thank
6 you.

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

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

16 MS. TEN HOPE: I think we've had a nice framing
17 of the EPIC Decision by our Commissioners and Executive
18 Director -- sorry? All right. Julie, I believe we need
19 to have you come up to the microphone for a question so
20 you can be heard on WebEx if you don't mind. Ma'am?
21 We're going to get a mic, but why don't you come up and,
22 then, for future questions we'll have a mic that we can
23 use in the audience. Please state your name and
24 affiliation.

25 MS. QUINN: Sure. Hi, Colleen Quinn with

1 Coulomb Technologies. Just sort of a question on just
2 about the process, how you anticipate the process to
3 work, so essentially the -- is it the role of the Energy
4 Commission to actually put the content of the Investment
5 Plan together?

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

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

8 Okay, all right. Thank you.

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

19 So this workshop today is evidence of the
20 workshop process that we intend to use, it's the Energy
21 Commission's tradition to have an open transparent
22 process, and it's also the expectation of the EPIC
23 Decision that we'll hold stakeholder workshops so that
24 there's ample opportunity to provide ideas and to watch
25 the processes as it goes forward. We will have this

1 workshop today, as Mr. Oglesby stated, we'll have a
2 duplicate workshop in Southern California, and then we'll
3 have an opportunity for written comments before the
4 Investment Plan, and then we'll go through a cycle of
5 workshops again.

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

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

22 We've also reached out to the Air Resources
23 Board and the Department of Energy to enhance a
24 partnership there, so we also look for opportunities that
25 we might partner, or be more aware of activities that are

1 coming up, or establish a line between them, they're
2 better handled somewhere else and so they're not best
3 suited in EPIC.

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

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

23 This, I wanted to just highlight the Energy
24 Innovative Pipeline that was articulated in the EPIC
25 Decision, and I think this is -- it establishes the

1 framework that the CPUC expects in the Investment Plans,
2 and it also kind of frames some of the similarities with
3 PGC Programs that have gone before, but also some unique
4 opportunities to connect programs along an innovation
5 pipeline.

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

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

1 this in a minute.

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

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

25 MR. O'NEILL: Good morning. I'm Garry O'Neill.

1 I work in the Renewable Energy Office here at the Energy
2 Commission. I'm going to be providing a brief overview
3 of the Breakout sessions this afternoon that we'll be
4 attending.

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

19 The purpose of these Breakout sessions is to
20 gather input from stakeholders regarding what potential
21 emissions we should include in the Investment Plan, so
22 we're looking for your ideas on what we should be putting
23 into this Investment Plan. We would like to know what
24 technologies, strategies, and topic areas we should be
25 covering. Also, we need to know how to prioritize these

1 investments, what are the most important investments to
2 make? What are the technologies that are nearest to
3 commercialization and, if we put a little money towards
4 it, it will take off?

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

13 So the schedule of the Breakout sessions will
14 all be fairly the same. We'll start the Breakout
15 sessions with brief presentations to go over the
16 logistics of it, provide any comments, how each one of
17 the facilitators would like to handle that, and then at
18 3:30 the breakout sessions will end, we'll have a break,
19 and everybody will reconvene back in Hearing Room A and
20 we'll go over a report of what was learned, a brief
21 report about what was going on over at the breakout
22 sessions.

23 We have some expectations for ourselves and for
24 you at the breakout sessions. We really want you to
25 identify yourself clearly, provide a name and affiliation

1 if you have one, we want the comments to be limited to
2 three minutes each, we expect there would be a large
3 participation and so we just need to keep the comments
4 short. If you have more comments than will fit in your
5 oral presentation, you can submit written comments to the
6 Energy Commission. Comments should be limited to the
7 scope of the EPIC Decision, we don't want to, as has been
8 said a couple of times, rehash issues, those should be
9 handled over at the CPUC. Any additional input, again,
10 should be provided in written comments to the Energy
11 Commission by August 10th, 2012.

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

22 At the second Breakout session, we're covering
23 Grid Operations, again, note the WebEx number if you're
24 online, and talks will include such things as Smart
25 Grids, Electric Vehicle Charging and Grid Integration,

1 Electric Vehicle Efficiency and Battery Use Storage,
2 Renewable Integration, Grid System Monitoring, and other
3 technologies that benefit ratepayers.

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

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

20 Written comments should be submitted to the
21 Energy Commission, to the Docket Office. Please write
22 down this Docket Number. Comments are due, again, August
23 10th, 2012. And with that...

24 MS. TEN HOPE: Thank you. Next, we're going to
25 transition to the complimentary Investor-Owned Utility

1 Program and Frank Goodman from San Diego Gas & Electric,
2 their Senior Technology Manager, is going to give an
3 overview of the process that the Investor-Owned Utilities
4 are using to develop their Investment Plan and schedule.
5 Frank, thank you.

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

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

1 are needed.

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

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

18 This is a slide -- someone had an alternative
19 version of this earlier, I believe, but this one shows
20 the policy environment that's shaping the work we do, and
21 I'm not going to go through it line by line, but you can
22 see things up there like renewables, rates, and
23 technology issues for Smart Grid, and integrating all
24 these new technologies that are coming of age into a
25 system that works and hangs together, which means you

1 need to overlay communication and control infrastructure
2 on the system, above and beyond what currently exists.
3 And so there's a number of policy and legislation that we
4 need to try and align with and meet these goals, and the
5 IOUs have collectively in our discussions indicated
6 strong commitment to meeting these, these policies.

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

22 The EPIC decision focuses the utility
23 activities on demonstration and deployment and that is
24 what we will do, we will abide by what EPIC directs us to
25 do, certainly, but it doesn't mean we will discontinue

1 other work, we'll be looking to continue outside of EPIC
2 or in partnership with other stakeholders' activities
3 across the full spectrum.

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

16 So the prototyping, even though it's still a
17 developmental step, is something that the utilities have
18 to be involved in because you're taking it out in the
19 field and putting it in an actual utility system, and
20 then helping the developer ring out the problems. We
21 have quite a few things going on right now in my own
22 company in that regard, and I know the other IOUs do, as
23 well. So, again, it's that point about the Utilities
24 must be involved across the full R&D cycle. And even
25 back upstream in the conceptual idea formulation for

1 ideas, the people with these ideas will come and knock on
2 our door and ask for feedback and reaction, and is this
3 something you would buy if we built it, and that sort of
4 thing.

5 This slide is a cross-cutting research and
6 development demonstration. It makes several points, one
7 is that RD&D for Smart Grid evolution and for development
8 of renewables and all the other pieces that I mentioned a
9 little while ago, it cuts across the full utility system
10 from customer to generation on the high end. And a
11 micro-grid is like a miniature utility system, it's an
12 islandable piece of a utility system, and a lot of the
13 infrastructure you develop for a microgrid really applies
14 in the inter-connected grid. A microgrid can be islanded
15 or it can be interconnected with a larger utility system,
16 and the control system that you might evolve, shown over
17 there on the left side, really what we want is a
18 microgrid controller that not only controls when you're
19 in micro-grid mold, but it acts as a distributed
20 controller for that substation area or piece of the power
21 system when the microgrid is not islanded. So what you
22 see here are basically the Smart Grid concepts that apply
23 not only at the microgrid level, but in an interconnected
24 microgrid, which is really part of the larger power
25 system. But, again, it's cross-cutting, we need to be

1 involved across the full spectrum, and it is also
2 collaborative because undertaking the development of this
3 infrastructure and the technologies to support it is a
4 large thing, beyond the resources of any one of the IOUs
5 in California. So collaborative is another key and this
6 project here is a collaborative example where there's
7 Department of Energy funding, there's California Energy
8 Commission funding from the old PIER Program, so that
9 brings in funding from all three IOUs through CEC, and
10 then SDG&E has some additional funding in it. And then
11 there's a little bit of vendor funding, too.

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

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

1 feed each other.

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

17 And then the areas of investment are shown
18 here. These are these phases of the value chain that
19 prior speakers have shown, and in bold you see the ones
20 that we see the IOUs paying particular attention to, with
21 the portion of the EPIC allotment that we get, and the
22 Grid Ops, Distribution and Transmission. And then, up
23 above in the upper half of the screen, Technology
24 Demonstration and Deployment is blocked off and
25 highlighted because that is specifically what EPIC

1 directs the IOUs to focus on. So in terms of our use of
2 EPIC money, it's going to go into Demonstration and
3 Deployment.

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

15 All right, now I wanted to compare the value
16 chain concept with what we do in Smart Grid reporting now
17 because we have requirements in the IOUs to report on our
18 Smart Grid program activities. So, first, here is that
19 value chain again that you saw in previous slides, and
20 that is spelled out in very precise detail in the actual
21 EPIC Decision and Order. And then here is the reporting
22 process and how we organize the reports for our Smart
23 Grid activity, and you see overlap -- T&D overlap, and
24 then Asset Management and Safety, and that aligns with
25 the things that I said we would be focusing on in that

1 prior slide, and it covers the top three items there in
2 the value chain on the left side of the screen, but we do
3 not get into the last two items. So you see the
4 alignment, and that makes our life easier, actually,
5 because there's two ways we benefit, one is we can better
6 synchronize what we do in EPIC with what's going on in
7 the Smart Grid development, and find R&D activities that
8 actually nurture and improve and enhance what we're doing
9 in the development of the Smart Grid, and then, secondly,
10 we'll make the reporting more efficient because we can
11 synchronize and organize the information the same way.

12 And then lastly, we have a schedule here and
13 you've seen the overall schedule before, but I'd like to
14 point out at the top of the slide there, the 16th and
15 17th dates, those are the IOU workshops that have been
16 mentioned by other speakers. August 16th, the Northern
17 California external stakeholder workshop, you're all
18 invited and welcome to come and listen or contribute,
19 hopefully the latter. And that one will be at a PG&E
20 center near Moscone Center, I don't have the exact
21 address in San Francisco, and it's been posted, a public
22 notice has gone out. The second one, it will be at the
23 Westminster Southern Cal Edison Center, they are hosting
24 it there, they have a new research facility with some
25 conference room space in Westminster, which is Orange

1 County, and a public notice has also gone out on that
2 one. So that is what I have. And should I now take
3 questions on this presentation? Or how do you want to
4 handle that? All right, we're opening it up for
5 questions.

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

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

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

23 MR. O'NEILL: We intend to be.

24 CHAIRMAN WEISENMILLER: I think the other one
25 is probably just a reminder. In the first Brown

1 Administration, when I went through the R&D stuff with
2 the Governor of the Utilities, one of the things that
3 really got my attention, and certainly had his concerns,
4 was to the extent there were affiliated companies that
5 some utilities and, actually, frankly, Sempra was
6 probably the worst, had a policy of doing R&D which could
7 be valuable to their affiliates if it worked, and if it
8 didn't work, it was ratepayer money. And so basically we
9 want to make sure that, as you frame these, that you're
10 pretty careful -- to the extent you have affiliates --
11 not to have R&D money go into thing that may profit them,
12 unless there's some value back to the ratepayers.

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

20 COMMISSIONER MCALLISTER: I wanted to make a
21 quick point, too. So, the distribution is one of the
22 areas that you're going to focus on, the IOUs are going
23 to focus on, and demand side management is something
24 that's going to be more with the Energy Commission. And
25 I would just point out that, in the context of everything

1 you've talked about, and what we all know the Smart Grid
2 and a lot of the information technologies that are out
3 there, and sophisticated bandwidth technologies and all
4 that, I think it's really important that those efforts be
5 well coordinated because, as you consider what you're
6 going to do to the distribution grid, and where your
7 investment priorities are, that demand side management
8 capability, particularly with demand response, but also
9 energy efficiency and storage and all that kind of stuff,
10 I think, is really important that those be highly
11 coordinated.

