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BEFORE THE

CALIFORNIA ENERGY COMMISSION

In the Matter of:)   Docket No. 15-IEPR-05
)
2015 Integrated Energy Policy) Lead Commissioner
Report (*2015 IEPR)*   )   Workshop

Lead Commissioner Workshop on
Strategies Related to Data for Improved Decisions in
Existing Buildings Energy Efficiency Draft Action Plan

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

TUESDAY, APRIL 14, 2015
10:04 A.M.

Reported by:
Peter Petty

Commissioners Present
Andrew McAllister, Lead Commissioner, IEPR Committee
Robert Weisenmiller, Chair, CEC
Karen Douglas

Also Present at Dais
Ken Alex, Office of the Governor

CEC Staff Present
Heather Raitt
Martha Brook
David Ismailyan
Erik Jensen
Daniel Johnson
Consuelo Martinez
Abhilasha Wadhwa

Also Present (*by phone)
Guest Speakers
Ethan Elkins, UC Berkeley
*Sean Randolph, BACEI
Michael Murray, Greentech Leadership Group
Matt Golden, Efficiency.org
Chris Burmester, Energy Solutions
Chris Villarreal, CPUC
*Robin Mitchell, LBNL
Ronald Mohr, County of LA
Barry Hooper, City & County of SF

Panelists
Manuel Alvarez, Southern California Edison (SCE)
Mark Podorsky, (SCE)
*Jonathan Changus, NCPA
Jan Berman, PG&E

Public Comment
George Nesbitt, HERS Rater
Charles Cormany, Efficiency First California
Bill Knox
Debra Little, AjO
Matthew Hargrove, California Business Properties
Amy Reardon, CPUC
Chick Bornheim
Steve Uhler
Michael Nguyen
Kevin Messner, Association of Home Appliance
Manufacturers

Page

1

P R O C E E D I N G S

1

2   APRIL 14, 2015   10:04 a.m.

3   MS. RAITT: Good morning, and welcome to

4   the day's IEPR Workshop on Existing Buildings Energy

5   Efficiency Draft Action Plan, Data for Improved

6   Decisions. I'm Heather Raitt, the Program Manager

7   for the IEPR.

8   I'll begin by going over the usual

9   housekeeping items. Restrooms are in the atrium. A

10 snack room is on the second floor at the top of the

11 atrium stairs under the white awning. If there's an

12 emergency and we need to evacuate the building,

13 please follow staff to Roosevelt Park, which is

14 across the street, diagonal to the building.

15   Today's Workshop is being broadcast through

16 our WebEx Conferencing System, and parties should be

17 aware that you're being recorded. We'll post audio

18 recording on the Energy Commission's website in a

19 few days and the written transcript will be posted

20 in about a month.

21   Today, we have a wide variety of speakers

22 and various opportunities for public comments. We

23 encourage Workshop participants to make comments

24 today, but also to be brief, as we have a very full

25 Agenda.

1   We're asking parties to limit their

2   comments to three minutes to insure that the maximum

3   number of participants have an opportunity to speak.

4   We will take comments first from those in the room,

5   followed by people participating on WebEx and,

6   finally, from those who are phone in only.

7   For those in the room who'd like to make

8   comments, please fill out a blue card and give it to

9   me. When it's your turn to speak please come to the

10 center podium and speak into the microphone. It's

11 helpful to also give the court reporter your

12 business card.

13   For WebEx participants, you can use the

14 chat function to tell our WebEx coordinator that

15 you'd like to make a comment during the public

16 comment period, and we'll either relay your comment

17 or open your line at the appropriate time.

18   For phone in only participants, we'll open

19 your lines after hearing from the in person and

20 WebEx commenters. If you haven't already, please

21 sign in at the entrance to the hearing room.

22 Materials for this meeting are available on our

23 website, and hard copies are available on the table

24 to the entrance to the hearing room.

25   Written comments are encouraged and due on

today's topics on April 28th. The workshop notice

explains the process for submitting comments. And

with that, I'll turn it over to the Commissioners.

Thank you.

COMMISSIONER McALLISTER: All right. Well,

thank you, everybody, for being here in person and

on the phone and on the web. Thanks, Heather.

I am very excited to kick off this Workshop

and very interested in what we talk about during the

course of the day. Many of you know that AB 758 is

a current activity at the Commission and broader

conversations that we're trying to stimulate around

the problematic of how we upgrade -- how we get our

existing building stock improved in terms of energy

and water performance.

In my view, this is one of the most

important conversations that's happening in the

state at present. It is an area we have to figure

out how to do better if we are going to meet our

long-term climate and energy goals.

And data is really the fundamental currency

that we need more of in order to stimulate the

marketplace at all levels to get this job done. You

know, the state can do a certain amount and

certainly has done a lot, both in voluntary programs

1 and direct regulations, and lots of different

2 initiatives over the last 30-40 years.

3   We're at a point where we really -- the

4 scale of the activity needs to increase in a way

5 that really is only doable with private capital. So

6 we have to enable the marketplace, activate the

7 marketplace, by creating the foundational conditions

8 for it to figure out what it can do better and how

9 it can be cost effective and get out there and get

10 the job done.

11   So you know, as I say often, you know, the

12 state does not have the white trucks that are going

13 to run around and install stuff in existing

14 buildings. That has to be the marketplace. It has

15 to be private capital, and so that the vendors and

16 service providers have to figure out what they can

17 sell and then they have to have the conditions to be

18 able to go out there and sell it.

19   Consumers need better information to make

20 better decisions, as well. So really, we're going

21 to be talking about the structure of this today, as

22 there are some interesting speakers to sort of paint

23 the picture from various perspectives about what is

24 possible with data, what's happening now, what's

25 possible and where we could go as a state.

1   And then we need to talk about the sort of

2   limitations and what barriers there are today that

3   we need to work on and work through. And there are

4   plenty of those. And staff is going to talk about

5   the AB 758 Action Plan.

6   Really, we're talking about Strategy 2.1,

7   which is Data for Better Decisions, and we're

8   talking about both from the -- well, really, from

9   the customer perspective, from the marketplace

10 perspective, that is, service providers,

11 contractors, et cetera, from researchers, as well,

12 and then finally, policymakers.

13   And so all of those perspectives, or all of

14 those sort of use cases, as varied as they are, need

15 to be part of this discussion, because they all have

16 to work together.

17   With that, I think I will welcome, Chair

18 Weisenmiller is here. Really gratified that he

19 could be here. Commissioner Douglas, also, both

20 very interested in energy efficiency, and I think

21 that's representative of why this is so -- the fact

22 that this is so critical for the policy environment

23 going forward.

24   And even to highlight that more, we have

25 Ken Alex from the Governor's Office and OPR, to help

us kick off the day and orient the discussion in the

way that's most helpful for his world and for the

policy environment, in general.

So let's see. I guess I will go, who

first? Go, Ken, why don't you go ahead. Yeah,

sorry. Sorry I'm putting you on the spot here. Is

that okay?

MR. ALEX: No, we're good.

COMMISSIONER McALLISTER: Yeah. Yeah. Our

distinguished visitor here to our Rosenfeld Hearing

Room.

MR. ALEX: Thank you.

COMMISSIONER McALLISTER: Thanks for being

here.

MR. ALEX: Thank you, Commissioner

McAllister, and thank you very much for the

invitation to be here this morning.

First of all, I want to commend the

Commission and Commissioner McAllister in particular

for taking on this issue. He's been working on it

for quite some time and it is, for me, a hugely

important issue.

It's central and essential to how we make

progress on energy efficiency. The Governor has

laid out some very aggressive goals around climate

1 in the 2030 time frame, which we'll be hearing more

2 about from this Commission and from other state

3 agencies in the near future.

4   But three of his key goals from his

5 inauguration speech for second term were 50 percent

6 renewables by 2030, reduction of use of gas and oil

7 in transportation sector by up to 50 percent by 2030

8 and a doubling of energy efficiency in buildings by

9 2030.

10   These are central to the Governor's vision

11 for how we deal with climate change in California

12 and beyond. And we have a real challenge, as the

13 758 Draft Strategy identifies in really making

14 progress on energy efficiency.

15   And as Commissioner McAllister just said,

16 part of getting there is through transparency and

17 data availability around baseline and current usage

18 and all the other things that we know are available

19 if we can get them out there.

20   I have to acknowledge some amount of

21 frustration on this topic. I have been working on

22 utility data since the energy crisis of 2001. I was

23 at the Attorney General's Office until about four

24 plus years ago, and it has been a struggle in that

25 context and it continues to be a struggle from a new

context. And I want to say, it's time for a change.

        We really need to make it clear that
privacy can be protected. We have the tools and
we'll hear about some of that today and the
mechanisms. We need to provide this data in a
usable form and we need to do it very soon.

        I think the effort of LADWP in the Los
Angeles area, in conjunction with UCLA, establishes
this. It makes it clear that this data can be
provided, that privacy can be protected and that the
public and the marketplace, and regulators and
decision-makers, can have this data available in a
way that's usable, understandable and viable.

        So with that, I, you know, just really
wanted to underscore the importance of this effort
and to thank the Commission for proceeding.

        COMMISSIONER McALLISTER: Thanks a lot.

        CHAIR WEISENMILLER: Yeah, thanks. Thanks
for being here, and I'd like to thank everyone for
their participation today. Obviously, parts of the
workshop will be pretty dense and technical, but
this is a very important topic.

        I think all of us have heard the term,
"knowledge is power," and it's particularly resonant
in the power industry that data are very important

1 for really good decision-making and transparent

2 decision-making.

3   Particularly when we're looking at existing

4 buildings, we're really talking about millions upon

5 millions of individuals making decisions, that

6 trying to understand how the various policies that

7 we have in place are really affecting those

8 decisions is critical.

9   But also, in terms of providing the

10 information to those, you know, 10 million or so

11 individuals we're trying to influence, to make sure

12 that they have the tools, you know, to understand

13 the consequences of what they're doing is important.

14   And so I think, but at the same time, we're

15 at sort of an exciting time in terms of technology

16 development and the opportunity to use that

17 technology in a data context to really influence our

18 policies and influence decision-making in this area.

19   And you know, it's something which, again,

20 thinking of the first Brown Administration, you

21 know, in terms of the computer capacity we had at

22 the time, frankly, is less than your iPhone that

23 you're carrying around.

24   So just in terms of the revolution, the

25 types of things that's possible at this point, this

1 is an area which, certainly, there's a lot of

2 agreement within the administration, certainly

3 between the Energy Commission and PUC.

4   And I think as we move forward on the

5 action plan here we need a way to translate that

6 vision into actions.

7   COMMISSIONER McALLISTER: Thank you, Chair

8 Weisenmiller.

9   COMMISSIONER DOUGLAS: Yeah. I'll just

10 quickly join everyone here in welcoming everyone to

11 the Energy Commission for this Workshop. I'm here

12 both out of real interest in energy efficiency in

13 the 758 Action Plan, and also because, you know, in

14 my time at the Commission I've become increasingly

15 aware of how important data is to getting our work

16 done.

17   And it's having more sophisticated systems

18 for collecting data, analyzing it, sharing it,

19 putting it together in useful ways to actually

20 inform decisions, understanding how to use good data

21 and information in the public process, and not only,

22 in other words, for the Energy Commission to power

23 its own analyses, but to really be able to talk to

24 stakeholders in the marketplace and create a more

25 transparent and informed marketplace.

1   This has been a real cross-cutting issue

2   and an interest that Commissioner McAllister and I

3   certainly share and have talked about a fair amount.

4   And certainly, in our work in a totally different

5   sphere on the Desert Renewable Energy Conservation

6   Plan, I got to experience firsthand many, many, many

7   different ways of using and analyzing data, and I

8   prefer the better ones, and so -- as a general

9   statement -- so I'm very interested in this topic

10   and definitely have been looking forward to it.

11   COMMISSIONER McALLISTER: I want to just

12   put a thank you very much, all of you, for being

13   here and, you know, I hope you can stay as -- as

14   long as you can, I hope you will, and participate in

15   the discussion, because I'm sure we have some

16   knowledgeable folks coming up to present and it'll

17   be really good to sort of wring the most out of them

18   while they're here.

19   So I'll thank them in advance for being

20   wrung out. I guess, you know, a slightly bigger

21   context even, you know, energy efficiency is now not

22   the only demand side management tool that we have in

23   our quiver or in our toolbox.

24   So in order for energy efficiency to meet

25   its potential, and it is one of the top, one of the

1 three goals of the Governor and it is still top of

2 the loading order, and you know, it is the primary

3 resource that we need to go get to not only reduce

4 cost, but also, reduce that denominator of overall

5 energy consumption.

6   So it makes our overall sort of energy

7 planning easier going forward. It also needs to

8 work well with the other preferred resources we

9 have. So it needs to play well in the sandbox along

10 with storage and demand response and all the other

11 preferred resources that we have, generation and

12 demand side.

13   So that in and of itself is a motivation

14 for having much better information about these

15 resources at a much more granular level, and that

16 demands better data.

17   And I want to just caution us, also, as we

18 go through the day to not be too reductive when we

19 say the word "data." It means different things to

20 different people.

21   Really, what we're talking about is how to

22 unlock the knowledge that that data can enable. So

23 that inherently means tools to inform what to

24 provide data into, and then be able to extract the

25 right kinds of knowledge, ask and answer the right

1 kinds of questions that are going to help us at the

2 policy, and you know, at the top level of policy

3 analysis, but also down at the individual customer

4 level.

5   And so how to unlock these various

6 potentials and make sure that each customer, each

7 consumer, really, each citizen is getting the kinds

8 of information that they need to make better

9 decisions that are in their own best interest.

10   And then to the extent we can, as

11 policymakers, tilt the playing field towards the

12 public interest, we want to do that. And again, we

13 need better information to be the foundation for

14 that.

15   So this is a very important discussion and

16 I want to just thank everybody for coming. Really

17 looking forward to the presentations and both staff

18 for all their hard work on the Action Plan, and

19 also, you know, our panels of experts that we have

20 through the course of the day.

21   So with that, I'll pass back to Heather to

22 get the proceedings rolling. Thanks.

23   MS. RAITT: Thank you, Commissioner. Our

24 first panel is on Setting the Stage, and our first

25 speaker is Ethan Elkind. Okay.

1   MR. ELKIND: Good morning and thank you for

2   the opportunity to come speak today. I'm very

3   pleased to be here on behalf of my colleagues at

4   UCLA and UC Berkeley Law, and also pleased that

5   Commissioner Weisenmiller maybe inadvertently gave a

6   plug for our new report, Knowledge is Power. So I

7   appreciated the affirmation that we hopefully chose

8   a good title there for this report.

9   So most of what my talk today is going to

10   be based on that report, and I'll describe a little

11   bit of the process there of how we put that

12   together. It's actually part of a series of reports

13   that the two law schools, with the support of Bank

14   of America, have released over the last six years on

15   different topics related to climate change.

16   And we gather business leaders to help us

17   get some insight as to what are the policies that

18   California needs to put in place to help those

19   specific businesses thrive, with the idea that these

20   are businesses that are reducing greenhouse gas

21   emissions and helping California achieve its

22   environmental goals.

23   So these are just a few of the reports.

24   Actually, these are all the reports. They're in

25   PowerPoint animation style, and this is the report

that I'm going to be discussing today, Knowledge is Power, How Improved Energy Data Access can Bolster Clean Energy Technologies and Save Money.