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

25 COMMISSIONER MCALLISTER: Yeah, great. And

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

9 MR. O'NEILL: Yep, and I'm in full agreement.
10 Thank you. Yes.

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

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

20 MS. QUINN: And let me just say, a second part
21 of my question is there are ongoing proceedings right now
22 at the Commission, including the Phase 2 of the OIR where
23 discussions about, you know, submetering protocol and
24 things such as that, that could arguably, you know, some
25 of the back office integration work, software, etc.,

1 could possibly be thrown onto a matrix that would
2 possibly then be funded by maybe one of these priority
3 programs. How are you integrating the existing
4 processes, the decisions that are ongoing, that could
5 possibly be put up there for funding for a solution for
6 some of these proceedings?

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

16 In terms of sort of how the plans will
17 ultimately be, either revised or whatever, in response to
18 stakeholder comment, Commission deliberation, I think
19 remains to be seen. Whether it's the Administrators
20 would file Addendums, or the PUC would go out with a
21 Proposed Decision with specific modifications to those
22 plans, and then get comment on them, that kind of remains
23 to be seen. But the proceedings will have the full
24 panoply of public comment and stakeholder engagement that
25 the Commission is committed to.

1 Regarding your second question, I think there
2 is a great deal of internal coordination that will need
3 to be done, so to the extent there are ongoing
4 proceedings that relate to certain issues that could
5 arguably be funded via EPIC, I think that kind of
6 conversation, dialogue, will have to happen internally,
7 as well with stakeholders, to figure out what is the
8 appropriate venue for funding. The intent of the EPIC
9 Program, though, is not to derail or through a wrench
10 into an ongoing process that predates the EPIC Program,
11 the Decision was fairly clear about that, I think, and
12 our intent is to, you know, further facilitate things,
13 not cause ideas or projects to have to go to kind of
14 stage 1 again. But there is a great deal of internal
15 coordination that we'll have to do.

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

25 MR. SCHWARTZ: Yeah, so the intent of the

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

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

25 COMMISSIONER PETERMAN: We don't at this time.

1 Thank you.

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

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

15 MR. OLIVER: So there will be --

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

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

21 MS. TEN HOPE: Yes.

22 MR. OLIVER: And then 2015 --

23 MS. TEN HOPE: Well, it's a three-year
24 schedule, so if we -- you might have the schedule
25 memorized of when the adoption is of each three-year

1 period, but we'll be executed solicitations on the first
2 three-year plan, going through a planning process for the
3 next one, and then implementing that, while then planning
4 the follow-on. Is that the question?

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

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

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

24 MR. SCHWARTZ: I think that that's correct,
25 yeah.

1 MR. OLIVER: Okay, thank you.

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

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

21 MR. BERMAN: I'm Mark Berman with Davis Energy
22 Group. So based on the schedule you've outlined, it
23 sounds as if, in about a year, the Energy Commission will
24 be releasing Opportunity Notices, RFPs, and the like.
25 Once specific projects are selected for investment, do

1 the funds have to be expended by the end of 2014? Or if
2 a project gets started around the end of 2013, funded
3 through this mechanism, can it extend into, say, 2015 or
4 2016?

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

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

16 MS. TEN HOPE: That's correct.

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

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

22 MS. PATTERSON: (Inaudible).

23 MS. TEN HOPE: Correct. Well, yes, for EPIC.
24 There will be, I mean, the Energy Commission will have
25 solicitations for remaining funds in the PGC area, so

1 there will be some limited solicitation opportunities
2 this year, but from the previous program.

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

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

8 MS. TEN HOPE: Each year.

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

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

15 MS. TEN HOPE: This is a new process.

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

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

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

25 MR. GOODMAN: A pretty strong preference that

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

11 MR. SCHWART: Yes, I think obviously we're --
12 the PUC at this point is largely deferring to the
13 proposals of the Administrators, they can develop their
14 Investment Plans, and the Commission will consider them.
15 In terms of whether or not there were sort of geographic
16 sort of restrictions, I think the decision, if I'm
17 recalling correctly, basically said if a project can
18 demonstrate that it has benefits to the electricity
19 ratepayers of an IOU, that project can take place outside
20 of an IOU's service territory. But, again, there's a
21 requirement that any project that is funded provide a
22 demonstrable or clearly articulable benefits to the
23 electricity ratepayers of the IOUs for the funding source
24 of this. So it's not a specific geographic, you know,
25 there's not a de facto or a categorical exclusion to

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 projects being funded that aren't in an IOU service
2 territory, but the benefits do have to accrue to those
3 ratepayers.

4 MR. MASON: Thank you.

5 MS. TEN HOPE: Do we have questions on WebEx?
6 All right. Commissioners, we were scheduled to reconvene
7 for the breakouts at 1:00. Would it be your preference
8 to break early and reconvene promptly at 1:00?

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

16 MS. TEN HOPE: Okay, we'll make sure we do that
17 when we reconvene, and we're expecting broad
18 participation in the WebEx -- in the breakout sessions,
19 and hope that comments will be provided there, as well.
20 So I need -- Garry, can you come back and put up your
21 slide that has the breakout information? In the back of
22 the room, you've heard "breakout, breakout, breakout,"
23 there are three separate flyers, the red one is Grid
24 Operations, and it has the room location for Grid
25 Operations, which is going to be the second floor here,

1 and the purple one is Energy Efficiency, and we wanted to
2 make sure that if we had a lot of people, we'd have room
3 for you to discuss, that's why we reserved a room at the
4 Secretary of State. Beth Chambers and Silas Bauer, can
5 you stand up? So if you have any questions about where
6 to go, these two staff members will direct you. There is
7 a map on the back, it's only a block and a half away,
8 which is a half a block away from La Bou, which is where
9 a lot of you will probably go for lunch, so it's right on
10 your path. And the third one is the Generation breakout,
11 that will be right here, and that's the one with some
12 blue lettering. Those of you who are participating by
13 WebEx, you will dial into the WebEx number that is on the
14 screen, and we'll see you back promptly at 1:00. Since
15 we're breaking early, we'll want to make sure we start
16 right away at 1:00 to give plenty of opportunity for your
17 discussion and input on the questions that are
18 articulated both on your agenda and on this handout.
19 Thank you.

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

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

22 MR. O'HAGAN: Good afternoon. This is Joe
23 O'Hagan. Once again, sorry for the delay, but we're
24 starting now for the Clean Energy Generation Systems
25 Breakout Session for the EPIC Investment Plan. Michael

1 Sokol had just spoke a moment ago and he's one of the Co-
2 Facilitators and also our colleague, Garry O'Neill.

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

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

1 the WebEx, as well, and we'll certainly give them
2 opportunities to speak.

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

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

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

1 A, we'll do a short summary to the whole audience.

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

9 One of the big issues, of course, of what we'll
10 need to grapple with here is how to overcome both the
11 technological and commercialization Valleys of Death, as
12 was discussed earlier today. And then, down below here
13 is a couple of our key policy drivers. Obviously, the
14 RPS is a significant one, Governor Brown's Clean Energy
15 Jobs Plan talks about having 8,000 megawatts of large
16 scale renewable, as well as 12,000 of localized, and
17 6,500 megawatts of combined heat and power. So that's a
18 large challenge for the state and we hope the EPIC
19 Program can help facilitate that happening.

20 Okay, you probably saw this graphic, as well,
21 it's just the Energy Innovation Pipeline, and there are
22 actually several variations on this. This shows, though,
23 that the money allocated in the EPIC Decision to the
24 programs, Applied Research and Development got \$55
25 million, Technology Demonstration and Deployment got \$45

1 million, with a set aside of 20 percent for demonstration
2 for bioenergy projects, and then market facilitation of
3 \$15 million, and the decision was fairly specific in
4 those aspects of market facilitation. And tomorrow's
5 workshop will address the market facilitation aspect in
6 great detail.

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

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

1 want to leverage as much other research funding as
2 possible, and certainly complement these other efforts.

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

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

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

25 Environment and Public Health. As you are

1 aware, a lot of the challenges that the state faces in
2 reaching the Renewable Portfolio Standard are
3 environmental concerns, so we are already seeing climate
4 change impacts on electricity infrastructure, so that's a
5 possible initiative, environmental barriers to clean
6 energy deployment, sustainable energy generation supply
7 chains, that's talking about alternative materials,
8 energy security, electricity generation impacts on public
9 health, generation effects on disadvantaged communities.
10 Those are all potential initiatives. Then, tomorrow
11 there will be the full discussion on market facilitation,
12 but a lot of these really tie in to the generation
13 question and some of these are here with the help, with
14 the performance data clearinghouse, permitting and
15 deployment facilitation tools, those sort of things, and
16 that will be discussed tomorrow, like I said.

17 And then here are some of the information on
18 the breakout sessions, which I believe are correct,
19 except the password for the remote access, there's no "T"
20 after the "@" symbol -- there is a "T?" Sorry, scratch
21 that, so they are correct.

22 Also, the information for submitting written
23 comments a week from tomorrow, by COB August 10, and
24 that's the last of that.

25 So I'd like to open it up to discussion of any

1 general questions right now before we get back to the
2 specific categories. And we have microphones here, so
3 please speak into the microphone clearly and state your
4 name and your affiliation, and once again, if you have a
5 business card, we'd love to get that, as well.

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

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

15 MR. SOKOL: Hello, everyone. I'm Michael Sokol
16 here with the Energy Commission. Thank you, Joe, for the
17 introduction and just a brief overview of what we're
18 looking at for potential initiatives within the energy
19 generation breakout. And so, really, what we're looking
20 for at this point is for each and everyone that has
21 comments related to the questions that are posed right
22 here specifically relating to any initiatives that you
23 can recommend within energy generation, and relating them
24 back to these questions for the ratepayer benefits, what
25 sort of issues would be driving the initiatives that you

1 propose. And so I think at this point, we can open it up
2 to anyone that has a comment or response to any of these
3 questions. And we could start off with the Energy Smart
4 Communities, so just thinking in terms of communities,
5 what are the technologies that we'd be looking to
6 demonstrate in communities? What are the needs to make
7 advances towards Zero Net Energy Communities? And how
8 does the EPIC funding fit into that overall big picture?
9 So is there anyone that has comments at this time?

10 MR. LONG: Thanks. Noah Long from NRDC and I
11 guess my real question is, it seems like a lot of the
12 categories overlap a little bit and that's probably
13 impossible to avoid altogether, but this one in
14 particular really seemed to overlap with the next one,
15 and then also some of the energy efficiency or grid
16 integration issues. And I'm just wondering if, in the
17 interest of reducing commenting, you know, we might just
18 integrate this into a couple of the other areas, rather
19 than having it be a standalone area because each of
20 those, you know, Zero Net Energy Buildings, to the extent
21 that it's about generation, it really fits into DG, and
22 then obviously there's a big efficiency component and
23 there's a whole other working group for efficiency. And
24 then storage and microgrids really fit pretty well into
25 the Grid Integration Working Group, which is a separate

1 working group. So I'm just thinking about writing
2 comments over the next 10 days and then wondering if it
3 might make sense to sort of collapse most of this one
4 into another one. And I don't want to, you know,
5 obviously we can do that on our part, but it might be a
6 general recommendation, as well.

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

17 MR. RAYMER: Thank you. Can you hear me? Bob
18 Raymer with California Building Industry Association.
19 And particularly on the Zero Net Energy Buildings --
20 Communities -- we have some of our largest builder
21 members that are already planning and have on future
22 plans effectively putting solar on not as a design, not
23 as an option, but as a standard feature. This is sort of
24 a new thing that I've seen happen over the past 18
25 months, it's sort of a function of the downturn in the

1 economy. During 2009-2010, we were building about 15
2 percent of normal. As we're coming out of that, builders
3 are trying to seek ways of differentiating themselves
4 from product that may be in foreclosure, maybe that they
5 built themselves, or other competitors. And so this is
6 starting to happen and, to the extent that EPIC can help
7 promote the massive application of distributed generation
8 on, let's say, this type of development, so much the
9 better. We're already seeing that with the New Solar
10 Home Partnership Program that's been very effective, we
11 just got the \$25 million back that Commissioner Peterman
12 spoke of this morning, that's been very helpful, but we
13 need -- industry needs to kind of make plans usually in a
14 two, three, four-year time period because these entry
15 level homes, these phased projects, are where the lion
16 share of housing will be coming from over the next 10
17 years. That's been kind of the strategy that we've seen
18 over the last 15 years. Small builders unfortunately are
19 taking a much smaller part of the market, and so we're
20 trying to find ways of getting this new technology into
21 the design and construction of these homes on a massive
22 scale, as opposed to, when it's offered as a design
23 option, solar is taken one to two percent of the time, if
24 that much. But as a standard feature, you skyrocket to
25 the 80 to 100 percent; the only thing that constrains you

1 is maybe the orientation of the house, but usually just
2 about every home in the community would get it, so just
3 food for thought.

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

9 MR. RAYMER: Applied research, one of the
10 curious things that I've seen is that three years ago if
11 you would have asked me, I would have said Integrated
12 Roofs were the wave of the future, that doesn't seem to
13 be the case right now. We're going through a period of
14 time where, for a large production builder, a lot of
15 solar, right now, at least, is being put on by a third-
16 party entity, and so that is bolt-on, the older style
17 bolt-on systems where you effectively have floor
18 penetrations to the roof per panel, and you've got X
19 number of panels on the roof. And so, to the extent that
20 we can find a way perhaps to, well, we've got to figure
21 out a way of financing and taking the newest level of
22 technology, the most productive level of technology, and
23 getting it into the industry as quick as possible. But
24 given past practice with construction defect litigation,
25 or whatever, a lot of builders are a little bit

1 apprehensive of grabbing on to something new that doesn't
2 have a tested track record. And so, to the extent that
3 we can find a sound historical basis, no matter how short
4 that history is, to give them some level of comfort, that
5 would be very helpful.

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

11 MR. MASON: Thanks. Paul Mason with the
12 Pacific Forest Trust. Our interest is largely in the
13 forested areas of the state and how we can use forest
14 biomass facilities, energy facilities, to dispose of the
15 waste from a lot of the forest restoration that needs to
16 happen, and it seems to me that one of our challenges is
17 in a lot of these small communities scattered around the
18 forested regions of the state, is how do we create
19 facilities that are small enough that you don't have to
20 feed them from a long distance where hauling the material
21 becomes uneconomical, so you either have small facilities
22 that are viable at that scale, or portable facilities
23 that could come in, be there for five or 10 years, move
24 to another place where you're accomplishing that waste
25 disposal function and creating energy at the same time,

1 reducing the fire risk in the forest where you're going
2 to reduce the risk of damage to infrastructure,
3 sedimentation, and to reservoirs, some of those things
4 that would otherwise impact ratepayers.

5 MR. SOKOL: Okay, thanks.

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

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

1 MR. SOKOL: Okay, thank you. I think we had a
2 question back here.

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

23 Now, at the community scale level, this is
24 Energy Smart Communities, exactly what you were talking
25 about, and almost every single topic that you presented

1 just a few minutes ago, there was a fit for it in every
2 single topic. And the ratepayer benefits are actually
3 quite boundless on this when you talk about, you know,
4 the reduction of catastrophic wildfires, and removing
5 this waste from around power lines, and so on and so
6 forth. We would be more than happy, actually, to put
7 together specific language on how that would work.

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

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

16 MR. SOKOL: Yeah, thank you. Are there any
17 general questions on the Energy Smart Community category,
18 or should we get a little more into the specifics? So,
19 what about Community Energy Storage? Is there a role
20 that EPIC funds can play to advance energy storage for
21 the purpose of mitigating variability of renewable
22 generation? Or are there any comments in general on
23 basically Energy Smart Communities and how they fit into
24 the innovation pipeline that has sort of been discussed
25 all day and that is up here? You know, if someone has a

1 good idea on technology-wise, and they want to get it
2 through to market, how can we help that?

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

20 MR. SOKOL: Thank you.

21 MR. PATRINOS: My name is Ari Patrinos. I'm
22 with a company in San Diego called Synthetic Genomics.
23 But I also have an affiliation with the J. Craig Venter
24 Institute. I assume that when we talk about sustainable
25 communities, as you had, we also include communities like

1 Universities and so on. It turns out the J. Craig Venter
2 Institute is currently building a zero carbon zero net
3 energy facility within the U.C. San Diego campus. We
4 expect to break ground within a year, a year and a half.
5 I just bring it to the attention because, as I mentioned,
6 academic or university -- universities also could be
7 energy smart communities, so it dovetails very well with
8 this particular initiative in EPIC.

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

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

20 MR. SOKOL: And then, just as one other
21 question related to Communities, that brings up a
22 question of scale. You mentioned University campuses,
23 and somebody mentioned multi-family housing, is there an
24 appropriate scale that we should be looking at or should
25 we be looking across the board?

1 MR. PATRINOS: Some of the campuses within our
2 state are of significant scale and could really transfer
3 into the broader communities. Again, for the reasons
4 you've described earlier, it's the place where
5 progressive thinking has a greater chance of making an
6 impact, a significant impact. I have another question, a
7 subsequent, so I'll give you my card.

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

10 MR. GOODSTEIN: So I'm Mark Goodstein. I'm
11 with Clean Tech Los Angeles, which is a public/private
12 collaborative of the research universities, utilities,
13 business associations, and industry in L.A. And just to
14 follow-up on this comment, we are -- I am relatively new
15 to the scene, but one of the programs that we are
16 launching now is an innovation grant pool that will take
17 industry input into specific needs they have, which we
18 think are good proxies for where the market is going,
19 combined with funds they provide, and we're here
20 specifically with regard to EPIC because we think that
21 finding public agencies that will match industry money in
22 this grant pool would be a fairly large leverage point
23 for, well, convincing industry to come on board, but also
24 to help us with one of our main missions, which is to
25 reduce the friction of getting clean technologies from

1 the bench to market.

2 MR. SOKOL: Okay. So are there any immediate
3 questions or comments? If not, let me pose to everyone
4 whether there are any initiatives that are not included
5 on this list, that maybe should be included, or vice
6 versa, if there is anything included that should not be
7 included and why. Yeah, just for the Communities, we'll
8 keep going through the progression. Are there any
9 comments on the WebEx? Okay, well, in that case, oh,
10 there we go.

11 MR. LONG: Noah Long from NRDC again. And I
12 apologize because this definitely gets into the issue I
13 was mentioning earlier of cross-cutting issues, and it
14 doesn't really fit very clearly under Generation, but I
15 do think it fits under Smart Communities, which is
16 integration of Electric Vehicle charging stations and
17 grid upgrades necessary to make those possible. I think
18 there's probably some crossover issues of application of
19 PV or other micro-generation technologies and the grid
20 upgrades necessary for those technologies, as well as the
21 grid upgrades necessary for charging stations, but it's
22 not, of course, exactly the same thing, but I hope that
23 whatever efforts are made here are at least thought of in
24 conjunction with efforts on integration of electric
25 vehicles.

1 MR. SOKOL: And just to clarify, there is a
2 little more extensive discussion of electric vehicle
3 integration in the Grid Operations breakout session, but
4 it's important to include, so thank you.

5 MR. RAYMER: Which is why I didn't necessarily
6 want to bring it up here, but, following on to that, we
7 are seeing a bit of a problem normally with projects
8 where the utility line extensions have already been built
9 up, because the economy thing didn't move forward quick
10 enough, particularly in the Edison area, we have seen
11 where, when you've got more than two homes with EVs that
12 are charging at the same time in the evening, we're
13 seeing transformers trip, and that is something that
14 could probably be easily addressed. Senator Corbett had
15 a stakeholder meeting in her district about a month ago
16 and there is some technology that's coming online that
17 two of the manufacturers spoke of, which seem to address
18 this, but the sooner we can kind of get that integrated
19 into common phase project design, the better. Right now,
20 there's very little understanding of it, if at all. The
21 manufacturers seem to have a grasp of it, but effectively
22 you can plug your car in, but it doesn't necessarily
23 start charging until later on when you're lying in the
24 queue, you know, you're up. And so at 3:00 in the
25 morning, you start getting juice, and then at 4:00 in the

1 morning, your next door neighbor gets it. So I'm a
2 mechanical engineer, and I don't quite grasp how it
3 works, but if they say it works, I'm going to take their
4 word for it. Thank you.

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

17 MR. MASON: Yes, my name is Tad Mason. I'm
18 with TSS Consultants. I'm a Forester and we -- our
19 clients include everything from investment banks, to
20 project developers, to tribes, to community-based
21 organizations, NGOs, and we are heavily involved in
22 development of community scale forest bioenergy projects,
23 combined heat and power. I'd like to concur with my
24 colleague, Pacific Forest Trust. I'm not related to
25 Paul, but we both share the same last name, and Julee

1 Malinowski-Ball, Julee has been doing great work for the
2 California Biomass Energy Alliance for a long time. But
3 the bottom line is, to get to your questions -- and
4 they're really good questions, by the way, what the major
5 barriers are to developing and commercializing clean
6 energy technologies -- in the context of community scale
7 forest bioenergy, it's the CapEx, the capital expense to
8 build, install, and operate, if you will, build, own or
9 operate, say, a three MW or less facility, you're looking
10 at \$4,000 to \$5,000 per KW and, you know, ultimately
11 between \$12 million and \$15 million for a three MW unit.
12 So if in this process of implementing EPIC, in the spirit
13 of technology demonstration these new gasification
14 technologies, which are quite promising, if there could
15 be some allocation of that \$9 million or so a year that
16 are carved out for bioenergy, if there could be some
17 allocation to specifically force bioenergy, that would be
18 very helpful. We'd like to see it scaled at three MW and
19 less, we consider that to be community scale. Looking at
20 all distances of 15 to 20 miles, maybe to get the forest
21 biomass energy in, we agree with Paul and with Julee, the
22 cost of transport is significant and, also, you're
23 mitigating air emissions by hauling shorter distances.

24 Speaking of air emissions, some of our clients
25 are Air Districts, and what I can tell you is much of the

1 forest biomass today that is being disposed of, as Paul
2 mentioned, is actually being piled and burned, and you
3 can imagine what the contribution of those emissions are
4 to the greenhouse gas climate change issues. If we can
5 gather that up and employ some rural community members by
6 gathering that up, processing it, and transporting it
7 into a small scale facility, and then converting that
8 into the gasification process, controlled conditions,
9 mitigating those emissions, it's a win-win-win.

10 Then lastly, this goes to ratepayer value. We
11 know that the IOUs are paying out significant cost
12 settlements as a result of power line started fires.
13 Between 2006 and 2010, so far, 23 fires have -- cost
14 settlements have been made with Cal Fire, U.S. Forest
15 Service, and BLM, amounting to about \$60 million. So
16 it's very significant. There's a huge settlement that
17 has still yet to be made in San Diego County for the
18 Witch, Rice, and Cajito fires, which may actually come
19 out to be about \$1.2 billion. So that's sort of the 800
20 pound gorilla in the room are these wildfires that are
21 actually being started by transmission distribution
22 systems, and if we can populate California's forested
23 landscape with these community scale facilities, we can
24 to a long ways to treating those facilities and on a
25 sustainable basis, of course, which is the only way to do

1 this, probably sustain those facilities for 30 or 40
2 years of services lives, so to answer your number one
3 question, though, it's all about CapEx, if there can be
4 some sort of a carve-out to cover that capital expense,
5 then the small project developers in these communities
6 can leverage that by going to the private financial
7 sectors and securing a balance of the CapEx to get those
8 projects up and running. So, a very promising field and
9 I think I'm going to yield the microphone. Thank you.