And you know, when we set out to do this report, maybe to the -- sort of the comments that were made by the Commissioners earlier, we actually wanted to do something on energy efficiency.

And I talked to people in the energy efficiency field and one of the big people that I have worked with in the past on the finance side, he said to me, well, you know, actually, if you want to do something in energy efficiency we could really use help when it comes -- and at the time, it was about a couple years ago -- related to the California Solar Initiative data; that that rebate program was providing a really important data set for people on the energy efficiency side, what's going to happen with that data. This is really critical to the whole industry.

And that really opened my eyes, that you know, we can talk about data, as Commissioner McAllister said, this is really a means to an end. And when we put the report together and we said, this is energy data, and we went to our communications team and we wanted to, you know, sort

1 of get the word out about this issue, our

2 communications people told us, you know, don't say

3 the word "data," because that, you know, immediately

4 puts people to sleep.

5   Of course, none of us here in the room, of

6 course. But you know, so we try to think of

7 knowledge, statistics, information, et cetera, you

8 know. But the reality here is that it's about

9 communicating what data is a means to an end for.

10   And energy efficiency certainly is a big

11 one, but it's other technologies, as well. It's

12 really our whole clean technology sector. So when

13 we gathered these business leaders we wanted to have

14 a diverse group.

15   We had folks on the energy efficiency side,

16 but also, from the electric vehicle side, for

17 example. And we had -- I had an auto maker's

18 representative, someone from General Motors, who

19 said, you know, wouldn't it be great if we could

20 plug into the cars, the electric vehicles, the

21 tariff information, a real time tariff information

22 so that when you plug in your cars it's already all

23 set up to charge at the most optimal time.

24   And you as a consumer don't need to do

25 anything, but you really take advantage of those

1 services, and then, meanwhile, California can take

2 advantage of having all these distributed resources.

3 So that was one example on the electric vehicle

4 side.

5   And certainly, in renewable energy and

6 energy storage, if we were much more transparent

7 about the distribution grid and those needs within

8 the distribution grid, you could then have energy

9 storage developers, renewable energy developers,

10 really know where is the most optimal place to cite

11 these resources.

12   And with utilities being more transparent

13 about that and perhaps even creating a market at the

14 distribution level to help third parties, you know,

15 understand where they might be able to add value, it

16 would provide huge rate-payer benefits, potentially,

17 and also, major reductions in greenhouse gases, as

18 well, as another possibility. So it's important to

19 connect, I think, energy data to what the ends are

20 that we're trying to get to in California.

21   So in our report in discussing with people,

22 you know, as I mentioned, this covers a whole range

23 of topics. I always like to show this slide here.

24 This is California's greenhouse gas emissions pie

25 chart.

1   And you could see, you know,

2   transportation, electricity, how we heat our

3   buildings, all these things are affected by data.

4   So to really boost the clean technology industry

5   you've got to give people access to the information

6   to be able to let the market work.

7   And also, as we think about those long-term

8   goals that Director Alex mentioned, Ken Alex

9   mentioned, in terms of our 2050 goals, we're going

10 to need to see major reductions in our greenhouse

11 gas footprint per capita.

12   So this slide shows where we're going out

13 to 2020. We need a reduction of about one percent

14 per person, per year to meet those 2020 goals. But

15 if we have any hope of meeting those 2050 goals,

16 we're going to need a reduction of about five

17 percent, per person, per year, of our carbon

18 emissions.

19   So that's a major, dramatic decrease that

20 we need to see going forward, and it can really only

21 happen, particularly with major advancements in

22 energy efficiency. But we're going to need to be as

23 proactive as we can to make sure that we have market

24 activity to help us meet those goals.

25   So in terms of the report findings, we've

1 looked at two different types of information that

2 would be helpful to boost these clean technology

3 sectors, and one of those is a customer facing type

4 of data, but the other is the more utility side

5 data. So I'm going to just break out those data

6 needs in those two categories.

7   So on the customer side when we talked to

8 these folks in the room and we asked, what are some

9 of the most important data that would be useful to

10 really empower customers, both on the residential

11 and commercial side.

12   And obviously, utility meter data was a big

13 one. So really, getting access at 15-minute

14 intervals, you know, close to real time type data

15 access, that would be very critical for a lot of

16 these individual building owners to understand how

17 they can best save money, by understanding their

18 meter usage.

19   Similarly, historic energy audit data, this

20 may be more useful and more practical on the

21 commercial side, but if you come into -- you don't

22 buy a new building, a new commercial building, and

23 if there's been previous historic -- previous energy

24 audits, it would be really valuable to know what's

25 been done.

1   What was the building energy profile before

2 you can in and where has the progress been made? So

3 we know that a lot of those energy audit plans are

4 filed with utilities, for example, and it'd be nice

5 if we could have a way to make those accessible to

6 the building owner themselves.

7   COMMISSIONER McALLISTER: Ethan, could I

8 ask a question? I'm going to try not to jump in too

9 much, because we have a lot of good stuff that I

10 want to hear.

11   But did the idea come up of something like

12 -- I mean, I think of it as sort of a -- you know,

13 you can -- your CarFax, you know, on your car you

14 can -- I mean, your home is your biggest asset and

15 your car is your next asset, right.

16   So this idea that, you know, you have a VIN

17 number equivalent for a home, for a building, and

18 it's sort of, you know, you do that for your car.

19 You put in the VIN number and you get the whole

20 accident report and, you know, you see if it's

21 salvage.

22   You know, you see what, you know, what work

23 it's had done and the essential elements of the

24 history. Is there any -- did that kind of topic

25 ever come up in terms of buildings? You know, they

1 have a long life and they have a history and there

2 is some permit record and things like that.

3   MR. ELKIND: So no --

4   COMMISSIONER McALLISTER: Have you ever

5 talked about that?

6   MR. ELKIND: Yeah, but nobody sort of put

7 it in that -- I like that type of, you know, frame

8 of looking at it, that analogy, with the CarFax.

9 And you know, no one's said that exactly, but I

10 think that, really, we're describing a lot of what

11 you're saying, that there is essentially, you know,

12 a repository of all that information, of the energy

13 audit data, and you know, and you could couple it

14 with this other utility meter data.

15   We certainly talked about the need for data

16 centers. There's some debate about whether it makes

17 sense to house it in one place or in multiple data

18 centers, but that could be a nice role for that type

19 of data center where you could plug that information

20 in.

21   And I think probably the majority of people

22 felt like multiple data centers might be useful. I

23 can go into that in a minute, but I think that would

24 be a useful thing, I think a great role for the

25 Energy Commission to help encourage that kind of

1 disclosure, because in this case it's about, you

2 know, it's about a building somebody owns.

3   We're not talking about some sort of

4 privacy invasion, because you know, however people

5 used to use energy in a building shouldn't be a

6 private matter if you now own it. So that is

7 definitely I think a very promising area we could go

8 in, in California.

9   All right. We also talked about the

10 Internet of things, you know, just the NIST,

11 thermostat and that kind of -- you know -- the home-

12 networked appliances and how it would be really

13 helpful if consumers could actually access that data

14 that's being generated that currently seems like

15 it's going to be slated into private hands --

16   COMMISSIONER McALLISTER: Right.

17   MR. ELKIND: -- for those companies that

18 are -- that have those products. And how critical

19 that would be, of course, for demand response and

20 for being able to moderate your energy usage

21 according to a market signal.

22   Also, getting tariff data so that customers

23 can get a sense of how they're actually being

24 charged, and this is the kind of thing that you

25 could plug into -- no pun intended -- but you could

1 plug into an electric vehicle to give them access to

2 know when best to charge as a sort of a sync or a

3 smart charging kind of demand response activity.

4   And then also, information on segmenting

5 customers by their usage and their climate zone so

6 people have a sense of exactly which climate zone --

7 if we can target programs and policies towards

8 certain climate zones and certain types of users,

9 that that would also then make our policies more

10 effective, as well, because then we could target

11 these incentive programs towards those areas that

12 are likely to have the best, sort of best bang for

13 their buck in terms of efficiency and other

14 distributed, renewable and other distributed

15 resources.

16   And then finally, it would be really

17 helpful to have a sense of our track record to date

18 on a lot of our efficiency policies, so being much

19 more transparent to help some of the advocacy groups

20 out there understand how we're doing in terms of our

21 efficiency policies, what are the outcomes that

22 we're getting and are we spending rate-payer funds,

23 in particular, in the most cost-effective ways.

24   So on the utility facing side, kind of data

25 that people talked about, distribution,

1 infrastructure, as I mentioned earlier. So AB 327,

2 which passed in 2013, does require that the Public

3 Utilities Commission utilities come up with

4 distribution infrastructure plans.

5   That might be a really great opportunity to

6 possibly leading towards some kind of a market where

7 you could actually have some of these third party

8 software, hardware vendors come in and help work

9 with the utility.

10   How do you value this particular asset?

11 Where are you facing challenges in your distribution

12 grid? And particularly, as we see more solar coming

13 online, it's really important that we get it right

14 at the distribution level.

15   And we may need to start to move in that

16 direction of transparency, simply just for

17 reliability purposes and also, to help bring down

18 costs for ratepayers as we need to be more

19 innovative and dynamic in terms of how we operate

20 things at the distribution level.

21   And the same is true for transmission

22 infrastructure, as well; so a similar type of thing,

23 although from our participants at the convening it

24 did sound like we're doing a little bit better on

25 the transmission side of things in terms of access

1 to third party vendors and such.

2   And then, of course, it would be really

3 helpful if we could have somewhat of what Ken Alex

4 was discussing, more aggregated consumer behavior

5 data where we get a sense of how consumers are using

6 data, at what times -- I'm sorry -- using energy and

7 at what times.

8   And then that would be helpful to really

9 target our efficiency programs, but also target --

10 help third party vendors really know where the needs

11 are. And I should say, you know, there is a tension

12 here where we don't want to necessarily just make it

13 easy to open up customers to being marketed nonstop.

14   So you know, our report didn't get into

15 that, but I just wanted to sort of flag that as an

16 area where, you know, it's not about, you know,

17 exposing Californians of a certain demographic ZIP

18 Code to a ton of, you know, ads from Solar City or

19 whatever it is.

20   But you know, at the same time we do want

21 to really help these industries be as focused as

22 possible, and where there are people who would fit

23 the profile really benefit, we want to make sure

24 that they get access to information about what's

25 available to them in terms of, you know, becoming

1 cleaner and more efficient with their energy

2 generation and usage.

3   And then finally, looking at aggregated

4 customer energy data, as well. So you know, again,

5 looking at in a non sort of privacy, you know,

6 violating type of way, but I think that UCLA, LADWP

7 pilot that Director Alex mentioned I think is a

8 great example of how we can do this.

9   You know, we can balance privacy rights,

10 but anonymize this energy usage patterns in such a

11 way that really help the market, you know, be able

12 to do its thing without hopefully jeopardizing those

13 privacy interests.

14   So we asked everyone, look, those are

15 great, you know, these are great to get a sense of

16 what data you would like, but what are the

17 challenges that you'd see to being able to get

18 greater access to this data.

19   And so the big one that came out was the

20 lack of incentives for utilities to provide access

21 to this data, and the big challenge, of course, here

22 is that utilities don't have a strong need to

23 antagonize people who care about privacy concerns.

24 So that's one of it.

25   Some people felt that there's sort of a

profit disincentive here, because for a lot of

utilities they're not going to see a real value in

empowering third parties that could potentially

undercut some of their revenue.

And then beyond that, it costs money to do

this. So if they're not going to be able to recover

some of those costs of data disclosure and data

harvesting, that's going to be a challenge.

So there's the lack of funding barrier in

terms of who's going to pay for these data centers,

who's going to pay to, you know, comb through the

data, make sure that it's secure, et cetera.

And then, of course, the customer privacy

concerns always looms out there and it's not just

concerns. It's the constitutional and statutory

provisions that have to be balanced, although I do

think that there's a lot of leeway there and with

new mechanisms we can address those concerns.

And then of course, it's always in the

news, but cyber security fears. If you're data's

out there, whether, you know, it's Home Depot credit

card charges or, you know, Sony Pictures with the

movie about North Korea, you know, this is going to

loom very large and it's very important that we get

this piece of it right, because if we're asking

1 people to, you know, to even be part of an

2 anonymized type of program, we need to assure them

3 that this is not going to be something that's abused

4 in any way by malicious actors out there.

5   And so just quickly, I'll go through some

6 of the solutions that people suggested to address

7 some of these challenges. So you know, a big one

8 would be to put in place a utility cost recovery

9 mechanism so that utilities will get reimbursed,

10 recover their cost for this data collection, access,

11 et cetera.

12   And then we'll need funding for these

13 secure energy data centers. So we'd have to find a

14 way to make sure we can find revenue for that. It

15 could be that these things essentially pay for

16 themselves from a ratepayer perspective, that these

17 data centers could unlock such savings that we could

18 go forward with funding them out of ratepayer funds.

19   So that's something to keep on the table

20 for sure. And then the development of an ad hoc

21 tariff tech group to really get at these issues of

22 15-minute interval data in machine readable format

23 that I noted was in the AB 758 draft plan, and that

24 kind of a working group, and you know, maybe

25 starting on this issue, but there may be other

1 issues down the road, really getting the experts

2 together to start to troubleshoot some of these

3 things.

4   COMMISSIONER McALLISTER: Did you, just on

5 that issue, on the machine readable data or tariff

6 data. So did you identify any issues, sort of

7 statutory issues or, I mean, my sense is that these

8 are already public.

9   They're just in a format that onerous to

10 deal with, but that they are public. And so any

11 effort to make them actually accessible in practical

12 terms wouldn't have a statutory problem. But I

13 guess I wanted to just make sure of that from your

14 perspective.

15   MR. ELKIND: Sure. So you know, to my

16 knowledge I don't see any challenges with that. It

17 seems more like just kind of a logistical challenge

18 and more of a cost incentive challenge. I mean, we

19 did not spend a lot of time researching to see if

20 there is a legal issue out there, but that was not

21 flagged for us.

22   And I don't see any reason why this

23 couldn't be something that, you know, particularly

24 when it's someone's own data why we couldn't, you

25 know, get in there and make that a more, you know,

1 accessible type of a thing that you could then give

2 consent to someone else to access.

3 So at the very minimum, that kind of

4 process I think would really benefit and doesn't

5 have any legal challenges, from what I can tell.

6 And then, finally, you know, the Commissioner

7 McAllister, your point earlier.

8 If we could have some sort of requirement

9 for that historic energy audit data out there that's

10 currently, you know, unfortunately I think in some

11 cases just sitting in a file folder somewhere. If

12 there's some way to make that digital, to make that

13 accessible, that would I think really help, I think

14 particularly in the commercial side, get a better

15 handle on the energy patterns and where the

16 efficiency benefits might be.

17 COMMISSIONER McALLISTER: Are you thinking

18 that that's somehow linked to having received a

19 ratepayer incentive? So if a ratepayer, you know,

20 funded part of the assessment or, you know,

21 participated in a program or something, then that's

22 -- you're sort of hooked to say, well, that ought to

23 be made public, or is there some broader application

24 of this disclosure?

25 MR. ELKIND: So I think that could be one

1 way to do it. And of course, you know, going

2 forward as energy audits, you know, happen in the

3 future, I think it'd be great to build in, you know,

4 that is probably the most effective way to do it,

5 you know, thinking about going forward, that we

6 build in a mechanism to make sure that these are in

7 a standard format, a standard, you know, readable,

8 digital format, and that there is a place to put

9 them.