10 MR. SOKOL: Thank you.

11 MR. BOCCADORO: And thank you. Michael
12 Boccadoro on behalf of the Agricultural Energy Consumers
13 Association. I'll broaden the bioenergy discussion a
14 little bit. I think we're very supportive of what
15 forestry is looking to do. We would concur with Mr.
16 Mason's recent comments that the real barrier is capital
17 expenditure, both directly and indirectly, and when I
18 mean indirectly is bioenergy projects today are not
19 economic in the procurement programs that the utilities
20 are operating, whether it's existing feed-in tariff
21 program, or the renewable auction mechanism that the
22 Public Utilities Commission is implementing. Our
23 projects aren't competitive in large part because they've
24 got significant environmental compliance costs and
25 because of the capital expenditures. And to the degree

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 that you can either offset some of those environmental
2 compliance costs, or bring down the capital costs of the
3 project directly, those projects should be in a better
4 position to compete in procurement programs at the PUC.
5 So we're very supportive of what Tad Mason just
6 suggested, but broader than just forestry, it's all
7 bioenergy projects, whether they're wastewater, dairy,
8 agricultural, food processing, and the like. If you're
9 going to design a program, that should be broad in nature
10 and it needs to be tied back to the procurement programs
11 that the Public Utilities Commission is operating so that
12 these projects can be competitive in that environment.

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

21 MR. LONG: Noah Long from NRDC again. I guess
22 two points, one on this bioenergy discussion, just in
23 response to the last couple of questions, and then a
24 response to your previous question. First, on bioenergy,
25 I think, in line with the Commission, the PUC's decision

1 on this issue, I think, it'll be really important for any
2 funding for bioenergy projects to demonstrate the
3 environmental performance of the kinds of projects that
4 it's picking or it's supporting, and in particular I
5 think the question of which feedstocks are available to
6 these projects is going to be a very key one. There is a
7 mention of fuels that are being piled and burnt, I think
8 those are examples potentially of feedstocks that would
9 be appropriate to have environmental performance
10 increases for use as biofuels, but not all feedstocks are
11 alike. And I think it will be very important to the
12 extent that the Energy Commission does engage in
13 supporting these projects either directly by subsidizing
14 capital expenses, or other ways of bringing down the
15 costs of these projects, or indirectly through increased
16 innovation to bring down those costs in the long term,
17 that they do it in a way that ties those funds to
18 improved environmental -- improved and high environmental
19 performance of the projects. So I think it will be
20 important to develop those guidelines simultaneously to
21 any project specific applications. And then, secondly,
22 just getting on an entirely different topic relating to
23 your first question here, I think -- I'm not sure this is
24 a specific recommendation for the kinds of project, but
25 the area of innovation that I think is really important

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 for distributed generation is installation costs
2 investments, and I think there's probably both physical
3 innovations that could happen with regard to solar PV
4 technology, I've seen a couple of companies recently come
5 up with panels that have built in essentially racking --
6 light-weight racking that allows for very low cost
7 installation. But potentially other kinds of innovation,
8 business model innovation that also reduces the cost of
9 installation. We've seen really remarkable reductions in
10 per watt costs of the PV panels in the last few years,
11 I'm sure you all know, as well, or better than I do about
12 that, but I think the costs of installation have not
13 reduced at the same rate. So I think there's real room
14 there for innovation and I would recommend analysis of
15 that and then ultimately some investment in that.

16 MR. SOKOL: Okay. So something that you sort
17 of touched on in the response, too, is relating to the
18 integration technologies and strategies, and that's
19 really getting in to think about some of the deployment
20 strategies to make optimum -- to take advantage of the
21 optimum resource that's available, some of the other
22 system components that would go into it, like the racking
23 you mentioned. Is there room for innovation? Or can we
24 think of any initiatives that can cover some of those
25 innovations that are needed? Or maybe I should ask, so

1 we've covered bioenergy a little bit, but are there
2 innovations that are needed within other technologies,
3 specifically distributed generation? And what is the
4 role for EPIC to complement the existing funding sources
5 for those innovations?

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

22 MR. SOKOL: Okay. Are there other issues or
23 potential initiatives within the distributed generation
24 category that maybe are not listed here, but do merit
25 some investment? Okay, so, yes, then on that note, we'll

1 move on to the next category which is Utility Scale
2 Generation.

3 MR. O'HAGAN: Hi, this is Joe O'Hagan again.
4 Here's a list of the potential initiatives. Clearly,
5 there's a vast number of renewable energy technologies
6 that we could possibly use to help the state reach its 33
7 percent, or RPS goals. There's really a need for
8 technologies to reduce the cost of utility-scale
9 renewable energy. There's a need for efforts to address
10 the intermittency issue associated with a lot of our
11 utility scale renewable energy generation. And so, as I
12 mentioned earlier, here are several possible initiatives
13 under this area, but the question we have is, where
14 should we focus the EPIC funding in terms of what
15 technologies are close to commercialization and that
16 funding for a demonstration project could actually help
17 those technologies reach that stage. There's also a need
18 for applied research that would be sort of either lab
19 scale, or pilot scale, or just modeling efforts, or
20 things like that, to address this issue. The same can be
21 said for storage. There's a lot of efforts going on in
22 energy storage, there's a number of demonstration
23 projects. Are there still opportunities for the EPIC
24 Program to demonstrate or conduct applied research on
25 utility scale storage? So if there are any questions or

1 comments. Well, just in general, you know, one of the
2 questions is should we focus on very near term
3 technologies or maybe something like offshore wind that
4 we might not see for 10 years or more there. So, please,
5 go ahead.

6 MR. LONG: Yeah, this is Noah Long from NRDC.
7 I would definitely endorse looking into offshore wind,
8 you know, floating wind turbines if there's definitely
9 some pilots out there. I know there have been some
10 interests in floating wind turbines, pilot programs in
11 California. I think that's an excellent area that would
12 really expand our capability to bring in a diverse array
13 of wind and also renewable technologies. I think I would
14 definitely endorse putting some resources there. And
15 then, sorry, oh, and the other area -- I had another
16 point and I lost it for a second -- the other thing I
17 would mention here, it's not explicitly mentioned,
18 although it does say integration technologies and
19 strategies and I think it's covered under that general
20 point, which is forecasting technology and balancing area
21 integration, or some of the work that's being done under
22 Order 1000, between various balancing authorities to work
23 together to better move renewable energy between
24 balancing authorities, and also develop communication
25 abilities between balancing authorities so that variable

1 technologies that are coming on and off at different
2 times can support one another and reduce the need for
3 fossil back-up.

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

6 MR. RAYMER: Thanks. Bob Raymer. And this is
7 more of a political observation. I've noticed over the
8 last 12 months under the dome, particularly with the two
9 energy related committees in the Capitol, in the Senate
10 and the Assembly, that both Chairs and, to a large
11 degree, probably the majority of both of those committees
12 are very interested in seeing results of something funded
13 today, to see those results yesterday. So, in essence,
14 they seem to have a strong desire for incredibly short
15 term results. I don't know if term limits has any impact
16 on that, but the fact here is that interest seems to have
17 grown substantially in just the last 12 months. And so,
18 to the extent that -- and this has been going on with
19 PIER and other endeavors for such a long time. You want
20 to fund everything, but to the extent that you can sort
21 of focus -- like utility scale storage, that has
22 obviously short term benefits, major short term benefits,
23 particularly the peak load strategies and a host of
24 others. So, to the extent that you can focus primarily
25 on those things that will in a matter of years show some

1 manner of positive result would be fantastic, I mean,
2 from a political standpoint because, as was mentioned
3 this morning, you've got three different tracks, you
4 know, three different three-year tracks coming on and,
5 like I said, the Legislators seem to be incredibly
6 interested in seeing those results yesterday.

7 MR. O'HAGAN: Well, thank you. Certainly the
8 point is, you know, our renewable portfolio's goal for
9 2020, that's only eight years off, and clearly we have a
10 long way to go, so the question is what can EPIC do,
11 recognizing it's just starting up, to get some results
12 that can help us reach that goal. Any other questions?
13 One of the things that's going on with offshore wind, for
14 example, is that the Department of Energy, the U.S.
15 Department of Energy, is putting a lot of money into
16 offshore wind. A lot of that is focusing on shallow
17 water situations on the East Coast, but they are also
18 looking at doing demonstration projects, possibly off
19 California, or Oregon, or Washington, you know, they had
20 a solicitation out there. So the DOE is putting a lot of
21 money towards that. Do you see opportunities for EPIC in
22 terms of California specific issues to address offshore
23 wind, you know, whether it's technology, better anchoring
24 systems, better ways to lay submarine cable,
25 environmental issues? Okay, it's just a thought.

1 Integration Technologies and Strategies, we
2 discussed some of those with the community scale one.
3 Certainly a lot of opportunities for utility scale, PV
4 racking systems, thermal solar racking systems that
5 support, any thoughts in that regard? Okay, I get this a
6 lot, so... Okay, well, in terms of our list of utility
7 scale initiatives, can you identify any others that we
8 may want to address?

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

21 MR. O'HAGAN: Okay, thank you. Is there
22 anybody on the WebEx? No, okay. Well, I think we're
23 going to keep the agenda -- okay, the next topic is
24 Environment and Public Health. This would include
25 climate change effects on the electricity system,

1 environmental barriers, as Noah just mentioned, in terms
2 of large scale of solar developments in the desert, you
3 know, five square miles of graded effects on the Desert
4 Tortoise; is there research we can do to address those
5 issues to help facilitate deployment of those?

6 MR. LONG: This is Noah Long from NRDC again,
7 thanks. Yeah, I think this is a really important area
8 and I would highly encourage collaboration with the
9 effort being done at the Commission within the context of
10 the DRECP, in particular. I think there's a real need
11 for analysis of landscape level impacts, appropriate
12 mitigation, and best design of reserve areas. Some of
13 that analysis is being done already at the DRECP. I
14 think one of the areas that's least far along is analysis
15 of avian impacts in the context of wind within the DRECP,
16 migration pathways, current population dynamics, and
17 appropriate distances for particular bird species,
18 endangered bird species, Bald and Golden Eagles, Condors,
19 as well as migratory birds and bats. I think that data
20 is -- there's some efforts to collect some of that data,
21 but a lot of that data is sorely lacking. And if there's
22 funding to facilitate that quickly, I think the DRECP
23 will be a far more effective effort and more likely to
24 garner accounting support, which is so important. In
25 addition, I think there's a real need to help support

1 counties with their own analysis and energy planning
2 within the context of the DRECP and ensure that they are
3 supported, so direct grants to counties within this
4 context, I think, could also be very useful.

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

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

19 MR. O'HAGAN: Okay.

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

1 value of that research.

2 MR. O'HAGAN: All right, thank you. I mean,
3 one of the -- EPIC is public interest, so the research we
4 conduct will be public information. Obviously there
5 might be some confidentiality issues, but for the most
6 part that information will be available to the public.
7 Okay, one of the topics for the environment that the EPIC
8 Decision addressed is public health. You know,
9 California is blessed that we don't have a lot of coal,
10 where you have a lot of the issues associated with coal-
11 fired generation, mercury and whatnot, but yet there are
12 public health effects, so are there any thoughts on what
13 initiatives we should look at for public health?

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

22 MR. LONG: Yeah, next -- for tomorrow, I'm
23 going to get my own mic, or maybe I'll just stand up
24 there with you guys. I think I just want to commend here
25 the work that the Energy Commission has done in the past

1 on research on the effects of electric generation on
2 public health, and also the effect of climate change on
3 electric generation; I think both of those areas -- I
4 know there's a separate workshop on that coming up, but I
5 think both of those areas are really critical. There's a
6 couple of examples, but increased impacts of heat on
7 electric grid functionality and dependence, increase or
8 decrease in rain levels on our hydro system, there's been
9 really great research that's been funded by the Energy
10 Commission in that regard, I think. Changing wind
11 patterns, the effect on the availability of wind resource
12 for electric generation, I think is going to be a really
13 critical area going forward. I think there's a number of
14 areas that the Energy Commission has already identified
15 over the last years through the PIER Program, and I just
16 really want to commend the Commission for that and
17 recommend that that area is a continuing priority going
18 forward.

19 MR. O'HAGAN: Thank you. It will certainly be
20 considered. One of the other initiatives we identified
21 is sustainable energy generation supply chain. One of
22 the issues there is we're looking at security, there is
23 rare metals that might be needed for some of the
24 technologies, access to that. So that's something to
25 consider and we have -- please go ahead.

1 MR. MASON: Hi, Paul Mason with Pacific Forest
2 Trust again. Going back to the climate change impacts on
3 energy infrastructure, I think it will be important to
4 take a look at, right now, huge swaths of California's
5 forests are already overly dense, threatened by disease,
6 unhealthy, and it's one of the reasons why we're very
7 interested in trying to utilize some of the waste
8 products from thinning as an energy source. As the
9 climate changes and those stresses on the forest change
10 further, I think it will be, again, important to look at
11 what sort of structure do we want to be creating and
12 leaving in these forests that is both more representative
13 of historic conditions, but also appropriate to this new
14 climate that we're going to be working in, and make sure
15 that we're trying to leave forests in a resilient
16 condition going forward and, again, provide some guidance
17 to how any forest materials are being used in this EPIC
18 Program, that we leave the forest in an appropriate
19 condition going forward.

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

22 MR. MASON: No, it's fine.

23 MR. O'HAGAN: Please go ahead.

24 MR. MASON: Tad Mason again, Forester, TSS
25 Consultants. Speaking to the climate change discussion,

1 impacts on electricity infrastructure, we know, and Paul
2 Mason mentioned this, that due to climate change we've
3 seen some really significant changes in our forest
4 structure, both health and resiliency to fire. But where
5 the nexus is regarding infrastructure, between 2006 and
6 2010, we saw the Catastrophic Event Memorandum Account
7 which is maintained by the IOUs, come in at \$244 million
8 request for ratepayer compensation to address Park Beetle
9 infestation and mortality, primarily in Southern
10 California. But this is that nexus, though, with
11 electricity infrastructure, if you will, and basically
12 the Bark Beetle infestation is primarily due to climate
13 change, I mean, we understand that and, in order to get
14 around that, of course, and address this, we need to
15 reduce our stocking levels in our forests, thin those
16 forests, and hopefully divert that forest biomass into
17 distributed generation along the lines of community
18 scale, that is very important. Now, the other item here
19 in number 4 on your list is public health. We know, and
20 several of our clients are Air Districts, we know from
21 monitoring air emissions during wildfire events that
22 there are significant impacts on local populations.
23 We're actually seeing communities get up and leave as
24 these wildfire events transition through their nearby
25 landscapes, so if we can proactively thin those forests

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 and divert that unnaturally high levels of forest biomass
2 into a controlled gasification or a controlled combustion
3 environment, we'll mitigate those air emissions and also
4 return our forests to a more healthy condition, so just
5 an observation.

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

10 MR. WING: Good afternoon, thank you. This is
11 Kevin Wing. I'm with the San Joaquin Unified Air
12 Pollution Control District. And, you know, I wanted to
13 hold my comments for the public health section, knowing
14 that it was coming up, but like Mr. Long said, I know
15 that there are some big crossover with other sections
16 like the Distributed Generation. You know, we would like
17 to see progress and technologies that are going to be
18 zero and near zero emission technologies. I know that I,
19 here at the District, have worked directly with our
20 Technology Advancement Program, and we've been developing
21 that over the past couple of years and are looking to do
22 demonstrations on that type of project and would like to,
23 you know, going to the purpose of the breakout session on
24 one of the earlier slides, work and see how we can
25 cooperate and make sure that we're collaborating our

1 efforts and our work towards determining where we can
2 meet these distributed generation needs in the future
3 with technologies that are zero or near zero emission for
4 NO_x and PM, and you know, the criteria emissions that
5 we're primarily concerned within meeting the National
6 Ambient Air Quality Standards. You know, I'd love to be
7 able to work with the EPIC Program in the future with our
8 program and find ways where we might be able to
9 coordinate our funding opportunities. This current
10 fiscal year we have budgeted almost \$8 million towards
11 demonstration projects, and we'll be opening a Request
12 For Proposals for projects that would that include
13 looking for renewable energy technologies that overcome
14 barriers to bringing zero and near zero renewable
15 energies into the Valley, to meet that Valley need, where
16 we have this tremendous NO_x and long term projects where
17 we're looking at 2023 attainment standard deadlines and
18 2032, you know, even further down the road. I just
19 wanted to mention that and see if there's something that
20 we could work with, you know, together and collaborate
21 those efforts. And also, when we're selecting our
22 projects and we're doing that, it would be nice to be
23 able to work with CEC and maybe somebody at EPIC to help
24 us make sure that the projects that we do favor and
25 select for funding are things that really do meet

1 California energy needs, in addition to, you know,
2 valuing energy needs and then how that works, we don't
3 have the same kind of connection with the energy grid
4 that you guys do, so I do hope that we have an
5 opportunity to collaborate and meet some of those broader
6 term goals with our program, going forward.

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

10 MR. PATRINOS: I'm Ari Patrinos from Synthetic
11 Genomics. As my colleagues spoke about the forests, I've
12 been thinking about our own predicament. We have made a
13 significant investment and have great plans about an
14 algae facility in the Imperial Valley, and in the
15 process, of course, have become acutely aware of the
16 dangers that have come about, both dangers and maybe an
17 opportunity with shrinking of the Salton Sea. And it is
18 related to some of the items on this particular category
19 that you show here, both in terms of the environmental
20 barriers perhaps to clean energy deployment, as well as
21 the impacts on public health from the shrinkage of the
22 sea, although I can't blame the electricity generation in
23 this respect. But the energy generation in disadvantaged
24 communities is certainly something we've become more and
25 more familiar and aware. I recognize, of course, that

1 all these problems are very much associated with almost
2 intractable water problems that are faced, especially in
3 Southern California. But I wanted to raise that because
4 it is a part of the country that faces a particularly
5 acute problem that requires quick solutions. The sea is
6 shrinking almost by several inches every year and, at the
7 current pace, it will disappear by the end of this decade
8 with a whole lot of very serious problems in both
9 environment, sustainability, water, and energy. Thank
10 you.

11 MR. O'HAGAN: Thank you very much.

12 MS. WINN: Hi. Valerie Winn with PG&E again.
13 I think, also, as we look at a lot of these initiatives,
14 I've been hearing a lot of focus on, you know, electric
15 generation, and so when I looked at that first initiative
16 that's talking about the climate change impacts on
17 electricity infrastructure, I'd also like for us to think
18 a little bit more systematically, not just on the supply
19 portion, but also climate change has impacts on air
20 transmission system, it has impacts on transformers, it
21 has impacts on all parts of the system. So I think as we
22 look at analyzing what are the impacts, then also
23 thinking about what are some of the solutions, like what
24 are some of the engineering solutions for making
25 transformers more resilient if there's a sustained, you

1 know, heat wave, as opposed to always thinking about how
2 do we get more generation, but also how do we use our
3 existing system more effectively.

4 MR. O'HAGAN: Thank you.

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

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

22 MR. O'NEILL: I just wanted to ask some follow-
23 up questions from our earlier commenters. I'll try to
24 keep them very broad, but I think they might be mostly
25 focused on bioenergy. We were talking about more

1 bioenergy facilities and forested regions, or Urban
2 Wildland Interface regions. My conversations with folks
3 is there may be infrastructure issues specifically with
4 tying into the electric grid, things like that and,
5 should EPIC funds be used to kind of address those
6 issues? Or are those even a big enough barrier that we
7 even need to address?

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

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

1 isn't usually our problem.

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

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

1 want to -- and there we have a consensus.

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

16 MS. MALINOWSKI-BALL: Two comments, actually,
17 in response to that. First of all, I think the Energy
18 Commission actually does a pretty good analysis on a
19 fairly regular basis about the availability of biomass
20 material out there, stuff that I've seen from them in the
21 past has been quite good. And Tad may be able to answer
22 this better than I can, but it's probably a smart
23 business decision not to put a plant, really, if there
24 are competitors in your fuel markets. Nothing you can
25 do, really, about the plants, the existing infrastructure

1 that's there now, but if you're going to build a new
2 plant, you're not going to build it next door to an
3 existing plant, especially if you're going to build it
4 smaller, community scale, because you're never going to
5 be able to afford that. So, I'm not sure that's the best
6 place to put money because I think, you know, smart
7 business decisions say that you're not going to do that.
8 And Tad does fuel surveys all the time, and I'm sure he
9 advises his clients similarly.

10 MR. MASON: Tad Mason again, TSS. Many of our
11 clients are investment banks that are looking at
12 investing in both community scale and industrial
13 commercial scale facilities, and the question of
14 feedstocks is very high on their list. Initially, many
15 of these investment banks were involved in the 1980s
16 during the tool-up, if you will, on the biomass industry,
17 and there's a lot of lessons learned from that and one of
18 them is this feedstock question. So it's extremely high
19 in their mind that there be affordable feedstock on a
20 sustainable basis, for at least the service life of the
21 facility, 30 to 40 years, and that is one of the first
22 gates, as Julee mentioned, that these investment banks go
23 through before making a decision to pull the trigger and
24 actually issue capital funding or debt funding for a
25 project. So, while feedstock is a great question, and

1 sustainability is really key, many times -- most times --
2 the private sector answers that very quickly when looking
3 at investing in a project.