10   So that would be easy, I think. Well, no,

11 I shouldn't say easy, but that would be ideal going

12 forward, and then in terms of past energy audits,

13 you know, then I think we may want to try to figure

14 out some sort of incentive program and, certainly, a

15 cost recovery mechanism to make sure that happens.

16   And then I should also say we do have a

17 right to our energy data in California, but I think

18 we can do more to really enshrine improved access to

19 energy data. And that's a key right that I think if

20 we could kind of have as part of our overarching,

21 almost philosophical approach to these issues, that

22 that would be really helpful to put some more umph,

23 particularly when you run into headwinds from

24 utilities, privacy advocates, cyber security fears,

25 et cetera, that we make a strong statement that

1 people should be able to access their own energy

2 data as easily and efficiently as possible.

3   So those are just some key highlights. I

4 put some hard copies of the report out there if

5 anyone wants to grab them. And for those on WebEx,

6 all these reports are available on both the UC

7 Berkeley and UCLA Law website, if you follow the

8 address here on the screen.

9   So unless there are any questions, thank

10 you very much.

11   CHAIR WEISENMILLER: Yeah, I have one, and

12 I had -- was on a panel once with the Canadian

13 Minister who's responsible for basically their

14 question of who owns the data, you know. And from

15 her perspective it was very clear these data are

16 owned by the customers. And certainly, SDG&E has

17 affirmed that as a matter of policy. Legally, who

18 owns it?

19   MR. ELKIND: So I would agree that this is

20 data that the customer owns, but it doesn't seem

21 like in practice we really treat it that way. So

22 you know, again, similar to the question that

23 Commissioner McAllister raised.

24   It's not something that, you know, we spent

25 a lot of time investigating legally, but that's my

1 understanding, that this is -- this should be

2 customer owned data. They use it. They generate it

3 and we ought to have policies that match that

4 understanding, that legal context.

5   CHAIR WEISENMILLER: In my various dealings

6 over the decades it seems much more like the

7 utilities believe that they own the data.

8   MR. ELKIND: So it does, I think, depend on

9 which data you're talking about, right. So if we're

10 talking about customer generated data, then they

11 would own that. You know, utilities may have a

12 different argument if it has to do with their grid

13 infrastructure.

14   CHAIR WEISENMILLER: Yeah.

15   MR. ELKIND: So you know, that may be a

16 more difficult situation. But again, since you

17 have, you know, regulated monopolies and we have a

18 strong public interest in making sure that ratepayer

19 funds are spent effectively, I think that provides a

20 strong opening and say, you know, we don't want to

21 necessarily, you know, jeopardize your business

22 model, but at the same time there are real

23 inefficiencies here and there's real benefit to

24 ratepayers to being more transparent about how you

25 value resources.

1   And we should be trying to determine the

2 most efficient way to do what the grid does, and we

3 should be transparent in the data to allow as much

4 innovation as possible to happen.

5   CHAIR WEISENMILLER: I guess the other

6 question is just, realistically, if you -- the state

7 recent history has been marred by a series of

8 software upgrade failures. I mean, even simple

9 things like payroll systems we seem not to be able

10 to pull off.

11   And part of it comes back to, I know,

12 talking to like President Piccard, we'll all scratch

13 our head going how do you deal with, you know,

14 someone, the new, bright IT person deciding do they

15 work for Google, PG&E or the PUC.

16   And that's a pretty hard space to be

17 competing in, even say for PG&E in this era, much

18 less state service. So I mean, again, how do we,

19 you know, really upgrade our systems and our

20 capabilities there to be effective in these areas?

21   MR. ELKIND: Well, I can't speak from an HR

22 perspective in terms of the best way to recruit

23 people. But I do think that, you know, the more

24 dynamic we can make the provision of electricity and

25 energy in the state, the more dynamic that the state

1 can respond to the innovation that's happening on

2 the private sector side, I think the more appealing

3 it becomes, you know, to attract bright people to a

4 dynamic space on the sort of public sector side.

5   But I think, you know, the advantage here

6 is a lot of these private sector companies can do a

7 lot of California's work for us and save us money in

8 the process. And you know, certainly, we don't want

9 to go too far to down the road where we start to get

10 into the negatives of that, you know, loss of

11 control and potential market abuses and so forth.

12   But at the same time, you know, we do have

13 an opportunity to take advantage of all this

14 innovation that's happening on the private sector

15 side. And you know, we're -- and also getting

16 access to that data may mean that we really want to

17 be rethinking some of our incentive programs.

18   We think about energy efficiency programs.

19 You know, we think it's kind of a clunky system that

20 we have now, very fragmented, very sort of

21 proscriptive. You know, you get a rebate based on,

22 you know, x number of steps you have to take.

23   You know, we could take advantage of all

24 the innovation that's happening by being more

25 transparent with the data and maybe moving towards a

1 performance based, outcome based type of incentive

2 structure for energy efficiency dollars.

3   And you know, to answer your question I

4 think, you know, we can take advantage of that

5 innovation on the private sector side and some of

6 those smart data, data wonks, which I'm not one, and

7 you know, allow them to really give them a focus

8 direction so that we can use those efficiency funds

9 in the most effective way possible, because I think,

10 you know, the current system that we have,

11 especially on the energy efficiency side, doesn't

12 seem to be giving us the returns that we ought to be

13 getting.

14   And if we move towards outcome based,

15 taking advantage of data, taking advantage of these

16 third party software companies, I think we can make

17 a lot more progress, because I think there's a lot

18 of savings out there that we're leaving on the

19 table, and a lot of savings that we're frankly not

20 compensating people for, because we're not measuring

21 it accurately.

22   So I think this, you know, improving the

23 energy data access can really help us get out that

24 and take advantage of the smart people that we have

25 in the state here.

COMMISSIONER McALLISTER: Thanks. So I

wanted to build on that conversation a little bit.

I mean, I guess, you know, now, data is this

catchall word. It means lots of different things.

And real time, interval data or even real time data,

period, is not the same thing as, say, monthly

aggregated or, you know, some other way of

aggregating it.

          I guess the, you know, the sort of

ownership of the data and the access questions seems

like they would vary along a continuum with what

kind of data even within one -- even within a

project specific context or a customer specific

context.

          But certainly, then you go levels of

aggregation across customers or in geographical

areas and then you get sort of up the chain of, you

know, having privacy be less and less of a concern.

          I guess, did you talk about the, you know,

the sort of use cases in any specificity in terms of

what the sort of practical, real dangers of sort of

real -- the risks were, rather, in the privacy

realm, say with, you know, monthly versus interval

or whatever, that kind of data? I mean, did you get

down into that level of detail?

1   MR. ELKIND: Not really. I mean, we --

2 definitely the more granular we can make the data,

3 you know, the consensus was that that's going to be

4 the most helpful. But we didn't get too deep into

5 specific use cases along those lines, although

6 Michael Murray was -- I know he's going to be

7 speaking later. Perhaps he might be able to speak

8 to that, because he was part of that group.

9   So we didn't get down to that level, but I

10 think, you know, all these different, you know,

11 levels of data, they do have different uses. But I

12 think, you know, the more granular you can get it,

13 the more beneficial, I think, for at lot of at least

14 these third party companies.

15   But certainly, even having, you know, less

16 frequent interval data, there still can be a role

17 for that and it may just be something as simple as

18 making sure that our incentive policies are directed

19 at least in the right, you know, general

20 neighborhood, if we -- you know -- we may not be

21 able to get down to more specific than that.

22   COMMISSIONER McALLISTER: Yeah, but you can

23 do a lot with practical knowledge generation with

24 less granular data, but you know, weather

25 normalization and, you know -- anyway, we don't need

1 to get into the analytical details too much.

2   But I guess my theme throughout the day is

3 going to, at least in part, be where there -- and

4 I've asked the utilities in various forms, and

5 hopefully, we'll hear some discussion about that

6 today. But certainly, we need to build a commonly

7 accepted knowledge base about what statute actually

8 says and where there are conflicts between statute,

9 regulation, decision at the various agencies, and

10 pick that apart.

11   Like, okay, well, if we want to go over

12 there, then what are the barriers and the conflicts

13 that we will encounter along the way, and have we

14 solved those. You know, I definitely don't want to

15 hear, like, oh, that can't be done because, you

16 know, the statute says x.

17   Well, you know, what would be necessary to

18 get over that barrier? Those are going to be kind

19 of the proactive message that we're going to hear

20 from me, and hopefully from others, throughout the

21 day. So I want to -- Heather, how do you want to

22 handle questions from the audience, too, or do you

23 want to wait between panels or?

24   MS. RAITT: If we can wait between panels

25 that'd probably be great.

1   COMMISSIONER McALLISTER: Okay. Great. So

2   thanks very much, Ethan. So stay tuned for

3   questions at the end.

4   MR. ELKIND: Okay. Thank you very much.

5   MS. RAITT: All right. Our next speaker is

6   through WebEx, and it's Sean Randolph. I'll get

7   your presentation up.

8   MR. RANDOLPH: Suggest you flip the slides?

9   MS. RAITT: Yes, I'll flip the slides. I'm

10 just -- give me a moment here.

11   (Pause.)

12   MS. RAITT: Okay. Ready to go.

13   MR. RANDOLPH: Great. Thanks. Thanks

14 everybody for the chance to connect with you today.

15 Sorry I couldn't come in, in person. So I'm testing

16 out the technology here.

17   So the timing for the conversation is very

18 nice for us, as we just released this report

19 yesterday, yesterday afternoon here in San

20 Francisco. So I'm Sean Randolph. I'm Senior

21 Director for the Bay Area Council Economic

22 Institute.

23   And we're the, essentially, the research

24 analytics think tank arm of the Bay Area Council.

25 So we do independent, fact-based analysis on

1 economic issues impacting the competitiveness of the

2 state's economy.

3   And we began working on this about a year

4 ago in the belief that it's critical for the state

5 to be investing in a 21st century infrastructure if

6 it's going to be globally, as well as nationally,

7 competitive.

8   We know that other places around the

9 country and around the world are doing better than

10 we are in that, and that it's something that needs

11 to be addressed. And so if you'll go to the next

12 slide, we worked with a panel of leading energy and

13 telecom companies.

14   We decided to focus on those two sectors as

15 being especially critical for the state; telecom

16 because of the need to move the data, and on energy

17 because of state energy policies that need to be

18 implemented, and then how they come together through

19 a smart grid.

20   We convened four expert panels in the

21 course of the process, two each on energy and

22 communications policy, two each on energy and

23 communications technology, to get some insights into

24 both the policy issues, but what was the potential

25 of getting the right infrastructure in place as soon

1   as possible.

2   So to kick this off, our belief has been

3   that we need to be rethinking what 21st century

4   infrastructure is, how we are moving and consuming

5   information and energy. And we're seeing that a

6   growing reliance on communication com activity is

7   going to require greater resilience and great

8   reliability in the electrical grid.

9   We're also seeing that the energy sector is

10 going to need communications upgrades so that

11 information can flow now in multiple directions

12 between consumers, utilities and different points

13 that connect to the grid and all this is leading us

14 into a focus on smart grid.

15   So next slide. So starting with the

16 communications part, then I'll say a bit about

17 energy since they obviously do connect, our point of

18 departure was considering the digitization of the

19 economy and it's being digitized at an

20 extraordinarily rapid pace, even as we sit here and

21 talk.

22   So total Internet traffic is expected to

23 grow about threefold between 2013 and 2018. Every

24 day there are more users. There are more devices.

25 There's more traffic per users and the expectation

1 is there'll be about 64 times the Internet traffic

2 volume by 2018 as was produced in 2005, and that is

3 just a phenomenal amount of demand on the system.

4   We're seeing demands for com activity

5 arising out of the growth of mobile data, arising

6 out of the use of mobile data is about 18 times the

7 size of the total global Internet in 2000, which

8 wasn't so long ago.

9   We're seeing Cloud traffic likely to grow

10 fourfold just from 2013 to 2018. So this is all

11 happening as more and more facets of the economy are

12 being digitized. Now, throw on top of that, and

13 this will be resonant of the presentation you just

14 heard, we have the Internet of things coming on,

15 including consumer electronics.

16   Vast censored networks are on their way.

17 Infrastructure for communications from machine to

18 person, infrastructure to car. We're also seeing

19 the rapid development, very small still, but about

20 to grow quickly, we think, in wearable devices,

21 about 22 million in 2013, expected to grow to maybe

22 177 million by 2018.

23   Industrial processes, as many as maybe two

24 billion devices are going to need to be connected to

25 each other within the next three to four years. So

1 all of this is being delivered, all these services,

2 we believe, in a marketplace that's changing very,

3 very rapidly.

4   It's basically 20th century infrastructure,

5 certainly from a regulatory process. You know,

6 phone and Internet services were previously being

7 delivered through separate structures by separate

8 providers. And now, the lines between

9 telecommunications and information providers are

10 being blurred by companies like Google and Skype and

11 others.

12   So next slide. So if we look at broadband,

13 then, right now we're not doing that great.

14 California as a state ranks about 18th nationally in

15 broadband schema speeds. In some places it's

16 actually quite good, but I think that relatively low

17 ranking is partly a function to say it's size and

18 geography.

19   In a small state it's easier to have

20 concentrated high speed service. You know, we have

21 a lot of rural areas in the state that are not well

22 served or under-served, and I think that kind of

23 dilutes our performance if you're ranking on a state

24 level. But there's obviously a way to go.

25   In terms of infrastructure, we're talking

1 about 21st century infrastructure. We could talk

2 about what that means, but there are advancements in

3 copper wire and coaxial cable, but especially

4 fiberoptic cables that can provide Internet speeds

5 up to maybe 100 times what traditional copper wires

6 can do.

7   We're seeing mobile broadband evolving into

8 an LTE advance standard that can achieve gigabits

9 speeds, and then we have some of the other hard

10 infrastructure, the micro cells, distributed antenna

11 systems that are providing better coverage, managing

12 usage on crowded networks.

13   So if we have this kind of infrastructure

14 in place on the most expedited basis possible, you

15 know, there are extraordinary opportunities for

16 leaders from California and for transformational

17 change across a really wide range of sectors.

18   We're seeing really significant

19 applications in agriculture with field sensors and

20 drone technology, education. More than 60 percent

21 of the U.S. schools don't have the adequate

22 connections for digital learning. Khan Academy,

23 things like that are coming on.

24   MOOCs are coming on. So digitization of

25 education is starting to get underway. Health, so

many applications coming on. Remote monitoring or

chronic diseases by video can reduce, we believe,

beds, days of care in facilities by as much as 40

percent.

There's the ability to share large files,

like retina scans, x-ray, all around the globe for

quick diagnosis. And I think we're only beginning

to see the applications of that, including sensors,

actually nano-level sensors that will go into the

body and seek out malignancies and report back from

inside the body. So sensors everywhere.

Public service. Intelligent street

lighting is becoming more energy efficient. RFID

text can be used for tracking garbage collection.

And then you get to office environments. Growth of

telework, holographic conferencing coming.

About 13 million people worked from home in

2010. That's up from 4 million in 2000. So

enormous digitization across sectors,

transformational potentially across a lot of

different industries, and really affecting people's

lives in some fundamental ways.

Next slide. So we're sort of getting into

the policy area here. In the report we try to

communicate, first, so what is the economic

1 potential. Why should we be as a state invested in

2 and focused on getting the right infrastructure in

3 place as quickly as possible?