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

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

25 MR. WING: Yeah, thank you. I think that the

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

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

22 MR. O'NEILL: Those are all the follow-up
23 questions I had. Are there any other comments from the
24 audience? So I guess we're going to move on to the
25 market facilitation. This is going to be covered in

1 depth tomorrow. The potential initiatives for this
2 category are performance data clearinghouses, high
3 resolution, regional resource assessments, and planning
4 tools, permitting and deployment, facilitation tools,
5 innovation clusters, workforce development, and
6 potentially some others. So the whole idea behind this
7 is how can we help facilitate the market? What can we do
8 to provide more data out there, permitting assistance,
9 guidance, information? What is needed out in the
10 marketplace so that we can provide some help? And with
11 that, I'll actually just open it up to the floor, see if
12 there's any comments or questions, or --

13 MR. RAYMER: Thank you. Bob Raymer with
14 California Building Industry Association. And it's been
15 kind of hard as we've gone through these individual topic
16 areas to figure out where I should really get into the
17 New Solar Home Partnership Program. This probably seems
18 to be the most obvious. After passage of SB 1 in 2006,
19 we unfortunately saw the price of residential solar, PV
20 in particular, sort of skyrocket, about 25 percent, and
21 it went up and stayed there and plateaued for about three
22 years. On a positive note, it's really taken a drop now,
23 the price is coming back down. I couldn't even begin to
24 tell you where it is today. We're getting facts and
25 figures that, you know, there's a wide variation, but one

1 thing is clear, the price is coming down. Having said
2 that, as I mentioned at the beginning of today's breakout
3 session, we've seen an interesting thing occur over the
4 last year and that is several large production builders
5 who have started putting solar in as a standard feature,
6 as opposed to an option. There's a gravitational effect
7 to that and that is, over the course of 2012 and 2013, as
8 these large production builders have these projects that
9 have installed solar as a standard feature, there's going
10 to be a variety of other builders who are on the fence,
11 who are going to have to make a decision, "They seem to
12 be marketing their homes quite well, what's the problem
13 with putting solar on the roof? Maybe I'll do it, too."
14 And we suspect there will be a natural synergy on that
15 that will effectively sort of snowball. The problem that
16 we ran into as we left 2011 and into 2012, as you may
17 know, the financing of the New Solar Home Partnership was
18 disrupted for a variety of reasons. We got the loan
19 repayment, there's some other loan repayments that may
20 well be coming forth in 2013, next June, I'm not counting
21 on that, but the fact of the matter is we have a very
22 aggressive goal, to have all new residential zero net
23 energy by 2020; that is a steep hill to climb. And to
24 get there, we've got to make some big steps in the next
25 couple, I'd say, two to three years. And so with that,

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 to the extent that the Energy Commission in developing
2 the Investment Plan here, can focus on mass application
3 of solar, potentially the production housing stock, I'm
4 not saying discount small individual homes, or whatever,
5 that's not at all what I'm saying; but, to the extent
6 that they can help with the permitting and the
7 administration of the New Solar Home Program and make
8 sure that that funding has some level of certainty, at
9 least over the next, I would say, 24 months to 30 months,
10 that is going to be sort of the game changing time period
11 that we're focusing in on. And so, to the extent that
12 that money can be used to help offset further that
13 upfront cost, it will have an extraordinary impact. And
14 I suspect you're going to see significant percentage of
15 the industry doing this in a short period of time. If we
16 run into another disjunction in the funding, it could
17 take us three to four years to recoup from that. And
18 that almost happened back in May and June with the likely
19 prospect of that funding simply stopped, and you had
20 major builders who would have just said, "We're not going
21 to do this now." And given the way that the decision
22 making process works with all large companies, it might
23 have taken two to three years to get back to the point
24 where they are right now. Fortunately, that funding came
25 through, that funding is also going to be eaten through

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 very very quickly, as Carla mentioned this morning. So
2 with that, to the extent that we can place a priority on
3 at least the short term financing incentives for the New
4 Solar Home Partnership, that would go a long way to
5 getting us to 2020. Thank you.

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

9 MR. RAYMER: Yes, there are. And I've been
10 working on a task force with a few others in this room,
11 that the Office of Administrative -- the OPR -- has been
12 working on this for the past six months, they just
13 published a guidebook, it's a nice 80-page document that
14 local jurisdictions can use so that they don't have to
15 reinvent the wheel, or they can simply look at this
16 document and a number of important questions at the local
17 level are answered. We're also making some changes to
18 the Building Code where, at the time the Building and
19 Fire Safety Provisions of the Code were developed, in
20 some cases 20 and 30 years ago, it didn't envision
21 photovoltaics. And there's no reason that you need to
22 insulate the bottom of the photovoltaic system, there's
23 no reason to put a sprinkler system under the bottom of
24 the photovoltaic system, depending on where it's located
25 on a building. So that being the case, we've been able

1 to identify a host of these, we're already going through
2 the State Fire Marshall with some regulatory changes in
3 this building code cycle, so with that, to the extent
4 that the Energy Commission, the Fire Marshall, the
5 Building Standards Commission, and a few others, could
6 continue to work together to take this document that OPR
7 has produced, and to enhance it down the road, that's
8 just one more thing that local jurisdictions aren't going
9 to have to invent on their own. And I think you're going
10 to find probably within a year a lot of these huge
11 variations in permitting fees, sometimes a thousand fold,
12 won't be happening anymore. I mean, there's no reason a
13 local jurisdiction should be charging more than \$130.00
14 or so to permit a PV system on a residential dwelling,
15 you've got some that are \$1,500. It's awful. But this
16 is so new to them, they're trying to figure out how to do
17 it, and hopefully this document is going to help.

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

19 MR. MASON: Paul Mason with Pacific Forest
20 Trust again. I would just echo that I do think there's a
21 role for some higher resolution resources that's been
22 planning to identify where some of the greatest
23 ecological benefits would be from dealing with some
24 forest thinning activities to support a forest biomass
25 operation. There's been a number of those over time.

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 I'm not sure all of them have been at a particular useful
2 resolution, and so I think, in terms of potential ways to
3 spend some of the EPIC funds, that may be a useful way to
4 do a higher resolution evaluation of that.

5 MR. O'NEILL: Are there any other resource
6 investments that would be beneficial for any of the other
7 technologies? Any other comments or questions? WebEx?
8 Okay, we're going to go ahead and run through the
9 questions again, to take a look at these from a broad
10 scale throughout the entire scope, all along the
11 pipeline. Are there any major barriers? Where should
12 funding be placed? Where should we be prioritizing our
13 funding? Any comments, let us know where the priorities
14 should be, where the funding should go, those types of
15 things, what barriers we should be addressing, over-
16 arching comments, we'd appreciate those.

17 MS. WINN: Valerie Winn with PG&E. I think we
18 might get into some of these questions tomorrow, like
19 during some of the permitting and the regulatory
20 streamlining panels, but certainly, you know, as PG&E has
21 done work in the past on trying to commercialize some of
22 the clean energy technologies, like WaveConnect was a
23 project that we were looking at with wave energy, what we
24 discovered was that sometimes that's an awful lot with an
25 emerging technology to take on that responsibility for a

1 single company, and so we've actually been advocating
2 that perhaps the State should be looking at some of these
3 technologies and permitting particular areas that could
4 do the environmental reviews, and do some other things,
5 so that developers would know upfront that this is a go
6 area, and it's ready to go, and the State could perhaps
7 auction off development rights, then. I think as we look
8 at permitting and how to make that easier for folks, that
9 that could be one way to really help get some of these
10 newer technologies out and deployed.

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

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

25 MR. O'NEILL: Do you have an idea what a

1 particular initiative would be, or something that EPIC --
2 a program that could be developed under EPIC that could
3 help overcome that barrier?

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

9 MR. O'NEILL: Okay, thank you.

10 MR. LONG: This is Noah Long from NRDC, just a
11 quick comment on market facilitation, two things. One,
12 just to sort of cut and paste my previous comments on
13 large scale generation analysis and environmental
14 analysis input, you know, I think appropriate support for
15 DRECP and appropriate research for permit requirements
16 for wildlife impacts would be really helpful as a market
17 facilitation tool. So whether it's done under the guise
18 of environmental impacts, large scale generation, or
19 other market facilitation, I think it could be helpful
20 and hopefully those efforts will all be aligned,
21 whichever pool it comes from and, of course, the focus
22 might be somewhat different depending on which pool it
23 comes from. But then, secondly, I just want to mention
24 another area here, which is the PUC has done a fair
25 amount of work in market creation, obviously, and the

1 different procurement programs that they've developed,
2 and then the Legislature is never shy about developing
3 additional procurement programs. And I think the PUC has
4 done some work analyzing the effects of those programs
5 and deciding how to go forward, which of them to
6 emphasize. I think, you know, there may be a role for
7 the Energy Commission to play in that record in terms of
8 deciding which of the existing procurement programs are
9 most effective and how they might be improved going
10 forward, but I would be cautious there in not -- just to
11 make sure that that effort is fully coordinated with the
12 PUC and that you're not doubling up that effort --
13 although the effort is really important, so if the PUC is
14 not doing it, I would encourage you to do it. And then,
15 secondly, I think sort of a more particular quest within
16 that larger area of procurement programs is that there's
17 a lot of emphasis, or interest, in obviously distributed
18 generation and smaller scale generation, and there's
19 being quite a bit of interest by particular developers in
20 large DG applications, wholesale applications for
21 commercial rooftops. And very few, in my view, of those
22 developers have really cracked that nut to figure out how
23 to get large -- or larger -- we're not talking about very
24 large, but larger systems on commercial rooftops. I
25 don't know how many presentations I've been in where you

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 see the pictures of L.A. and all of the big rooftops of
2 L.A. and what an amazing resource that would be, if only
3 we could figure out how to get solar on those roofs. And
4 I think that this may be an area, not -- well, this may
5 be an area where the CEC could be helpful to the PUC in
6 deciding how it might refine some of its existing
7 procurement mechanisms to focus on market creation on the
8 existing built infrastructure. So are there tweaks to
9 the RAM, for example, or to the feed-in tariff, I won't
10 list all of the procurement programs because we'd be here
11 all day, but are there tweaks to any of those procurement
12 programs that might be useful in attracting at low cost,
13 or even lower cost, further development to the existing
14 built infrastructure, rather than out in the desert, or
15 on open space. I think, without laboring the point too
16 much, I think there was a lot of hope, for example, that
17 the RAM Program would concentrate development into
18 existing built environment, and I think the existing
19 evidence on that is that it hasn't done exactly that,
20 their projects are all over the place, sometimes in
21 disturbed lands, but certainly not only or exclusively on
22 the existing built environment. So to the extent that
23 there are ways to facilitate the commercial building
24 owners and other building owners, to enter that market,
25 and it may not be through further subsidy, but through

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 analysis of existing contracts, cracking the triple nut
2 lease, or other kinds of work in that regard to refine
3 the procurement programs, I think it could be very
4 useful. Thanks.

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

9 MR. LONG: My sense is that there are probably
10 legal, financial and technical barriers there that have
11 prevented that market from really opening up in the way
12 that people would like to see it open up, and that the
13 easiest tool that people have responded with is, well,
14 maybe if we just pay a little bit more money, we'll get
15 those contracts. And, of course, that is one way to do
16 it, you know, if you pay for all the potential liability,
17 you pay for all the potential grid upgrades upfront,
18 eventually you're going to get a developer that's willing
19 to put a solar panel just about anywhere, I mean, I'll
20 wear one on my head all day if you pay me enough to do
21 it. But I think, hopefully we can do it in a little bit
22 smarter way, rather than just paying more and more for
23 that energy, if we can actually reduce the cost. And,
24 again, that might be through innovation in contracting,
25 in lease amendment, in liability sharing, or it might be

1 through technical innovation, as well, in terms of
2 lighter racking systems like I mentioned earlier, that
3 have reduced leak risks for commercial roofs, that reduce
4 liability in that regard, and then obviously there's been
5 a lot of work by the PUC, again, in the context of the
6 RAM, of looking at the integration requirements of how we
7 can figure out where the lowest cost place to integrate
8 in the existing building and built environment, I think
9 -- I don't recommend repeating that work, but leveraging
10 that work so that we can figure out where on the
11 distribution grid those systems can go at low cost, and
12 then potentially identifying what grid upgrades would be
13 useful, or in the public interest, in the sense of
14 maximizing distributed generation in the alternative of
15 further renewable generation out in the open space.

16 MR. MCNEILL: Thank you.

17 MS. WINN: Thanks. We'll just keep the
18 microphone over here in the corner. And, you know, Noah
19 would make a lot of money today walking around with the
20 solar panel on his head in Sacramento. But I think --
21 and Noah touches on some good points about looking at
22 existing programs and how do we improve them. But I
23 think in some ways, again, we're very focused on
24 procurement here and I'd really like to think a little
25 bit broader and more holistically about when we talk

1 about clean energy, you know, we also talk about energy
2 efficiency. And the state has a big program for moving
3 forward, you know, some pretty aggressive goals for
4 retrofitting existing buildings. And so I think we need
5 to think creatively and this could be some research
6 that's done, you know, how do we tap into some of these
7 existing programs and break down the silos that exist
8 across the technologies? I mean, we like to look at
9 what's the most effective way to reduce carbon in the
10 atmosphere, and so how do we leverage not just buying the
11 energy, but then reducing the energy need, as well? How
12 do we link those programs up?

13 MR. GOODSTEIN: Time for the microphone to be
14 up here. A lot of the conversation today -- I'm Mark
15 Goodstein from Clean Tech L.A. -- has been about
16 downstream innovation, so inasmuch as it is appropriate
17 for EPIC funding to be spent upstream, I want to make a
18 more generalized case for what we're doing, which is a
19 regional ARPA-E, if you will, upstream, so where the
20 stuff -- where technology is being developed on the bench
21 at UCLA, Cal Tech, etc. And specifically, ARPA-E, they
22 have the benefit of having tax money to spend, we don't,
23 so we're seeking funds from industry and we think that
24 EPIC should be used as a matching source, which would
25 make it more likely that industry would participate. But

1 specifically what I want to model about ARPA-E is that
2 they did a level of due diligence on technology that
3 inspired private capital to put a lot of money into the
4 projects they funded, and that is what we are trying to
5 replicate. So there's a huge amount of money sitting on
6 the sidelines in the form of venture capital, or even
7 angel money, especially in Los Angeles, that's not being
8 deployed, but not because they don't want to, but because
9 they don't know what to invest in because there are so
10 many deals. So what ARPA-E did is they did a level of
11 due diligence that was so spectacular that venture
12 capitalists said, and have said publicly, they view it as
13 a proxy for their own investments. So they did not do
14 the due diligence that they would ordinarily have done,
15 which would never have gone to the level that ARPA-E did,
16 and they put money in. So we want to start a virtuous
17 cycle, and so inasmuch as EPIC money can be used for
18 stuff that's that far upstream and fix a problem that
19 right now is happening with venture capital putting all
20 their money downstream to de-risk their portfolios, we
21 think this is a good way of spending money.

22 MR. PATRINOS: Just in reference to Los Angeles
23 and angel funding was a play in words, huh? My name is
24 Ari Patrinos from Synthetic Genomics, and I want to
25 really support what my colleague just said from L.A., and

1 the importance of leveraging private funding with public
2 funding, in this case, the EPIC funding. I am also
3 particularly encouraged by what our colleague from the
4 University of California mentioned with respect to the
5 importance of carbon capture and sequestration as a way
6 to deal with the climate change concerns that we have,
7 and I want to make the case for our particular interest
8 that I've already mentioned in the Imperial Valley, and
9 the algae facilities that we are building. We are
10 certainly interested in the products that will come about
11 from algae, whether they are fuels, or food, or
12 pharmaceuticals, but we are in fact very very interested
13 in exploring how algae could be used as a way to take out
14 CO₂ from the atmosphere in an effective way, and in a way
15 that doesn't have all the lifecycle problems that some
16 other ideas have been put forward, and also the expense,
17 you know, there should be something that we get out of
18 the CO₂ as opposed to just sticking it in the ground, for
19 example, as a technology. I can't express as much --
20 anymore support than what I did, and with what my
21 colleague said with respect to the leveraging of the
22 public and the private money, and I agree with him that
23 there's a lot of money sitting on the sidelines waiting
24 for a good opportunity, and this would be one of those.
25 Thank you.

1 MR. SOKOL: So I just wanted to follow-up real
2 quick on the Clean Tech L.A., and the innovation hub
3 concept, in general. I would highly encourage you to
4 come tomorrow if you're not planning to already, for the
5 conversation, as well as submit written comments on how
6 EPIC can capitalize on that concept.

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

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

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

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

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

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

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

1 And I think our first breakout session is the Efficiency
2 and Demand Side Management.

3 MS. CHAMBERS: This will just take a moment.
4 Okay, thank you. We had a lively group and everyone was
5 able to come up with some summarizing points at the end
6 of it, and we were able to capture them in type, so a
7 really big factor that kept coming up was consumer
8 behavior, human factors that we would consider in
9 efficiency situations and demand response, and demand
10 side management. We wanted to focus on -- give
11 opportunities to low income individuals, different areas
12 of that, and look at alternate metrics for considering
13 zero net energy, zero net carbon, zero net peak loads,
14 looking at motivation of building owners to act,
15 interoperability of control systems, efficiencies in
16 existing operations, clarifications of interaction,
17 biogas as a renewable and a storage. And also taking
18 advantage of new Smart Meter data -- data? Data!
19 Typo. But that's okay. Accounting for both comfort and
20 health productivity. We wanted to look at cradle to
21 grave with these technologies, what do we do with them
22 when we're done? Do we have a landfill full of PV
23 panels? That's a good question. Streamlining policy and
24 regulation, there was a lot of discussion about
25 regulation, you know, how can we make it easier to make

1 some of these things happen? And then, of course, Codes
2 and Standards, and also back to Zero Net Energy, whether
3 you get to zero net energy at some level, stepped
4 approach to Zero Net Energy, almost Zero Net Energy, and
5 what should be done -- what is considered to be valuable.
6 Also, there was another -- some chat earlier, we didn't
7 capture that in this particular list, was what's the
8 definition? We need to come to consensus on the absolute
9 definition of Zero Net Energy. And that was about all we
10 had. Thank you.

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

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

19 MR. STOKES: We could do it either way.

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

23 MR. STOKES: Okay.

24 COMMISSIONER PETERMAN: And then can you put
25 that slide back up again as we see any comment? Thank

1 you.

2 CHAIRMAN WEISENMILLER: So question one is any
3 public comment on this? Either in the room or on the
4 line?

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

9 CHAIRMAN WEISENMILLER: Hang on.

10 MS. CHAMBERS: Get to the microphone, sorry.

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

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

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

25 MS. TEN HOPE: I think this is all interesting

1 food for thought, I mean, the summary is a nice summary,
2 but we have the record and the participation of each of
3 the groups, which in combination with experience in these
4 areas, we will begin to formulate initiatives that we
5 think are reflective of public comment, public policy,
6 and meet the Decision. So it's -- we're not going -- we
7 will capture these comments and have them standalone and
8 influence the drafting of the Investment Plan. The
9 Investment Plan itself will go back out for public
10 comment and, in that area, we'll be summarizing people's
11 comments on how we reflected or how we responded to the
12 public comments in the Investment Plan process. So it's
13 part of the overall background.

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

17 MS. TEN HOPE: Uh-huh.

18 MR. GOODMAN: It needs to be developed.

19 MS. TEN HOPE: Uh-huh.

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

24 MS. TEN HOPE: Absolutely. Written comments
25 would be extremely helpful because, I mean, we couldn't

1 be in all the sessions and particularly written questions
2 tailored to the questions that were on the agenda,
3 because then it's much easier to organize and
4 consolidate.

5 MS. CHAMBERS: Any other comments?

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

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

23 MS. CHAMBERS: Anyone else?

24 CHAIRMAN WEISENMILLER: Yeah. I'll just give a
25 few comments. First of all, interesting action list to,

1 having said that, when you think a loading order, I've
2 never seen biogases listed as an energy efficiency, as
3 opposed to potentially renewable, but you know, then we
4 sort of take everyone's comments. I tend to think in
5 terms of our priorities, first looking at the potential
6 to save energy. One of the things that's really been
7 hammering, you know, we've been struggling with for
8 decades, is the existing buildings. And certainly 758 is
9 part of that, so certainly anything we can do to deal
10 with capturing energy efficiency in existing buildings is
11 a very high priority. And a lot of the specifics here
12 are certainly part of that. And the other thing is, one
13 of the really strong points historically has been the
14 research has provided the basis for our Building and
15 Appliance Standards where, again, if you look at what
16 California has done over the decades, having those
17 Building Appliance Standards continually refined has
18 really led to this consistent record of energy savings.
19 And so what we're really hoping is that EPIC provides the
20 technologies we're going to need for our next updates and
21 subsequent updates, and so, again, as you think through
22 some of these, you know, obviously one of the things is
23 always to keep in mind what the potential savings are, at
24 the same time realizing that, for some of the affected
25 groups like low income, you know, there are other reasons

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 than simply energy efficiency potential, that you're
2 going to target that.

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

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

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

20 MS. CHAMBERS: Typo. Smart Meter Data.

21 COMMISSIONER PETERMAN: Data, okay. Thank you.
22 I thought that was a very specific and somewhat
23 shorthanded, so --

24 MS. CHAMBERS: Yeah. I was reading that and I
25 said that can't be right!

1 MR. STOKES: New health effect, huh?

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

5 MS. CHAMBERS: Any other comments? Questions?
6 Okay, thank you.

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

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

22 Okay, one of the things that they're looking at
23 also is fleet flexibility to meet the 33 percent goal at
24 the ISO. And we are also, with all the information
25 coming out of the Smart Grid and the Smart Meters, we

1 need to come up with a way to best use and manage all
2 that information, both at the distribution level and at
3 the Smart Grid level. Okay? Then we also -- some of the
4 areas of which they could use now would be to develop
5 better real time Nomograms, better state estimators,
6 these types of things, and to look at the instability
7 problems that are occurring from some of these new
8 generation resources that cause things like low frequency
9 oscillations, and those types of areas. Research need
10 was identified there. Not to mention, to bring in
11 greater use of CHP, biomass, and these other new
12 generators, we need to look at metering and telemetry.
13 What data do we really need? How can we make it less
14 expensive? And how do we make better use of that?

15 In the areas of transmission, we're still
16 looking at synchrophasor applications and real time
17 control, we've done quite a little bit at the Energy
18 Commission in synchrophasor research, people would like
19 to see that continued. We need some work on
20 incorporating some dynamic thermal line rating systems
21 across there, looking at flow control technologies to
22 make the grid truly smart so you just don't flip the
23 power in at one end of the grid, and have it kind of take
24 the path of least resistance. So there's some interest
25 in flow control technologies across transmission lines,

1 things like BACS and other technologies. And the grid
2 needs intelligent protection systems to enable two-way
3 power flows, okay. And then general hardware for all
4 current controllers, we should continue research into
5 those areas. Other electronic devices, BACS, and other
6 types of equipment that's out there on the grid.

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

20 Okay, we have, needless to say, more
21 synchrophasor applications at the distribution level,
22 they haven't been applied yet, this gets into
23 distribution automation, and partially some distributed
24 generation intermittency, using intelligent inverters,
25 auto DR, some controls and dynamic voltage control. We

1 need more grid analytics. The big question across many
2 people's minds is just what is happening out there, so we
3 need to get some better grid analytics going and research
4 into that sort of thing so we can view that down into --
5 get some visibility as to what is going on, and then you
6 have distribution planning for the Smart Grid, and
7 disaggregating generation from load because right now
8 they tend to look the same.

9 Then, in Electric Vehicles, we have demand
10 response outside of the current AMI system to support
11 third-party services. Some of the -- this was
12 highlighted that some of the people that can supply some
13 of the -- that does the aggregation of electric vehicle
14 charging -- needs some information that needs to run
15 outside of the current utility backbone, things like --
16 well, I won't get into it now. There are sub-meter
17 protocols, certification of meter for the sub-meter will
18 be at the actual vehicle charger. We identified seams
19 issues associated with that where people want to drive
20 their electric vehicle across utility service
21 territories. Then we have integrating EV charging with
22 nighttime wind. Many people want to take into
23 integration of EV charging with both nighttime wind and
24 also there's the interest with solar, as well. But at
25 night when the vehicles are sitting there, you should be

1 able to -- it was brought up that they should be able to
2 be coordinated with the wind generation. Okay, EV can
3 support ancillary service and grid frequency,
4 particularly with battery and stocking use, as well, we
5 need to do some basic research to establish how that can
6 be done and done effectively. We need better research on
7 the cost-effectiveness of HANS, third-party, and other
8 aggregation to come up with like the basics and choices
9 across for the cost-effectiveness to show what kind of
10 the cost we can expect, depending on the solutions that
11 we look forward to.