4   And then what do we need to do to get that

5 to happen faster. Why isn't it happening as fast as

6 it might? Well, there's a lot of things to talk

7 about, of course. Local ordinances can slow

8 projects, create additional costs.

9   A lot of cities don't even know who their

10 conduit is, but by identifying where a conduit is

11 and sharing that with private companies, using

12 things like utility poles and lighting poles,

13 there's ways to aggregate and better manage where

14 some of this communications infrastructure goes in.

15   CEQA can be a factor. Communication stuff

16 is being, going through the CEQA process like any

17 other kind of more disruptive, heavy infrastructure.

18 We need some more innovative permitting approaches

19 to how CEQA works through for telecoms.

20   And one of the suggestions we've made is

21 the idea of really enabling as network task force

22 that could do a number of things, in multi sectoral,

23 public and private, like we think something like

24 that could help educate local leaders on how to

25 identify key infrastructure, could help implement

1 and identify standardized permitting application

2 processes across the state, sharing best practices

3 for working with Internet service providers, and

4 possibly helping to prioritize infrastructure

5 investment needs across the state.

6   So just shifting for just a moment to the

7 energy side, because we did look at that closely, as

8 well. So we're really seeing a huge change with the

9 state's policies pushing toward more renewable

10 energy, lower greenhouse gas emissions.

11   Where once we were relying on centralized

12 powerplants to meet the demand, now, we've got

13 utility scale renewable facilities. We have behind

14 the meter generation playing a much greater role in

15 meeting demand and meeting the state's policy goals.

16   AB 32, of course, is right there at the top

17 of the list. We're looking, as we all know, to push

18 greenhouse gas emissions back to 1990 levels by

19 2020, 15 percent reduction from business as usual.

20 The RPS, pushing toward 33 percent by 2020. We're

21 about 23 percent today.

22   So these are really critical drivers that

23 we think getting this kind of infrastructure in

24 place is going to help to enable, or it's critical

25 to enabling it. And again, the demand on the system

1   from the successful implementation of these policies

2   is really tremendous and growing.

3   So the price of installing solar PV in

4   California has dropped by 50 percent in six years.

5   Net metering, feed in tariffs are incentivizing

6   renewables production, and we're leading the nation

7   in solar installations, about 240,000 distributed on

8   site solar systems.

9   And we're seeing customers in their homes

10 looking for more options to control their energy

11 use. Again, this is more demand on the system, on

12 the communications system. Electrical vehicles,

13 about 40 percent of nationwide sales are here in

14 California, aiming to have 1.5 million zero emission

15 vehicles by 2025.

16   So all that is going to add even more

17 demand to the grid, which could nearly double

18 average residential usage, although they could all

19 go back to storage. So all these changes have led

20 to new technologies, new strategies to better manage

21 electricity use, to integrate more renewables into

22 the grid, help managing supply that is going to

23 become more variable.

24   And so that does get us, we identified it

25 in the report, technologies, including investments

1 in battery storage, smart grid infrastructure,

2 called Smart Meters, energy efficiency, demand

3 response programs, EB charging infrastructure.

4   Next slide. So on the solar, I was going

5 to skip a couple of things here, but again, we're

6 leading the nation in solar installations. Twenty-

7 three percent of electric sales via renewable power

8 are in California.

9   The trick is, it's variable, and that --

10 it's creating a need to be able to move power in

11 multiple directions as more and more power is coming

12 from generation on residential rooftops, generation

13 buildings, utility scale generation, and that's

14 posing a grid for -- a challenge for grid operators

15 and utilities.

16   And the demand doesn't always correspond to

17 supplies in the state's remaining large power

18 suppliers. So things may need to be turned off and

19 turned on. So we're seeing a range of solutions out

20 there, and again, in this report we haven't tried to

21 be overly proscriptive, but battery storage is

22 already a big key, PUC mandating 1.3 gigawatts of

23 storage by 2020.

24   EV grid integration plans can lead to

25 better control of EV's use and their impact on the

1 grid. We're seeing more use of smart grid pilots

2 testing home area networks, allowing for smart

3 appliances and demand response programs, shifting

4 time of energy use.

5   Where to use practical grids, universities,

6 hospitals, businesses. UC Irvine operates maybe the

7 most advanced in the country, and of course, a

8 demand response. And the next slide, this is the

9 next to the last.

10   So the good news is that California's

11 leading the nation in advanced metering, saved

12 customers each between 40 and $70 per year. But the

13 data from these meters could be used across utility

14 silos, and acts as a platform for improved services.

15   So I think this connects that to the last

16 presentation. There is customer choice. Customers

17 are starting to modify behaviors to control costs.

18 They've been doing this for a while, but with the

19 technology this is going to accelerate, we think.

20   There can be greater transparency. Things

21 like O Power and NIST already have an impact here,

22 allowing users to control their energy use, as well

23 as to better understand what their total production

24 and use is.

25   And then it's important, I think also, to

tag the issue of resilience that this technology can

help support. Between 2003 and 2012, the U.S.

suffered almost 680 weather related outages of

durations we think can be reduced if utilities know

where the power is off immediately. So I think

resilience is a big part of the story.

And finally, the last slide, where we want

to connect, we think there's a need to connect all

this into policy goals. One question concerns

rates. They were created for really a one-way flow

of electricity.

The cost to maintain wires and connection

account for about 45 percent of energy bills. And

so there's a need to disaggregate, fix some variable

costs so that customers can better understand their

time variance usage, you know, throughout the day.

The CPUC is already on this, but it's

important to incentivize the adoption of energy

storage technologies, which we think is a key to the

whole puzzle.

We think that there is a big opportunity to

draw on the data that's being generated by these

technologies to allow greater customer engagement,

give utilities better visibility of behind the meter

generation to predict a full supply and demand on

1 the system, and to bring about a more full usage of

2 the data that the communications technology will

3 enable in the grid to provide better services

4 across, you know, many different kind of

5 applications.

6   So the bottom line to the report is we've

7 tried not to be very proscriptive in detail on very

8 specific policy initiatives. The Bay Area Council

9 has a 21st Century Infrastructure Task Force,

10 multiple large and smaller companies across the

11 energy and communications that will be thinking

12 about the specific kinds of policy initiatives that

13 should be prioritized.

14   But we've basically produced this study

15 with the idea of focusing on the importance of

16 accelerated investment in these technologies, both

17 for energy use and for communications, especially

18 through the Smart Grid, is something that's really

19 critical to California's future economic

20 competitiveness.

21   COMMISSIONER McALLISTER: Okay. Thanks

22 very much, Mr. Randolph. That was very helpful. I

23 think we're going to -- in the interest of time

24 here, we're already running a little bit behind, so

25 I'm going to go straight to Abhilasha, I guess, with

1   the next presentation about the action plan itself.

2   Mr. Randolph, if you could hang out in case

3   there are questions, that would be great, after this

4   next presentation.

5   MR. RANDOLPH: Right.

6   MR. WADHWA: Thank you, Commissioner.

7   Thank you, Sean. My name is Abhi Wadhwa. I'm from

8   Existing Buildings Unit and Energy Commission, and I

9   just wanted to give a really high level, quick

10 overview of how we see data in the Existing

11 Buildings Action Plan.

12   And really, as Commissioner had mentioned,

13 in the kickoff Workshop the way it is envisioned is

14 we see data as the catalyst, as really the cytoplasm

15 that drives many of the strategies, and I want to

16 give an overview of which strategies we see it

17 directly influencing.

18   Really, it's about consumer, consumer,

19 consumer first, and providing access to the

20 consumer, or helping them drive their decisions,

21 providing data access to market actors and also

22 policymakers. Strategy 2.1 talks about establishing

23 the framework under which this data should be

24 collected, the protocols which would need to be

25 standardized.

1   And I believe Ethan had spoken about it

2 earlier and Sean touched upon it, too, how in any

3 industry it's really necessary to have

4 standardization of how we are talking to each other.

5 If we are all talking different languages then very

6 soon we'll be talking past each other.

7   There are some issues which have been

8 lingering in the background for a while now, and I

9 believe the time has come. We are at a juncture

10 where we face them head-on. Mapping meters to

11 physical buildings is one such issue which I believe

12 comes across in many of the programs we're running

13 currently.

14   And as one of our strategies we propose to

15 resolve this and we would be requiring utilities to

16 map meters to the building locational addresses so

17 that we can roll that into a cohesive

18 infrastructure, not just for benchmarking, but for

19 data access in general.

20   And then improve access to energy use data

21 and analytics. It's a strategy which is not a

22 standalone strategy by any means and would tie

23 closely to M-E-N-O (phonetic), for example.

24   In this world of over-bombardment of data,

25 the last thing we want to do is overwhelm the

1 consumer with data that they don't need, but at the

2 same time providing it to them at their fingertips

3 when they do need it.

4   And at the same time that same data works

5 for them in the background from the market actor

6 side. Standardized process for local governments to

7 access data. A lot of good policies, a lot of good

8 ordinances come out of local governments.

9   And again, when the language of speaking is

10 consistent we are not doubling the efforts of

11 exchanging this data and we are leveraging each

12 other's efforts.

13   Standardized utility rate information,

14 again, as Sean touched upon this earlier, you know,

15 connecting rates to policy goals is key to

16 realistically achieving these goals. And right now,

17 even something simple as having a consistent format

18 for all the different utility rates, all the small,

19 municipal utilities we have, is not something we

20 have achieved so far, so looking at that in this

21 strategy and taking on that role.

22   Project specific measured savings. So from

23 my perspective it's always easier, just as a

24 fundamental rule of statistics, it's always easier

25 to zoom out, but the basic unit at which the data is

1 collected determines the quality and reliability of

2 the larger picture.

3   So to have this granular, you know, local

4 specific anonymized information for program

5 participants, which you know, allows us to make more

6 informed decisions for programs going forward, and

7 data access for policy planning and research, which

8 is the final one where, you know, data is really our

9 pulse, our ears to the ground, and it helps us

10 course correct, see what is working, what is not

11 working.

12   Establishing energy use baselines, I

13 believe Martha will talk more about this, again,

14 ties into geographic specific, vintage about

15 buildings, just having some basic information about

16 buildings, which helps us establish their baselines,

17 and developing data collection protocols and

18 forecasting methods.

19   The idea is that through the IEPR process

20 in demand forecast we already use a lot of this

21 energy efficiency data, and we believe that with

22 some strategic thinking we can tap into this for

23 program purposes, as well, and allow some of this

24 access wherever it's anonymized and accessible for

25 consumers.

1   So really, as I said, we think of data as

2 the cytoplasm, which is the background of so many

3 strategies. But first of all, to secure this data,

4 to have a house for it, we need to establish a data

5 infrastructure.

6   So while Martha will speak about what

7 elements of this data we are looking at, like how we

8 would be using it, I want to talk about what we just

9 said. This data infrastructure is Strategy 2.1, we

10 look at protocols which are being developed

11 nationally, like standard energy, efficiency data,

12 exchange protocol, the building energy data,

13 exchange specification and Green Button.

14   These are all national efforts which are

15 coming up, aligning ourselves with them, seeing how

16 we can benefit from them, standardizing utility rate

17 tariffs, meter matching to buildings, this really

18 forms the framework under which we start collecting

19 this data and disseminating it.

20   First Strategy 1.2 [sic] is benchmarking.

21 We establish thresholds for benchmarking in the

22 action plan. I believe the proposed threshold is

23 50,000 square foot for nonresidential buildings.

24 Looking at that, how it would feed into reliable

25 assessment tools.

                                              62

1   We make a clear distinction between

2   assessment tools and asset rating tools. While

3   assessment tools speak to specific occupant groups

4   and how their behavior affects their specific usage,

5   asset rating tools are looking at the property as an

6   asset, as a standalone asset, and ties into property

7   valuation and real estate industry, which just calls

8   for coming up.

9   The benchmarking would also feed into

10   program data and would drive innovation when this

11   data accesses easy and reliable assessment tools.

12   We see them as the drivers for a performance driven

13   industry.

14   Matt Golden is here and he will talk about,

15   you know, his efforts with open E meter and Caltest

16   and CalTRACK. We see that as valuable to providing

17   industry a very hands on feedback to correct itself.

18   And asset, you know, developing reference

19   methods for asset rating tools, it really embeds, it

20   gets embedded in the value of real estate, providing

21   a standard way to look at properties, which is

22   reliable.

23   And assessment tools, we see them as

24   feeding into goal five, which is about finance,

25   mainly, and the Investor Confidence Project. We

1 feel that currently, in order to get to scale, the

2 tools need to be really reliable so that the savings

3 are risk free, or minimal risk, and this is what

4 would result in, you know, scale-ability in the

5 finance sector.

6   So with that, I'm going to leave it off. I

7 apologize for my hoarse voice today. I will let

8 Martha take it from here.

9   COMMISSIONER McALLISTER: Thanks, Abhi.

10   MS. BROOK: Oh, I don't actually think I'm

11 on the Agenda next, but that's all right.

12   COMMISSIONER McALLISTER: That never

13 stopped you before, so.

14   MS. BROOK: Exactly.

15   (Laughter.)

16   MS. BROOK: But since I do have the mic, I

17 did want to say to all the speakers, thank you so

18 much for coming. I know that you juggled your

19 schedules and changed your plans and donated your

20 time, and we really, really appreciate that.

21   We are -- I don't want to say beggars can't

22 be choosers, because we were definitely choosey

23 about asking you to participate, and if I don't have

24 the opportunity now, I wanted you to know that we

25 really appreciate it. Thanks.

1   MS. RAITT: We go onto the next speaker, or

 2 did you want to take comments now?

 3   MS. BROOK: So this is the end of the

 4 setting the stage section?

 5   COMMISSIONER McALLISTER: Yeah. So we

 6 wanted to "set the stage" with these first few

 7 presentations. We're 15 minutes or so behind

 8 schedule. I kind of feel like, let's see, rather

 9 than go to questions that seems to always be our

10 downfall is to go on the with discussion and

11 questions and stuff.

12   And so I guess I just want to say that we

13 definitely will have time for questions along the

14 way. Please note them down and put them in the most

15 concise way you can and we'll -- so we can get them

16 on the record.

17   We don't have to finish all these

18 discussions today. There's a comment period that

19 will go on for some time, and in fact, your written

20 comments, if you can be, you know, as sort of clear

21 and cogent as possible, and sort of distill the best

22 ideas and solutions, because we really want this to

23 be about solutions, that would be great.

24   So I don't want to limit the discussion

25 here today. I just want to be cognizant that we

1 have a lot of expertise in the room and we have --

2 want to get through the topics. There's obviously,

3 in what Abhi just presented there's a lot, and it

4 all kinds of fits together.

5   I mean, I don't know how many of you saw,

6 you know, "A Beautiful Mind," right? It's like

7 arrows everywhere. So not quite that. But we want

8 to try to keep it sort of each conversation as

9 discrete as possible, even though we know that

10 they're all kind of linked, not only within the data

11 strategy itself, but across the action plan.

12   They all self-reinforce. So I want to just

13 sort of -- that is the context I think we all need

14 to understand, but let's try to be as efficient as

15 possible getting through the presentations. So

16 let's go up to the next set of presentations.

17   MR. MURRAY: So thank you, Commissioner

18 McAllister. So my name's Michael Murray, with Green

19 Technology Leadership Group, and I was asked to give

20 a presentation about an area I'm very passionate

21 about, which is, what do you actually do with all of

22 this energy data from meters and what is the cool

23 range of applications that really make energy

24 savings and financial savings real for customers.