12 Behavioral studies need to be done on how
13 people will actually be using their vehicles. One of the
14 highlights of that was mileage shifting from EV to other
15 types of things, along with market facilitation and
16 education, standard operability -- that's that seems
17 issue I mentioned across IOU territories. Okay, and to
18 lower the cost of smart charging infrastructure.
19 Currently, smart charging infrastructure is rather
20 expensive, but we feel that there should be some basic
21 research and it shouldn't be too hard to lower the cost
22 of this, and do some gaps analysis across our research to
23 decide, in the first year of our research plans, so that
24 way we can see what really is necessary in the changing
25 marketplace going forward.

1 Then we also identified a few additional
2 topics, okay, that were kind of outside, such as the use
3 of water heaters for DR, okay? Price responsive demand
4 programs need to be responded -- we didn't know exactly
5 if that one fit here or in a different breakout area.
6 People would like to see an inventory of research
7 projects, so that way they can see what we have done and
8 what could be done going forward. And an evaluation of
9 research projects to see what else could be done and how
10 well those research projects could lead to some breakout
11 technologies. And that's it. So does anybody -- Frank,
12 do you have questions?

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

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

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

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

25 MR. GOODMAN: I was in the other group.

1 MR. PATTERSON: Jim, there you are out in the
2 back.

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

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

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

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

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

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

9 CHAIRMAN WEISENMILLER: Yeah, I think, Jaime,
10 the one thing that was pretty clear is the need for
11 coordination, particularly -- well, what we're doing here
12 and, I mean, ultimately as we'd be developing the
13 Investment Plans, the Utilities are, you know, obviously
14 there are subsets of this that strike me as probably
15 what's going to be meat and potatoes to the utilities,
16 you know, and other things where we need to have, as
17 these Investment Plans are coming together, a sense in
18 this area of what we should do versus what the utilities
19 are going to do, or frankly, what EPRI is already doing,
20 and I know, in talking to the ARPA-E people, that
21 obviously under Jeannie they're doing a lot of flow
22 control and stuff, so one of the things which we're doing
23 is certainly reaching out to the Federal Government to
24 get a better linkage into the ARPA-E folks and certainly
25 we have a lot of preexisting relationships there. But

1 again, this might be a pretty good subset, a vision of
2 what to do here. Obviously, we're not going to do all of
3 it and there are parts that would be better to -- and
4 we're going to build off of, but certainly as the
5 utilities go into their workshop, it's going to be very
6 valuable to have their sense of exactly what in this
7 universe of stuff they're going to take the lead on or,
8 for that matter, exactly what EPRI is trying to really
9 make progress on, you know, in that context, so that we
10 can be defining what we're doing. And ultimately, it may
11 become some sort of a web portal where everything is sort
12 of linked together under the EPIC umbrella, but, again,
13 the more there is a coherent "we do this, utilities do
14 that," you know, that will help. And certainly to the
15 extent that's feeding into what the ISO and others need,
16 that's going to be important.

17 MS. WINN: And I think that the workshop today
18 and the discussions we'll have tomorrow, the workshops
19 today have been really helpful. I do know that my
20 colleague from NRDC said, "Well, why aren't all of these
21 plans, the utility plans and the CEC plans, being
22 presented together. So I think perhaps once we file our
23 plans on November 1st, there could be an opportunity
24 there for more public discussion and seeing how this work
25 fits together collaboratively.

1 CHAIRMAN WEISENMILLER: That would make sense
2 and I think certainly it would be useful to have,
3 obviously you have different things here which have to be
4 digested and sorted out, I assume you're going to have
5 the same issue coming out of your workshops. And as the
6 thinking evolves, it would be useful to stay in contact
7 on some basis.

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

24 MR. KRICH: Ken Krich, California Institute for
25 Energy and Environment at U.C. Berkeley. I'm sure

1 everybody is thinking about this, but I didn't see it on
2 the list, which is the transmission system is going to be
3 operating in a different physical environment 25 years
4 from now, or 50 years from now than it is operating in
5 today, it's going to be hotter in the Central Valley,
6 you're going to have sea level rise affecting where
7 transmission lines are, you're going to have electrical
8 demand changes, wild fire, so I'm hoping in the
9 background on the grid work that this is being
10 considered, not just the environment we're in today, but
11 the environment we may expect to see in 40 years.

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

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

24 MS. TEN HOPE: Not my understanding from
25 reading the Decision that it would be precluded, as long

1 as it is tied to energy use and to providing value back
2 to the ratepayer, that it wouldn't be abstract studies
3 for the sake of the study, but that it was going to
4 inform technology, innovation, and successful deployment
5 of technologies in the marketplace. But this is an
6 iterative process with us and the CPUC, so it's a good
7 question for clarification that we can take back. Other
8 questions on this section before we do the final
9 breakout?

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

13 MR. SOKOL: Hello, I'm Michael Sokol and I'll
14 present the Energy Generation Breakout Summary. So we
15 had a broad spectrum of comments across the board, and so
16 I'll give you a brief summary. The conversation started
17 off with a discussion of sustainable community biomass
18 development and collection, especially mentioning that
19 capital expenses is a huge barrier for biomass systems,
20 and really looking at the biomass and forest waste
21 disposal with minimum transport, looking at what radius
22 of sustainability is appropriate; also, being aware of
23 forest degradation and climate change impacts on forest
24 biomass. It was mentioned that EPIC should promote
25 standard installation of DG in new developments wherever

1 possible, also that it should look to accelerate the
2 industry adoption of new technologies by demonstrating
3 reliable performance over a historical period.

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

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

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

20 There was also a discussion of these innovation
21 hubs that are regionally located and Clean Tech LA has a
22 potential model for that, as well as opportunities to
23 leverage funding and cooperatively work towards a common
24 goal. Also, with San Joaquin Valley Air District, they
25 also were mentioning leveraging and complementing EPIC

1 funds and strategic investments. And that's related to
2 that there needs to be further study of air quality for
3 bioenergy projects. So also, in terms of public health
4 and safety, there was a mention of the possibility of
5 reducing fire hazards and especially investigating fire
6 impacts of climate change and electricity transmission
7 lines, various components of grid operations.

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

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

25 The data that is gained from EPIC investments

1 should be used to streamline processes and decision-
2 making, and not only that, but we should be looking for
3 solutions to make better use of the existing electricity
4 infrastructure, and not just focus on new generation and
5 getting new technologies into the market.

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

14 MR. RAYMER: Thank you. Bob Raymer with the
15 California Building Industry Association. I attended
16 this breakout session and we were strong supporters of
17 distributed generation, new development. In particular,
18 we've had rather remarkable success with the New Solar
19 Home Partnership. As most of the Commissioners know, and
20 those related to the program, we've seen sort of a
21 dynamic change occur, probably identified over the last
22 12 months, where instead of offering solar as an option,
23 we've had some of the largest builders not only in the
24 nation, but California-based, starting to use solar as a
25 standard feature. And in each of these cases over the

1 past 12 months, we can attest to the fact that it
2 wouldn't have happened if it hadn't been for the
3 leveragability of the money from the New Solar Home,
4 along with the other financing packages that they were
5 putting together. And what I didn't testify to at
6 today's breakout session was that so often it's very
7 difficult at the Legislature and with our friends in the
8 media to identify at least short term very direct
9 benefits of a governmental program, but that wasn't the
10 case with the New Solar Home Partnership. As we were
11 pushing in support for SB 1018 back in June, and in
12 previous efforts prior to that, we have not had a problem
13 showing very direct benefits, of course reduction in
14 overall energy impact to the grid, but also a direct and
15 visible showing of jobs. We can point to these 100 homes
16 here and those 200 homes there that have solar on the
17 roof, without the New Solar Home Partnership, that key
18 little integral amount of funding for the overall
19 leveraging of the rest of the funding would not have
20 happened and those jobs would not have gone forward. And
21 that is something, Republican or Democrat, everybody
22 seemed to embrace. And so, for a change, this was an
23 easy sell at the Legislature, quite frankly. In many
24 efforts, they might have had different ideas on how to do
25 the funding, but at least they could see this was a

CALIFORNIA REPORTING, LLC

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 program that was working. Nobody told us it was a bad
2 program. So with that, we're strongly supporting the
3 continuation of this program and whatever we can do to
4 make that happen, we'll do what we can. Thank you.

5 MR. SOKOL: Do we have any other comments?

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

16 And I think sort of interesting in terms of the
17 three groups, as mentioned earlier, Energy Commission
18 this week released a major study of the implications of
19 climate change particularly for our energy systems. In
20 terms of at this point, it's pretty clear that most ways
21 produce energy have environmental impacts, and at the
22 same time, climate change is starting to impact our
23 energy systems, and again trying to figure out where that
24 sort of research is going to continue and where that fits
25 going forward, it's certainly an important issue for

1 California as we try to figure out where those
2 implications are picked up.

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

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

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

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

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

24 MR. TOBIAS: Great. Thank you.

25 MR. SOKOL: Okay, so are there any other public

1 comments? Or otherwise we can go to Commissioner
2 Peterman.

3 COMMISSIONER PETERMAN: Thank you. You can
4 feel free to comment after I do. I would say on this
5 last breakout, this is the one probably closest to the
6 words the words that I've been engaged in, more related
7 to renewables, and it's hard to comment really because
8 it's such a broad topic and, you know, we got a list of
9 different areas, but again, what I heard in the breakout
10 aligns with what you've been hearing as part of our
11 Renewable Strategic Planning process, and I'll just
12 reference back, we did seven workshops there and there
13 was a significant transcript, and to the extent that that
14 could be looked at, there was participation by all the
15 utilities, as well as many of you who are in this room
16 today. And so we were able to do that over a longer
17 period, but in general, I want to echo the
18 Chair's comment about obviously a number of comments
19 around biomass, but we want to make sure that we think
20 about what the resource needs are for other DG resources,
21 including wind and solar and such, and particularly
22 there's a lot of overlap between these three categories,
23 the efficiency, the clean generation, and the grid
24 operations, and how successful, for example, the clean
25 generation will be is really dependent on what activities

1 are pursued under grid operations. And so although you
2 have to, for management and process sake, separate these,
3 how I will be approaching it and looking in terms of my
4 eventual voting on the Investment Plan is to look at what
5 extent there's some more opportunities for integrating
6 these concepts, and not having them be duplicative.

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

9 CHAIRMAN WEISENMILLER: Well, again, we want to
10 thank everyone for their participation today and I think
11 this has been a good experience for us, this is the first
12 of a two day session here. Obviously, as we build off of
13 this experience, we will then go down to L.A. and replay
14 this, and then, after that, the Utilities will have an
15 opportunity to build off of these four days, as they
16 structure theirs, but again, it's sort of a dialogue
17 process and I think it's definitely one where there's
18 been a lot of food for thought, so I certainly want to
19 thank people on that. I think -- we talked today -- and,
20 I mean, this is the kick-off of EPIC and, of course, one
21 of the key focuses here is how to maximize the benefit
22 for the electric utility ratepayers. And so certainly we
23 get that, and I think it's important that everyone get
24 that and, again, realize this is a good opportunity to go
25 through and sort of Zero-based, the existing programs,

1 you know, certainly we've got a much broader program at
2 this stage in many respects, you know, limiting funding,
3 and I'm sure as usual, I don't know what the factor, if
4 it's pie or order of magnitude, but there will be more
5 good ideas than what we'll be able to fund.

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

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

23 CHAIRMAN WEISENMILLER: Yeah, Rob, actually I
24 do want to thank Laurie and her staff for sort of really
25 jumping in and taking -- pulling this together and,

1 obviously, also to thank the PUC for their participation
2 in sort of organizing things today.

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

5 (Adjourned at 4:48 p.m.)

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25