25   And my background is as an entrepreneur

having started a company in the commercial building,

energy management software area. So I've been very

excited about this for quite some time. As

Commissioner McAllister said, we really need to

animate this market, because there's simply no way

that you can get to that 5.6 percent per person, per

year reduction in carbon emissions without some

pretty serious changes to business as usual.

And one of the best ways that we've seen in

recent times to facilitate that sort of rapid

nonlinear change is with the private sector and

private sector capital dramatically changing how we

do business today.

So let me cover some of these interesting

uses of energy data. So the first thing is that

energy data is used all over the place, and it's --

that's a good thing and that's a bad thing. It's a

good thing in the sense that if you get it right you

can help a lot of existing markets function well.

It also means that you can enable some new

markets for products and services that don't yet

exist. Where it's problematic is if you don't

provide energy data access in a simple way, then you

add this friction to billions of dollars a year of

different transactions and it really drags down

1 everything.

2 And so you know, we've all see in this

3 community the struggles of, you know, letters of

4 authorization to get utility data access, and wet

5 ink signatures and faxes going to the utilities.

6 And you know, if you add up, you know, emails and

7 time spent on the phone and all these things to get

8 access to usage data and to format it and to

9 normalize it and to put it into your software system

10 as an entrepreneur, you're probably not going to

11 make that product widely available if it's really

12 difficult.

13 So my point here is that there's great

14 potential, but there's also significant cost that is

15 incurred today with things like, you know, large

16 companies trying to get budget forecasts, looking at

17 their opex for next year, looking at, you know, the

18 cost of goods in their products.

19 Doing that sort of analysis, which seems

20 like it might be simple, can be really hard when you

21 don't have access to energy data. It could be

22 things like keeping your ESCOs honest. So looking

23 at the energy savings over time for a contractor who

24 is intended to, you know, get a share of the energy

25 savings.

1   Well, wouldn't it be nice to have an easy

2   way of really verifying how they're doing, and is --

3   you know -- are their payments fair for the energy

4   savings that they've delivered? And on the small

5   commercial and the residential side you've got

6   applications like getting an accurate price quote

7   for solar from someone who's not trying to sell you

8   solar.

9   Having that independence and autonomy from

10 someone making a recommendation I think would be

11 appreciated. There's also some exciting

12 applications with smart thermostats, and if you want

13 to see what the load reduction is at the whole home

14 level from a smart thermostat, well, you kind of

15 need access to the energy usage data in order to

16 assess that curtailment.

17   So when I talk about sort of advanced

18 applications what we sort of have in mind is this

19 notion of an app or software that can dramatically

20 change how business is done. And you know, a simple

21 comparison here of, you know, say an energy audit

22 for a commercial building, which could be tens of

23 thousands of dollars, versus an app in the app

24 store.

25   And I want to acknowledge this sort of

tension that exists here, because I have a lot of

friends who are both, you know, contractors and

energy auditors, as well as those who write apps.

And it's pretty funny because the guys who actually

do audits and walk through buildings every day, they

say, oh, well, you couldn't possibly have an app

that replaces us, you know.

We're boots on the ground and we're

actually looking at the systems. You know, I don't

care how good your software is, we're irreplaceable.

It's never going to be as good as what we have. And

then you've got, on the other side you've got the

app developers saying, that's great, but your stuff

doesn't scale.

We can get to hundreds of millions of users

much more quickly. You know, it doesn't matters if

it's not quite right. We have the ability to scale.

And so there's a lot of talking past one another.

You see this with things like remote energy

auditing.

You know, are the recommendations from

software really accurate? And I would just ask you

for the purposes of today to sort of put that issue

aside. I actually don't think that matters very

much in this debate.

1   And the reason why has to do with one of

2   the fundamental texts of Silicon Valley, which is

3   the *Innovator's Dilemma*, which is a book from

4   Clayton Christensen, and he -- you know -- this

5   whole notion of disruptive innovation.

6   And he talks about disruptive innovation,

7   and when you hear this word "disruptive," you might

8   think, okay, well, it sounds like something big or

9   something revolutionary, this notion of maybe

10 unseating incumbents in an existing market.

11   But there's a part of, if you go back and

12 you actually read it, we're actually missing one of

13 the definitions of disruptive innovation, which not

14 many people think about. And so disruptive

15 innovation, number one, has to cost dramatically

16 less than existing alternative, but number two, and

17 this is the one people forget, disruptive innovation

18 is actually less functional than the existing

19 offering.

20   And that's by design. So what I'm trying

21 to say is it's okay to have an app that's not as

22 good as an energy audit. It does less. I really

23 does and that's okay and that's the purpose. And

24 the reason why this matters is that this is a -- on

25 this graph here -- a distribution of building size,

floor space in America, with a small number of

buildings exceeding, you know, one and a half

million square feet, and then this so-called long

tail of buildings that goes out to the right of, you

know, just a couple thousand square feet.

A large percentage of these buildings,

they're never, ever going to pay for an energy

audit. Even if the state pays for 100 percent of

the cost, they probably wouldn't even do an energy

audit. So you have to reach these customers with a

cheaper or free and less functional alternative, and

that's okay.

If you think about the early days of

Android, you know, Android was definitely inferior

to IOS, at least in my opinion when that first came

out five years ago. So why is it disruptive? Well,

it was kind of less functional and it was free. And

it was free to the phone manufacturers, right?

And so it's okay to do less. It is okay

because you can get scale and you can try to address

this long tail of buildings that have historically

been dramatically under-served. Okay. So onto the

cool stuff.

So what do you do with all this usage data?

And I'm going to give you a range of commercial and

1 residential applications. So you know, simple line

2 chart of your energy usage in a commercial building,

3 you've got a gray line put on top of that, which is

4 your predicted usage.

5   So prediction is really important in the

6 software world for all sorts of reasons. Some of

7 the application you can do here are you can predict

8 your peak demand. That seems like a pretty

9 important thing to do when you're on a monthly

10 billing cycle and you pay for the high water mark

11 during that period.

12   So wouldn't it be nice to have a text

13 message alert going out to your facility managers

14 that says, hey, today's the day; if you don't

15 curtail we're going to be paying $10,000 extra this

16 month. That's application number one.

17   We also have mandatory time of use pricing

18 for commercial customers. So getting a sense of

19 what your usage is going to be in those -- in the

20 peak period from, say, 12:00 noon to 6:00 or 7:00

21 p.m., well, that's really important, too, because

22 that's going to affect your budgets for next year.

23   You can also do something called load shape

24 benchmarking, and you probably know this concept of

25 benchmarking that is, you know, like Energy Star,

1 for example, a one to 100 rating of, you know, how

2 does your building compare with other buildings.

3   Well, it turns out you can actually look at

4 the shape of the load curve on a typical Monday or a

5 typical Tuesday, and you can determine certain

6 things about the operation of the building. So if

7 that load is short and squat or if it is tall and

8 peaky, that tells you certain things about, well,

9 when certain mechanical systems are coming on.

10   It tells you, you can ask the user some

11 questions like, when do people really come into work

12 in the morning, and if your load is significantly

13 ahead of the actual period of occupancy, that's a

14 simple way of identifying waste.

15   So there's a lot of statistics that can be

16 applied here to really generate useful, actionable

17 information in a commercial building context. So

18 you could imagine, you know, fleets of GSA folks or

19 school district facility managers or, you know,

20 hospitals like Kaiser Permanente and others, looking

21 into this information, having email and text message

22 alerts going out to folks at the right time.

23   So you don't have to hire, you know,

24 another energy manager to pay attention to this.

25 You just need to better utilize the existing people

1 you've hired in order to take some more

 2 responsibility for energy management.

 3   Then if you want to look across a

 4 portfolio, wouldn't it be nice to just see which

 5 buildings need a lot of priority, which buildings

 6 need attention versus those that don't. So this is

 7 a simple chart that can look at the drift of

 8 energies to show the billings that are trending in

 9 the wrong direction.

10   This seems like a simple thing for

11 executive managers and facility managers to look at

12 every week, every month or every quarter. You sit

13 down and you say, why is this the worst performing

14 one and it's only getting worse and it's bright red.

15   Anyone can understand that signal. You

16 don't have to have an energy audit to realize that

17 this is how you should rearrange your personnel to

18 manage this more effectively.

19   Okay. Another exciting tool, moving onto

20 the residential space. I mentioned before this

21 notion of getting a price quote for solar that was

22 independent or looking at your solar potential on

23 your house, you know, without having to talk to the

24 salesman.

25   Wouldn't that be nice? A lot of people are

shopping for cars that way because they don't want

to have that sort of unfriendly interaction with a

car salesman. So this is a tool that was released

recently from the Center for Sustainable Energy.

It's called the Residential Solar Rate

Analyzer, and it's this cool Google maps interface.

The numbers here on this sort of bull's eye looking

graphic in the middle, that tells you the azimuth

angle.

So that's, you know, basically, you know,

how off of the, you know, north, and north and south

cardinal directions is your rooftop. So you find

your house here, and I encourage you to all check

this out.

You find your house or your apartment or

whatever and you look at the azimuth angle. You

type it in and then you can use your Green Button

data file from your own house, which you can get

easily from your electric utility now, because

you're in California, and you can upload that and

it'll tell you a pretty good estimate of what the

solar potential is, you know, how many kilowatt

hours a year are you going to get out of a system.

That's great. That's a useful thing to

bring to your -- you know -- your roof contractor

1 or, you know, Solar City or someone else and says,

2 well, here, this is what this system says; what do

3 you think. You know, is that -- is your proposal

4 above or below this.

5   So it gives a consumer some confidence and

6 it's only possible because you know what your load

7 profile looks like from the Green Button data. So

8 when it comes to cost, you know, what is this, you

9 know, what are my savings actually going to be.

10   It really matters. If you're, you know, if

11 you're like me, you know, very, very small electric

12 bill because I care about this stuff. Solar

13 probably doesn't make a lot of economic sense for

14 me, right? But if you have a much larger bill and,

15 you know, the threshold for a large bill is sort of

16 decreasing every day, but then it becomes really,

17 really important to determining economics of solar

18 for you.

19   Okay. Third really cool application, or

20 fourth application, and this is in a residential

21 context, is disaggregation. So statistically, with

22 some machine learning, you can go through interval

23 data and you can determine, you know, make guesses

24 at things like, you know, when is the washing

25 machine on.

Is there an electric water heater? Is
there some sort of pool pump? And being able to do
this is incredibly powerful. There seems to be
companies that start up every year promising to
instrument someone's home with, you know, a dozen
different electrical meters to get this information.

Well, if you -- you could just do this all
in the Cloud with a bunch of smart engineers and
never have to pay for any of that hardware again.
So you -- this could, for example, lead to an
itemized utility bill. Wouldn't that be nice?

How many people have you talked to that
say, well, you know, my bill's about, you know, $75
a month. I really have no idea, you know, maybe
it's this and maybe it's this. Who knows? You
throw up your hands and you don't think about it
again.

Well, this would tell you, you know, your
appliances, based on how much they're on, about how
much it's costing you per month for that particular
appliance. You could couple that with available
rebates.

Imagine if you want to a Home Depot and,
you know, provided some information about your
electric usage history and it said, you know what,

you're in Home Depot and you've got this problem and

we have a special today on new water heaters. What

do you think? Great, great application.

Another one with air-conditioning. So what

percent of AC is -- what percentage of total use is

AC? Great way to determine that, especially with

rising temperatures. You know, folks in the Central

Valley, very important application. And some sort

of ranking on the bottom, you know, are you in the

red zone on the right; are you in the green zone on

the left.

Very simple, you know, is this person who

downloads an app going to do an energy audit of

their home? Well, maybe, maybe not. It's possible,

but the threshold for downloading an app on your

phone is a hell of a lot lower than getting a

contractor, finding some sort of rebate -- seeing if

the utility will pay for it. All that stuff takes

time.

Another application, residential or

commercial, is this notion of energy competitions.

Wouldn't it be fun to compete against your neighbors

and see who can save by the greatest amount? This

one happens to be a school district in San Diego.

Over a three-week period they saved about

1 $7,700. That's equivalent to about $800 per school.

2 The winning school, as you can see here, saved about

3 19 percent on their electricity usage. The kids

4 were going home telling their parents, you know, why

5 aren't we conserving at home; why don't we have, you

6 know, LED lights installed and so forth. So there's

7 definitely some bleed over effect.

8   Parents loved it. The kids loved it. It's

9 a great educational opportunity, integrating with

10 the schools, and each school brought home 800 bucks

11 that they would have spent on utilities otherwise.

12 So again, you have to have the data in order to do

13 this sort of thing.

14   The standings, the rankings, whether you go

15 from second place to third place to fourth place and

16 you're falling behind, all of that has to be updated

17 with the energy usage data from the site. This is a

18 chart of some of the benefits of exposing households

19 to energy usage data.

20   This has been talked about for some time,

21 but it's worth mentioning it here again. There's a

22 relationship between the granularity and the

23 frequency with which people are exposed to their

24 energy usage data and the resulting energy savings.

25   So again, in the attempt to sort of

1 lubricate market activation here, if you provide

2 more granular information at a higher frequency to

3 users, they're much more likely to see significant

4 energy savings and that can be double-digit, double-

5 digit percentages.

6   It doesn't have to be, you know, just two

7 or three percent, you know. I'll take two or three

8 percent any day of the week, but you could get to 10

9 or 20 or much higher numbers.

10   Okay. So one of my last points here is

11 that if you don't have a good system for accessing

12 usage data, then it costs you a lot of money, and it

13 costs the ratepayers through the efficiency programs

14 and the public goods charge, it costs the building

15 owners and it's a burden to everyone involved.

16   So you know, in our experience, getting an

17 electrical meter installed with some sort of data

18 acquisition box and a contractor, it takes weeks to

19 do this and it'll cost between three and $6,000. So

20 this is a cost that is -- instead of -- if you can't

21 access it from the utility then you're going to have

22 to go in and spend six grand to figure out, well,

23 what's my usage and should I do something about it.

24   Well, a free app in the app store has a

25 much lower threshold, right? You're more likely to

have millions of people use it, even though it might

not be real time data. It might be one day delayed,

but that's okay, right?

A little bit less degraded functionality is

okay. That's okay as far as disruptive innovation

goes. And you know, unfortunately, the ratepayers

do pay for redundant meter installation, and that

happens, because we're just now being able to --

just now able to get data through the Green Button

system.

Okay. I'll end with this as perhaps a

cautionary tale. This is a distribution of Energy

Star scores from New York City. They have Local Law

84 requires benchmarking for many thousands of

buildings in New York and all five boroughs, and you

know, the median score here was 70.

One thing, if you go back and you read

these reports in detail, one thing that really stuck

out to me is that the vast majority of all of the

buildings benchmarked in New York were done by

consultants, not by the building owner.

To me, that says that we've failed, right.

The fact that you need to have someone help you fill

out a website on EnergyStar.gov, that means we've

failed. We've not sufficiently done our job to make

1 this easy enough so that the average person can do

2 it.

3   And you know, we've made a lot of progress

4 in California, but there's still a lot of barriers

5 here. And so you know, as we look at, you know,

6 comparisons to other parts of the country, you know,

7 looking at mandatory benchmarking, it's very

8 important to look at, you know, who's doing the

9 benchmarking, right. How difficult is it.

10   I'm sure you can slap a fine on someone,

11 but the point is not to get the rating. The point

12 is to do something about it, right. The point is to

13 have it valued in real estate. The point is to use

14 that as a starting point.

15   And you know, if you have to pay thousands

16 of dollars to a consultant just to get a score, it

17 probably leaves a bad taste in your mouth and you're

18 probably not going to want to deal with it. But if

19 you can do it simply, and it's an on ramp to other

20 services, it's not just this annoying thing you have

21 to do for compliance, then I think we're going to

22 have much better success.

23   And that's how you get the vast majority of

24 existing buildings that have not seen an energy

25 efficiency program that were built before Title 24

1 existed, and they need to get addressed through

2 programs like AB 758. I'll leave it there. Thank

3 you.

4   COMMISSIONER McALLISTER: Thanks a lot,

5 Michael. So the Agenda does have public comments

6 now. Maybe, Heather, what's your view on whether we

7 go now or we wait till just before lunch?

8   MS. RAITT: Well, it's -- we can go either

9 way, but you know, if you want to wait till just

10 before lunch, then we'll probably break at a more

11 reasonable time.

12   COMMISSIONER McALLISTER: I want to kind of

13 throw out a lot of the whizbang stuff and really get

14 people thinking, and we have another one coming up

15 here. I want to thank Michael for all of his work

16 on this and thinking about it, you know, and Ethan

17 and Matt, who's coming up, and others that are going

18 to present throughout the day.

19   But that, you know, the what you just said

20 at the end I think is that easy access, you know,

21 low friction, you know, if people have to think too

22 hard about it or invest too much of their time, then

23 we know what the marketplace is going to do with

24 that. It's not going to do it.

25   So we can just hear that over and over

again. I know that from my own personal experience,

you know, out there in the world being a

professional in this area. So I really -- and you

know, for 1103, for example, the benchmarking

program that we have. The goal is not -- it's not a

job creation program for consultants, okay.

I mean, I know there are consultants to

want it to be that way, and there's certainly some

expertise that, you know, would be great if it could

help nurture this ecosystem. But you know, we want

it to be most useful for the building owner for that

new building purchaser, in the case of 1103, and for

that long-term building owner for -- in the case of

the statewide benchmarking program, and it's got to

be easy.

One of the things we've said in other parts

of the action plan is that we're going to try to

work with EPA to improve Energy Star so that it

actually is more relevant than less. Now, we've

sort of swallowed a little bit of a pill saying,

we're going to standardize on this tool as, you

know, other jurisdictions have done, but then, also,

try to -- you know -- acknowledging that it's not

perfect and that for our purposes -- well, it wasn't

really designed for our purposes, per se, and we

1 need to kind of keep it moving in a direction that's

2 helpful for the marketplace.

3   So kudos to Energy Star for getting that

4 going. It's a great tool that we're going to have

5 to standardize on. It's definitely good enough for

6 that and we want to just make sure that we squeeze

7 out some of the transaction costs.

8   So anyway, really appreciate the

9 presentation. It gives us a lot to think about and

10 to aim for. So go ahead.

11   MS. RAITT: Great. So we'll move onto the

12 next segment on Data Enables Market Innovations, and

13 we have two speakers, and then we'll take public

14 comments before breaking for lunch.

15   MR. GOLDEN: Great. Thank you,

16 Commissioner McAllister and everybody who's here. I

17 think this is -- for those of us that live in this

18 universe, this is all really exciting. But

19 actually, I think is actually a very exciting time.

20   Like energy efficiency, this data work is,

21 you know, it's silver buckshot, not silver bullets.

22 But I actually think we, for the first time ever,

23 just in the last year, have all of the buckshot in

24 one place. We have everything that we need to

25 actually make this stuff work.

1   It's all happening. None of it's perfect.

2   I'm going to go through a bunch of the tools that we

3   are implementing and they work and they're all under

4   development and we have to make them a lot better,

5   but they actually are here and they do basically

6   work, and that's the good news.

7   I'm going to go through a quick

8   presentation. I'll give a little bit of context.

9   I'm going to talk about a specific tool, which is an

10 Open Source tool called the Open Energy Efficiency

11 Meter that is within that context.

12   And then I think what is very exciting

13 today is that just today there's a kind of a large

14 coalition that put forward some really interesting

15 use cases in the form of a pilot proposal to the PUC

16 that's based on a lot of this work, as well.

17   So we're actually -- not only is the

18 technology in place to actually start taking this

19 data and turn it into something, but there's

20 actually a path forward that many of us are seeing

21 to say, how can we actually start implementing this

22 stuff quickly, because really, there is no time to

23 waste.

24   And we got to start learning from real

25 experience and getting data on how this stuff works,

1 not just talking about it. So I was involved with a

2 process that came from the Public Utilities

3 Commission that the Energy Commission was very

4 involved in and actually provided a lot of support

5 and feedback, and that was about a two and a half

6 year process.

7   And I mean, this is the idea the Cal Test,

8 CalTRACK process that was referred to in that slide

9 earlier, and was already presented. So I'm not

10 going to go into a lot of detail, but it's really

11 within the framework of the existing Home Upgrade

12 Program.

13   It turns out, actually, we save a lot of

14 energy, even compared to other states around the

15 country. We actually do pretty well, but from a

16 market standpoint the tools we're using, we're doing

17 some over-predictions.

18   There's some concern and it was really a

19 kind of constrained market that was hard for

20 innovation to occur and hard for a kind of industry

21 to scale upon. So we went through a process with

22 both commissions and all for IOUs to develop a

23 solution to that.

24   And the solution was something that is

25 called CalTRACK, which is initially an up-front

testing protocol that allows software to come into

the California market, that allows some diversity

and competition, and that's now complete.

We have five software tools in the

marketplace. So contractors and industry have some

choice in the matter. And we tested those tools

against real buildings. It's kind of a vetting

process, and we also, really most importantly, got

them all speaking HPXML, which is a national data

transfer standard.

And so now, everybody's speaking the same

language in California. The second part of that

process, which we're just now undertaking, which we

all had kind of broad agreement again on this

approach, is the notion of something called

CalTRACK.

And CalTRACK is really what is now the EE

meter, which I'll be going through. And CalTRACK is

this notion that the only real way to have a playing

field where basically ideas in the form of software

in this case, but really, it's about business models

and ideas, can compete on a level playing field.

And so CalTRACK is this notion of, we're

going to track actual savings because we have all

this meter data, and we're going to use that within

the current rebate construct to calibrate tools so

that they're all actually kind of on a level playing

field and predicting accurately against the actual

performance of those predictions on real buildings,

and also, feedback to the market and feedback to

contractors.

I mean, people literally don't know how

they do. There's, not only do they not get

incentivized to do well, but they don't know how

they're doing. There's no feedback loop. And so we

want to create a feedback loop so that we can

calibrate predictions to actuals, and also, let

contractors know how they perform.

And we do see some wide variance there.

And so what that means is contractors actually

delivering better savings could actually tell their

customers they do that; so trying to start to create

some market pressure towards the direction that

we're trying to go.

And so that process, we're in kind of the

flow of that process right now. And it really is

about addressing, kind of, the existing Home Upgrade

Program and the existing construct. The CalTRACK

process has been, as many things are, there's a lot

of steps in the California process.

1   And so some of us that were involved in

2   that actually took that kind of core concept that we

3   agreed to and have turned it into something called

4   the Open Energy Efficiency Meter, which I'll

5   describe in a moment, which is a totally open

6   platform that basically does that analysis and

7   provides that feedback mechanism.

8   But before I get to that I just want to

9   frame out why this is all important, and this is

10   definitely, kind of my big picture theory of where

11   we're trying to go, which is, if you take a power

12   plant, right, a multibillion dollar investment and

13   infrastructure, you know, we look at that and say,

14   how do we actually finance that sort of investment.

15   And the way that you do that is through

16   something called project finance. So we're saying,

17   all right. I'm going to put a few billion dollars

18   into coal or a nuclear power plant and I expect that

19   that's going to produce energy for some period of

20   time.

21   I'm going to get paid for that energy and,

22   'lo and behold, that's the basis for putting that

23   billion dollars in. And you know, of course, the

24   developer has to have good credit and all of that,

25   but you're not betting that that company has good

1 credit, therefore will pay it back.

2   You're betting on the cash flow that comes

3 out of the money that you're investing in that

4 nuclear plant. And so this is how we do

5 infrastructure investments. This is how we build

6 power plants.

7   Now, when you take energy efficiency, which

8 according to many estimations is a bigger wedge than

9 decarbonization of the electrical sector to begin

10 with, and we can debate these numbers, but these are

11 real numbers from California and, wow, that's a huge

12 investment.

13   It's trillions of dollars, no doubt about

14 it. Just residential in California to hit our 2020

15 goals is a couple hundred billion dollars. But when

16 we think about that all of a sudden we say, all

17 right, well, everyone should use their credit cards.

18   Homeowners are going to pay for this

19 infrastructure investment and we're going to give

20 them a bunch of rebates, coupons, and that's how

21 we're going to finance it. And so this little

22 proposal, and especially when I get to what we're

23 actually talking about in terms of using this data

24 to kind of transform the market, is about saying,

25 we're going to move to a new paradigm where we're

1 going to pay for energy efficiency like it's an

2 actual grid resource.

3   We're going to turn it into cash flows and

4 we're going to finance those cash flows like we're

5 building a power plant, not like we're sending out

6 coupons for Bed, Bath and Beyond, trying to get

7 people to buy bed sheets at a discount or something.

8   So this is actually just a screen grab from

9 one of the views of the Open Energy Efficient Meter,

10 and I'll kind of -- I'm going to kind of go through

11 and explain in a little more detail. You know,

12 fundamentally, there's two major things we're

13 looking at.

14   We're analyzing, first of all, portfolios

15 of buildings. This is kind of fake data, honestly,

16 but we have this in actually real California data at

17 this point, as well. And you take a portfolio of

18 buildings, and that's really important to note, is

19 that we're kind of washing out the counter-factual

20 of, you know, you went on vacation and you got a hot

21 tub.

22   We're doing that through portfolios and

23 saying, you know, we're going to win some, we're

24 going to lose some. It washes out with data. Turns

25 out that when you actually take that view, energy

1 efficiency is very consistent.

2   We've produced really consistent yield

3 curves. Do I know that you're going to save exactly

4 the right amount or you? No, I don't. But I do

5 know that if I get enough people in a bucket that

6 they're going to perform in a very consistent way,

7 and that's not different if I was -- you know -- if

8 you were all applying for car loans, you know, I'm

9 going to know four and a half percent of you are

10 going to default.

11   I'm not going to know who it is. It

12 doesn't actually matter, you know, and that's

13 banking versus engineering, fundamentally. And so

14 this analysis is looking at a weather adjusted

15 baseline for that portfolio that we've created.

16   And really, all that XML data is what you

17 use to kind of create groupings. And the data we

18 looked at in California says, like, okay, home

19 performance contractors, for example, actually

20 produce a lot more savings than HVAC.

21   We're not going to make a judgment call.

22 It's not one better than the other. But we're going

23 to group them together. We're not going to put

24 smokers and nonsmokers into the same insurance

25 policy, or all the nonsmokers are going to leave,

1   and left to all the smokers.

2   So we're going to create that sub-

3   portfolios that we call blocks. And really, what

4   we're looking at is whether normalized growth

5   savings, so this is reduction from an individual

6   baseline on each building, but brought into an

7   aggregate, which is how it can, again, wash out that

8   some win and some lose.

9   And then a bunch of views into

10 underwriting, because no matter, even if you're

11 paying on performance, everybody's making an

12 investment based on some prediction. That's

13 inherent. And so how good is that prediction is

14 really critical in how you underwrite the project.

15   And so as kind of we break up these views

16 there's some other -- the data we're actually

17 working with in these analyses is really monthly

18 data. We are -- it's much more interesting when we

19 get Smart Meter data, which we have now in the

20 system because of --

21   COMMISSIONER McALLISTER: I'm going to

22 invite you to talk more about that kind of data

23 transfer and sort of how -- you know -- what clicks

24 into place when you got a new project and it goes in

25 the database and where the data comes from and all

1 that stuff.

 2   MR. GOLDEN: Okay.

 3   COMMISSIONER McALLISTER: So just at a high

 4 level, but sort of what infrastructure you have to

 5 get this integrated and in one place.

 6   MR. GOLDEN: Those are my next slides. So

 7 we're in good shape.

 8   (Laughter.)

 9   COMMISSIONER McALLISTER: Perfect. I

10 didn't even set you up, but okay.

11   MR. GOLDEN: So this is kind of a high

12 level view of just the component parts. You know,

13 again, we're not -- we are looking at net savings,

14 okay. So in the parlance of actually in the utility

15 world. So it'd be called gross savings.

16   I think it actually should be called net

17 savings, but the results at the meter, right. And

18 if you're thinking about power plants and you're

19 thinking about carbon emissions, it's really about

20 what happens at the meter that ultimately matters,

21 and that's really the lens we're using.

22   So we're taking basically project data and

23 that's, again, coming through HPXML, and HPXML 2.0

24 is what is in the SEED database roughly. They're

25 kind of coming into sync. Again, all this stuff is

1 mostly working and it's all in the right direction.

2 So we're bringing out project data that we

3 standardize in. We're bringing utility data in and

4 we are in the process of integrating with Green

5 Button Connect and it seems to actually work.

6 There's some interesting different ways to do that,

7 as well.

8 And you know, and when you're actually

9 running this kind of thing behind the utility meter

10 you can also get the data directly from the utility.

11 And if everyone's using the same calculation method

12 starts don't matter that much, necessarily.

13 But we do want access to the data for a

14 variety of reasons, regardless. So we're bringing

15 the data in using Green Button. And then we

16 basically have a methodology for signing weather

17 stations.

18 We actually, for California, went through

19 and cleaned and then re-released. And actually, if

20 anybody's interested, on the CalTRACK.org website

21 we've actually cleaned all the CZ 2010 data and re-

22 released it publicly now.

23 So everything is 100 percent open. So

24 these are some of the platforms we'll go through.

25 And then the outcome, again, is for people managing

1 portfolios. That will be a program view in kind of

2 our current construct, but that also could be an

3 aggregator in kind of a market construct.

4   Letting industry know how they do so folks

5 that do a better job could actually tell their

6 customers, for example. We want to do that in a

7 kind of discrete way at first, because nobody knows

8 how they do, and somebody's the worst and they don't

9 know it in half of all contractors in the bottom 50

10 percent.

11   Demand views for resource planning and

12 procurement, and then basically, actuarial views on

13 the data that can lead towards project finance. And

14 so those are kind of the different use cases. So in

15 terms of the component pieces, we are -- actually, I

16 was going to say we're the first official SEED plug-

17 in, but I don't think it's actually official, but we

18 are the first functional SEED plug-in at this point.

19   So we're built on top of this standard

20 energy efficiency data platform system that we've

21 all been kind of involved in for so many years,

22 frankly, which -- but is off the ground, which is

23 this open platform.

24   It's not a centralized system. It's a

25 distributed system. So you can each have one and

1 you share -- and I there's some talk about who owns

2 this data. You share the data and we trade for the

3 data. If you want to get paid from a utility as a

4 resource, you're going to have to give them some of

5 the data.

6   COMMISSIONER McALLISTER: Maybe this is a

7 good place for Abhi or Martha to chime in on sort of

8 SEED, maybe backup and just sort of give the

9 Commission view --

10   MR. GOLDEN: Sure.

11   COMMISSIONER McALLISTER: -- of where we

12 are with SEED. I'm sorry to interrupt.

13   MR. GOLDEN: Okay.

14   COMMISSIONER McALLISTER: But I think that

15 would -- this is all very relevant for us and not

16 just for this --

17   MS. BROOK: It is, and --

18   COMMISSIONER McALLISTER: -- initiative

19 that Matt's talking about, but more broadly.

20   MS. BROOK: So maybe apologies, because we

21 have Robin coming to talk later today about the

22 details of SEED.

23   COMMISSIONER McALLISTER: Okay.

24   MS. BROOK: So maybe for now we'll say that

25 we're all interested in this collaboration in terms

1 of a standard database platform for energy, building

2 energy performance and SEED has some opportunities

3 there.

4   I think that we'll learn there's both

5 opportunities and limitations, but let's not

6 characterize that now. Let's let Robin explain

7 exactly what's going on with SEED and what it's

8 being used for and --

9   COMMISSIONER McALLISTER: Right. Great.

10   MS. BROOK: Does that make sense?

11   COMMISSIONER McALLISTER: Great. Yeah,

12 thanks a lot.

13   MS. BROOK: Okay.

14   MR. GOLDEN: You didn't --

15   COMMISSIONER McALLISTER: So she's from

16 NREL and has been involved in -- Robin is one of the

17 drivers of --

18   MS. BROOK: LBNL, yeah.

19   COMMISSIONER McALLISTER: -- yeah, LBNL and

20 ML.

21   MS. BROOK: Yeah.

22   MR. GOLDEN: And there are no panaceas and

23 SEED is not -- kind of can be fun to talk about like

24 it solves all the world's problems, but it do not

25 actually quite do that. But we're also one of the -

1 - we're also part of the development process with

2 SEED.

3   And so frankly, what's great about SEED is

4 it's Open Source. So we took what it is and for our

5 use cases were able to make it do what we wanted to

6 do and we're in the process of recommitting that

7 code back, because we're all building a system.

8   So for example, taking in Green Button data

9 and time series isn't actually a functionality that

10 SEED has inherently. We built it into SEED. We're

11 going to be recommitting that code and that's the

12 beauty of Open Source.

13   So we're able to actually extensively

14 change it's functionality and adapt it because it's

15 not a proprietary tool. It's not closed. So we are

16 also working with PG&E right now on a kind of a --

17 one of the first integrations with Green Button

18 Connect 2.0, again, not a panacea, but it seems to

19 actually be fairly straightforward and functional at

20 this point.

21   We're going to be getting 15-minute

22 electrical data and this remains to be seen, but I

23 believe they're going to be modified so we'll be

24 also getting actually at least a verification or an

25 access to gas, which will be coming online in hourly

1 increments in like September, we hope.

2   But hopefully, we'll be getting one

3 permission to get that retroactively. And so we'll

4 be able to get these data flows. Pretty simple

5 thing, not unlike signing into something with a --

6 you know -- Facebook pops a window.

7   Maybe you need to have your utility

8 password and it works, and then we get a token and

9 we can pull and get that data out of the utility

10 into the SEED database for analysis. The

11 calculation methodology that we're using, which

12 really came out of this process that Bill Pennington

13 and Rashdi (phonetic) were very involved in, and

14 there's a large group of stakeholders, which is

15 really what's built into the Open EE Meter.

16   We're actually putting through an ANSII

17 process that just got underway, a joint process with

18 ACCA and BPI, which if anybody knows the history

19 there is kind of amazing, which the idea that we

20 need -- this is really the weights and measures

21 we're going to all be betting on in the future.

22   And we need a consensus process around

23 that, and whatever modifications happen to that

24 approach that we're taking, we'll get rebuilt into

25 the tool. And by the way, the fundamental EE Meter

1 itself is actually being built. It's what's called

2 an SDK.

3   So we are attaching it to the SEED database

4 and putting an interface on it, but it's actually

5 designed in a way that anybody can use within even

6 other applications, and that's fine. So we're under

7 what's called and MIT license, which means you can

8 use this.

9   You know, we're building this stuff, but

10 anybody can take it, put it into an app or put it

11 into an EM&V tool, and all of the sudden the real

12 innovation is with -- we look at a portfolio of

13 buildings, and I'm out, you know, retrofitting

14 buildings and utilities buying them and the CEC is

15 making sure they're doing the right thing and EPA is

16 potentially tracking carbon, and you know what? We

17 get the same answer in terms of the savings, and

18 that's really the innovation.

19   MS. BROOK: Can you just clarify, my belief

20 is that the MIT license is very lenient in that it

21 doesn't require that you make modifications back and

22 donate them back into the Open Source Project. Is

23 that true?

24   MR. GOLDEN: I'm looking for other people

25 to nod yes. Yes.

1   MS. BROOK: Okay.

2   MR. GOLDEN: Yes, that's absolutely true.

3   MS. BROOK: All right. Thanks.

4   MR. GOLDEN: It's a very lenient license

5   and that's the intention, basically, is that we want

6   innovation to built into the top of this, and that's

7   written in Python and I don't know how many tens and

8   tens of thousands of Python developers there are in

9   California at this point. So another open platform.

10   So that's kind of what it is, and we're

11   making a lot of headway and it's I think really

12   exciting. Like we're actually -- it's all kind of

13   pulling all the pieces together. Today is actually

14   a really great day to be up here, because yesterday

15   there was a proposal put under the California Public

16   Utilities Commission through a third party workshop

17   proceeding that's going on, that was put forward by

18   NRDC in turn, but also supported by the California

19   Energy Efficiency Industry Coalition, Efficiency

20   First, SoCalREN, and maybe most interestingly today,

21   is PG&E, to say how can we actually use this sort of

22   infrastructure that we're implementing and use to

23   really create a new paradigm in how we go after

24   energy efficiency.

25   And I just want to credit all of these

groups for thinking outside the box and saying, you

know, we got to take some changes. We got to be

aggressive, you know, we have to actually try some

new things.

And frankly, from an energy efficiency

standpoint we need an offense, not a defense. You

know, we need to be aggressively trying new things.

And frankly, maybe not in California, but around the

rest of the country politically we're having -- the

defense isn't working and we're actually losing

ground.

So this is an idea of how to really change

the paradigm using this data, and to do it in the

very near term. I mean, we're talking about 2016.

We have the tools. We just need to decide, have the

will to actually start doing it.

So the current programs -- the problem we

have is that if you're a farmer and you tell me

you're going to plant 10 acres of corn and develop

how many bushels and I write you a check, you're

probably not going to do it unless I'm there every

week checking.

You're not going to plant. You're not

going to water, especially here. No other markets

work this way, and that's really the rebate. We

1 make an estimate, you get paid, no one has an

2 interest anymore to really see it through and you

3 actually kind of lose money seeing it through,

4 because the more work you do -- anything we should

5 think about? No?

6   MS. BROOK: No. That's someone not

7 reaching their car (inaudible).

8   MR. GOLDEN: Fair enough. So what we're

9 talking about in the name of this pilot is a Pay for

10 Performance pilot, and the fundamental thing we're

11 talking about is to say, we're going to meter energy

12 efficiency and I know that what we're doing is not

13 really a meter.

14   It's a calculation, but we're calling it a

15 meter because we want -- we're all going to agree,

16 this is the number we're going to use. And rather

17 than get paid in advance based on a rebate, we're

18 going to have aggregators, which are private

19 companies, figure out how to get to market, figure

20 out what are the consumer products people actually

21 want to buy, how to package this, how to deliver it

22 in a way in the stream that actually makes money for

23 industry, which is probably the biggest problem we

24 have right now, and ultimately, get paid on actual

25 performance at the meter, which aligns interests

1 with actual results, and creates the cash flow I was

2 talking about, turns this into project finance.

3   We're going to initially -- and we'll talk

4 about what the real proposal is here -- but we're

5 going to initially set a price based something like

6 what we currently are paying through the programs,

7 but fundamentally, the goal is not to do that, but

8 to establish markets that can enable real pricing on

9 the multiple attributes.

10   But critically, what we're doing is

11 aligning interests, and if you have these stable

12 yields I was talking about at a portfolio level, we

13 get really consistent outputs, and you get a price

14 and you marry those together. What you get is a

15 cash flow.

16   And that's project finance. And rather

17 than getting a rebate, what you're getting is

18 companies that will have these cash flows that could

19 either self finance or bring them into the financial

20 community and take those cash flows and sell them,

21 which is what's called securitization, and turn that

22 into up-front dollars that will go to the customer

23 and will go to the industry because we're in a very

24 competitive market.

25   And they're going to figure out how to take

1 that new cash flow and reduce interest rates, buy

2 down up-front fees, give customers up-front

3 incentives, maybe give them downstream incentives,

4 build better tools, whatever it takes, because if

5 they don't do it the next company's going to beat

6 them to the punch.

7   And if contractors don't like it they're

8 going to go somewhere else. And by the way, if the

9 system that they're implementing doesn't deliver

10 real savings, they're not going to get paid. And so

11 all these things have to come into balance, and it

12 really just aligns the incentive structure and it

13 really decreases kind of what the program's asked to

14 do.

15   You don't have to design business models

16 anymore. So the proposal, again, was submitted

17 today by NRDC and supported by this wide group of

18 folks, you know, the Utility Reform Network, the

19 industry folks and the utilities also on board, at

20 least PG&E and the other utilities are actually

21 quite board, too.

22   This is all happening relatively fast and

23 there's been a lack of time to socialize some of

24 these issues. The real plan, and there's a little

25 more detail of this, is that we start this in 2016.

1 We have a two-year period where projects completed

2 in that two-year period get paid based on a number

3 of -- that's my next bullet point -- but it's paid

4 for three years on performance, on a biannual basis,

5 based on the meter results.

6   And we established a value for the savings

7 initially that is somewhere between how much we're

8 paying in incentive per kilowatt hour and BTU saved

9 today, and the actual, total price of the overall

10 program.

11   That's a big range, by the way, but we want

12 to be a discount from the really expensive savings

13 that we have, but recognizing that program

14 administrative cost is going to be something that

15 will be picked up by industry.

16   And the program becomes something a little

17 different, you know. It's -- and more really

18 similar fundamentally to what regulators do in other

19 contexts, which is protect the customer, establish

20 weights and measures and regulate a marketplace,

21 which -- and the market I'm talking about is how we

22 actually establish this price for energy efficiency

23 that takes into account time, location, reliability

24 and volume. But you don't have to micro manage how

25 it's delivered anymore.

1   So the goal is basically that we want to

2   align incentives with the actual results to -- which

3   is really critical so that you actually get paid for

4   doing a better job. So if you actually go out, and

5   you know, we don't have to debate what the right

6   solution is or what the perfect energy outfit, if

7   you deliver real savings -- and it's net of

8   everything.

9   If it means you train your crews better and

10 they install insulation better and you save more

11 energy and that makes financial sense, you win. If

12 it's a home energy management system that people

13 behave better, everybody wins.

14   It's net of kind of individual measures.

15 It's about results. And then critically we're

16 focused -- I mean, I think the goal here is to

17 create -- I think of it as like a fire hydrant that

18 all these business models can plug into.

19   There's one particular area that is of

20 significant interest, especially in this first pilot

21 phase, which is that we have these residential PACE

22 programs, which are absolute juggernauts. They did

23 roughly two times the investor on utility and local

24 government programs and project volume in terms of

25 dollars.

1   We have no idea how much energy they saved

2   and neither do they. And they were under -- they

3   get a lot of criticisms. You know, well, you guys

4   don't care about energy efficiency. And I know them

5   and they all care about it, but when they wear their

6   CEO hats or whatever, they have no reason to care

7   about it.

8   They go to their board and their investors,

9   what -- how do they explain to them why they should

10   care about energy savings. They don't get paid that

11   way. So the really kind of critical public policy

12   purpose this serves, as well, is we get attribution

13   for the utilities, which everybody loves. All of a

14   sudden you talk about --

15   COMMISSIONER McALLISTER: I want to point

16   out on that point, actually, too, that when back in

17   the ARRA period we -- you know -- there was an

18   initial focus on PACE and this was even before the

19   FHFA sort of rained on everybody parade, there was a

20   lot of concern that there was nothing like this and

21   there was really no kind of credible and low-touch

22   ability to evaluate projects for energy efficiency -

23   - for energy savings, and to sort of -- and you

24   know, there was a lot of hemming and hawing and

25   pulling of hair about, okay, well, how do we make

sure that these investments, you know, are cash

positive, cash flow positive, and you know, how do

we let only in -- how do we only let in the projects

that are going to really produce the deep energy

savings.

So now, we have all these PACE programs

that are going on, you know, and the most successful

of them are the ones that are asking the least

number of questions in terms of, you know, energy

efficiency results, right.

They're relying on the contractors

population to the homeowners to say, hey, this is in

my best interest, I want to finance this project.

There are some energy savings that come into play

along the way, that's great, but it's about home

value.

It's about comfort. It's about all sorts

of things that are intangible from the energy

billing perspective, right? So I think -- so we

have this resource that is clearly providing

something that people want that has an energy

component.

So the question is, how do we -- you know -

- how can we -- I think we're getting close with

this to having an additional -- potentially an

1 additional cash flow stream that helps orient the

2 marketplace somewhat towards the social goal that

3 we're all looking for, but then also doesn't create

4 so many strings and barriers that it slows down the

5 marketplace.

6   And so I think I'm kind of grokking what

7 you're saying here and I'm very excited about it for

8 that reason.

9   MR. GOLDEN: And that is absolutely the

10 goal. Like I said, for the CalTRACK process we did

11 this analysis on the actual performance, weather

12 normalized in the -- I think it's just about a year

13 old now, and it turns out home performance, for

14 example, and people doing deep retrofits works and

15 you see substantially larger energy savings. Just

16 no one's ever measured it.

17   And so you know, talking with these PACE

18 providers, we're implementing the meter right now,

19 Noble Funding, for example, they want to know.

20 They're nervous, actually, because they don't know,

21 but they want to know how much they're saving.

22   It'll behoove them to start to look and say

23 what contractors and what types of projects save

24 more energy. And the reason they care is because

25 those become more profitable to them because they

1 get paid.

2   And so then they're going to want to go

3 through their portfolio of projects and creating

4 sub-blocks of projects that have these

5 characteristics and say, look, I want to incentivize

6 home performance if that's what it is, because it

7 produces more energy savings, and now I have a

8 justification to do that.

9   And then it's up to them how they do that.

10 They could reduce fees. They could reduce rate.

11 It's up to them, whatever drives that demand. But

12 it's based on what businesses do, which is try to

13 make money. You can't really expect them to do

14 something other than that, or you shouldn't.

15   Or if you do you'll find yourself rather

16 unsuccessful. But the goal is, is kind of a little

17 Venn Diagram. Everything goes best in a Venn

18 Diagram. But this stuff needs to be -- we need to

19 deliver consumer products and we need business model

20 innovation.

21   That's what's driving solar, not panel

22 prices, business model innovation. So we need

23 packaging of energy efficiency into things people

24 actually want to buy. And health, comfort, nice

25 looking windows is all part of it, people don't even

114

have to know they're buying energy efficiency so

long as we're getting the results, frankly.

         We need to deliver it in a way that makes

money. That's probably the biggest problem we have

is that we are starving our industry, absolutely

starving it. Nobody's making any money on this

stuff. No one wants to invest in this stuff because

of that.

         And frankly, we can do a great job. We

know how to do it, but we can't do it on the margins

that exist currently. You just can't, and that's

why we're struggling so much, is that everyone is

cutting corners because they have to or they're

going to go out of business.

         And then all of that gets held in check by

the fact that you have to deliver the results. And

so we've been on this roller coaster for 40 years in

the whole U.S. where we regulate, trying to get

great results till we -- the business model goes to

nothing.

         And then we deregulate until we get a race

to the bottom and get absolutely drunk, right,

because whoever does the worst gets the most, and

you get the exact, all the good providers go out of

business, basically.

1   What we want to try, which we haven't been

2   able to try until this data's here is to say we're

3   going to deregulate the business model. This is

4   still a regulated market. Let me -- there are no --

5   no regulatory loses their job if we get this all

6   going up and to the right.

7   But we want to deregulate the business

8   model, how you deliver energy efficiency but create

9   accountability to the results, is the thing that

10 prevents the race to the bottom. So in doing this

11 we're going to lower program admin costs.

12   We don't have to figure out how to market

13 this stuff the way we're currently doing it. We

14 don't have to worry about the perfect energy audit,

15 et cetera. We should dramatically -- and this is --

16 look, we have every ability to almost eliminate to

17 dramatically EM&V costs.

18   We have a deal with some of our friends to

19 make some changes to do that, but we have the

20 capability to drastically change how we do EM&V and

21 make it real time and contemporaneous and actually -

22 -

23   MS. BROOK: Matt, can you just talk to the

24 need for attribution in this new paradigm?

25   MR. GOLDEN: So, we have some nod to the

1 reality of where we come from, but again, I think

2 one of the key things that we're trying to get away

3 from is, like, you can't, especially in this

4 increasingly complex world, attribute savings

5 between the Smart -- the app and the financing and,

6 like, it's becoming just more and more ridiculous.

7 You just can't figure. So but there is

8 some validity in terms of like some of these

9 concepts of, like, we don't want to pay for stuff

10 that necessarily would have happened otherwise, but

11 the construct that we've created with really the E

12 in the EM&V, is really not tenable, frankly.

13 And so at a basic level, we know we need

14 this huge amount of private capital, if you have to

15 worry about some firm coming in four years later and

16 changing your numbers in reverse, that's called

17 uncertainty and nobody can bet on that.

18 So there's a basic thing that says, like,

19 we just have to change the way we do EM&V or at

20 least the E in EM&V, because it's mutually exclusive

21 when it comes to private capital investment and it's

22 uncertainty you can't put money into.

23 So the way that we're talking about doing

24 that is we are saying, look, we're going to track

25 actual savings at the meter. We want to establish

markets for pricing those savings. And so if there

really is a lot of low hanging fruit we're going to

see a lot of supply coming into the market, which

will actually reduce prices.

This is not going to be in the two-year

pilot, but this is where we're going to use the data

from the two-year pilot to allow markets to

establish pricing. And so markets will actually

counteract some of the issues of like overpayment,

because again, more supply will decrease prices.

And there is a proposal that is not in a

bullet because it's a little nuanced, but we want to

run a study contemporaneously that looks at overall

societal norms and says, look, code, everything's

baked into, really, energy use intensity.

And we'll discount future procurement

cycles based on this discount rate of this overall

societal change that's occurring, but it'll be open

book. It'll be quantitative. Everyone will have

the data at the same time and it'll be forward

looking, and it become -- EM&V -- so it stops being

an uncertainty in a million dollar report and turns

into just another priceable risk in the marketplace.

If you don't want to take it. You can get

an insurance policy. Someone else will, and that

1 becomes the thing that actually puts pressure on the

2 whole system and actually drives the cost down over

3 time. A lot of work to be done.

4   Like, there's a lot of smart people in the

5 room. Like, they still have plenty to do. If

6 you're going to have these markets that are

7 established that handle time, location, reliability,

8 thinking differently what EM&V is, that's our new

9 job, in my opinion, rather than trying to debate the

10 merits of a certain type of energy audit or an app

11 versus a whatever. Let's let the market figure that

12 out, basically.

13   COMMISSIONER McALLISTER: So let's keep it

14 moving a little bit.

15   MR. GOLDEN: Yeah.

16   COMMISSIONER McALLISTER: I think that was

17 a perfect segue, actually, to the kind of the CSI,

18 you know, project level --

19   MR. GOLDEN: Project plan --

20   COMMISSIONER McALLISTER: -- how are we

21 going to -- yeah, great.

22   MR. GOLDEN: So the last slide I think just

23 is, this is kind of a summation in terms of this.

24   COMMISSIONER McALLISTER: Yeah.

25   MR. GOLDEN: This is some real data that we

1 looked at that I asked PG&E and they said go ahead.

2 This is some of the PG&E houses, gas houses,

3 basically, that we had data cleaned. So we have

4 some realizationary [sic] problems, but my point is,

5 if you try to bet on any individual asset, you're in

6 trouble.

7   You know, you go to a homeowner and say,

8 you're going to save money. Well, that's kind of

9 baloney, frankly. We don't know that, even if we

10 know it on average. But when you take another cut,

11 and this is kind of the difference between

12 uncertainty and risk, between on individual, you

13 know, bullet points on this, that's uncertainty.

14   You take and you look at it, all of a

15 sudden you take that and you convert it and you look

16 at it in the form of standard deviation and this is

17 where it becomes risk. Look at how nice that curve

18 is. It's very, very reliable.

19   If I get enough of these projects I get

20 this really smooth curve, and that's a really broad

21 curve. And so I want to start segmenting it and I

22 want to reduce that variance in these curves, but

23 it's very reliable.

24   And the fact that it gets these reliable

25 yields makes it something you can bank on. And even

1 when we look at it through the lens of contractors

2 with no feedback, nobody even knows how they're

3 doing, we're already seeing that it's a pretty

4 stable asset.

5 You know, the little red dots, the average,

6 these are real contractors. The gray line is

7 confidence interval. Statistically, that means

8 they're all kind of the same-ish. And this was with

9 no feedback mechanism whatsoever.

10 And so my point is just that energy

11 efficiency the way we've been thinking about it is

12 this really uncertain proposition, but you start

13 looking at it through this lens of data and thinking

14 about it as a commodity and through a portfolio lens

15 and it becomes very manageable and starts to look

16 just like other commodities, but frankly, more

17 stable.

18 So I'm very excited. Thank you for this

19 and I think that we are really at an important

20 moment where we can take a huge step forward. So

21 thank you.

22 COMMISSIONER McALLISTER: Thanks a lot,

23 Matt.

24 MS. BROOK: Thank you, Matt.

25 MS. RAITT: Thank you. Our next speaker is

1   Chris Burmester.

2   MS. BROOK: Do you want to introduce this

3   topic at all, Andrew, about why we're inviting

4   Chris?

5   COMMISSIONER McALLISTER: Yeah. So I guess

6   I think probably so. You know, I have some long-

7   term ownership of this topic, as some of you may

8   know. But you know, the last part of Matt's

9   presentation provided a nice segue into this.

10   You know, the contract -- by contractor

11 breakdown and kind of some of what you can do with

12 some of this information from actual projects, and

13 how you can slice and dice it to aggregate or not,

14 or you know, aggregate in different ways across

15 different metrics to come up with relevant

16 information for different parts of the marketplace,

17 you know.

18   And if you're a customer you might like to

19 know, well, gosh, you know, what contractor's most

20 active in my area. What's their average cost per

21 watt for solar. What's their average, you know, in

22 the energy efficiency.

23   Are they doing HVAC, windows and what's

24 their average project size or whatever, you know.

25 How does their projected savings match up to their

1 actual savings for that contractor. If it's way off

2 then I may want to go somewhere else.

3   So and then on the other hand, you know, if

4 you're a VC firm or an investor of some sort and you

5 want to either buy a portfolio of projects in the

6 financial markets or if you want to invest in a

7 contractor on the ground.

8   For example, that information is priceless

9 in terms of -- or it's just not priceless. It's got

10 a price and that's kind of the point. So providing

11 that intel to the marketplace, to enable the people

12 looking at this from different -- you know, and none

13 of us is the total expert on this.

14   And so we need to fertilize the broader

15 marketplace with the right kinds of information so

16 innovation can happen, you know. It's not simply

17 Energy Commission. It's not the utilities. It's

18 not anybody in particular, other than smart people

19 with an interest in this topic.

20   So that's the kind of broad goal here, and

21 I don't want to take up too much of Chris's time,

22 but Chris has been involved. So back in the day

23 when this solar initiative was starting, you know, I

24 was one of the administrators of it, as were PG&E

25 and Southern California Edison, and we worked with a

1 number of smart people to bring the online tool, you

2 know, with leadership at the PUC, to bring this

3 online application tool and database into existence.

4   And then it just we saw it in very real

5 terms over time get better, okay. It opened up.

6 You know, we opened the kimono on this stuff. The

7 data was not good to start and it had a lot of

8 issues, and people, you know, threw tomatoes at it.

9   But over time it got better and it became

10 really market driving. And now, I think it's seen

11 as a resource. It's been a real success story. I

12 think, you know, the sort of vision of the PUC to

13 get this thing going, and then you know, combining,

14 you know, working in the other programs, including

15 the NSHP, into that resource has really provided

16 market intel that the Federal Government looks at,

17 that individual states look at, that lots --

18 globally, actually, it's used to kind of track the

19 evolution of the marketplace, not just in price, but

20 in equipment and types of systems and any number of

21 metrics.

22   So it's been a really good resource. And

23 the idea here, just to be perfectly open, is look,

24 this is an example of project level, detailed

25 information that has been made public, but in an

1 anonymized form.

2   So it is very specific. You can go drill

3 into a ZIP Code and look at project after project

4 after project at that ZIP Code. You don't know what

5 the address was or who was it, but you do know the

6 contractor and all the information about that

7 project.

8   You don't know pre-post energy consumption,

9 because that's not necessarily so relevant for

10 solar, because it's much more predictable. Energy

11 efficiency is more complex. It's different, but I

12 think in the data environment that we are today in

13 2015 the idea is to have a discussion about what a

14 public facing resource that includes much more

15 information than we practically have available now

16 might look like.

17   And so I think I'm not a data guy. So I

18 don't -- in terms of really, really getting it deep

19 deep down, but I kind of know that there are many

20 people who will help the State of California if they

21 have access to the right kinds of information, and I

22 want to have that conversation relevant to energy

23 efficiency, and Chris is going to tee it up and sort

24 of give us some of the history on the solar

25 initiative.

1   Sorry if I duplicated a couple of your

2   bullets, but I'm sure you have much more to say, so

3   thanks for being here.

4   MR. BURMESTER: Thanks a lot, Commissioner,

5   for that really germane introduction. We had the

6   pleasure of working on this together, I think and

7   going through some of the trench activity of

8   actually getting this up and running.

9   And it's really exciting to hear the

10 previous talks today, and I would like to also

11 really double down on some of the themes that we've

12 heard and hopefully, we'll see that. We'll see

13 that. I think Mike said earlier that keeping it

14 simple and focusing on doing what you can do now,

15 and not over thinking it, getting it out into the

16 wild.

17   You know, software and data analysis is

18 very agile and iterative. You know, when we have

19 things in the Cloud we don't have to get it right

20 the first time. We can get it mostly right and fix

21 it, and I think the CSI Public Reporting System was

22 a good example of that.

23   The value of getting it out and getting out

24 that sort of crowd sourced input is very, very

25 important. And then I also agree with the other

1 speaker that real time data I believe will massively

2 change our approach to EM&V.

3   I think we saw this actually in California

4 Solar Initiative. We didn't set up to make the

5 public reporting site essentially make the EM&V

6 problem go away. But what's interesting is that we

7 had this very large, you know, EM&V budget, which is

8 now being repurposed because it's underspent to do

9 more public reporting.

10   And I think that's largely, you know, just

11 talking anecdotally to regulators and such, it's

12 because of the confidence that we have in this

13 public data set that CSI has reported. Nobody

14 questions this data. So the question is, how do we

15 get to that really valuable outcome that makes the

16 evaluation of this program so clear and transparent.

17   I'm Chris Burmester. I'm a vice president

18 at Energy Solutions and we're an integrated, demand

19 side management, design implementation firm. We've

20 been working in California and nationwide the last

21 20 years.

22   It's a real pleasure to speak here today

23 about this program. And I love talking about public

24 reporting, because public reporting is something

25 that I think everybody thinks they understanding.

1 Like it -- oh, yeah, public reporting. We just

2 report things in the public.

3   But it's actually a belyingly simple -- it

4 seems simple on the surface, but there's a lot of

5 very important principles that we want to do, to do

6 it right and well and to take advantage of the full

7 impact of what we can do in public reporting, and

8 hopefully, I'll hit on some of those things today.

9   So what I want to talk about today a little

10 bit is like, what is the impacts of public

11 reporting. What are the outcomes? What is the

12 California Solar Statistics Public Reporting

13 website? How did it come to be?

14   And you know, what are the lesson learned

15 and key success factors, that if we want to do this

16 with other data sets, with energy efficiency data,

17 with demand response, distributed energy resource

18 data, what are some key lessons that we can apply to

19 those as we move forward in this area.

20   So -- oops. Wrong slide. I'm going to

21 start with, I love this slide because I think it

22 encapsulates a lot of outcomes. In the gray we're

23 seeing numbers of interconnected PV projects, and

24 this is actually from a recent -- the early results

25 of a new effort where the Commission recently

authorized that Interconnect Data start gathering

the same kinds of data that CSI has been gathering.

The green bar is the number of CSI projects

that have received incentives over the years. And

you can see initially that those two numbers track

very closely. But in recent years you're seeing the

number of CSI incentive projects, whereas, the

number of interconnected projects is growing

exponentially.

And this is a clear example in the data of

market transformation, you know, which is the theme

of this particular part of the day today. So the

number of actual projects that are receiving

incentives that are out there is dropping

dramatically.

So clearly, there's been an impact in --

there's been market transformation in California.

And you know, the question is how did this project

drive market transformation and how did the data

help that.

And I think most people that are involved

agree that the transparency that this data provided

in terms of pricing, in terms of the systems

installed, where they're installed, what vendors

were being done, had a large impact in driving this

industry forward.

And what's interesting, and when we first proposed to release some of this data, there was a lot of concern that the vendors and the industry would actually object to this and would do this over protest. But over time, this became such a valuable resource for them, for them to make data driven business decision, that they actually -- there was a public workshop about four years after we started releasing this data where an industry spokesperson got up and said, the most valuable thing that came out of this CSI program is the CSI public reporting data, and what are we going to do to make sure that this data continues to be gathered in the State of California?

So that was a real victory for this. I think initially this was motivated from a regulatory standpoint, but we had hoped that would have this sort of market transformational aspect and it certainly did.

So moving on, for those of you who perhaps aren't familiar with CSI reporting, what it involves, I just have a few quick slides here to go over what the features are. So California's Solar Statistics website features a complete California

1 Solar Initiative Project public data set.

2   And as Commissioner McAllister said, we

3 went through all the data and we produced a somewhat

4 anonymized data set, but it was actually real

5 project information, real prices, location by ZIP

6 Code, and this data set we make available through

7 the California Solar Statistics.

8   It's provided in terms of weekly data

9 updates, and this is key. There's frequent data

10 updates, and this is a key principle in data

11 reporting which I'll talk about later. It has

12 interactive charts and reports right out of the

13 gate.

14   These are automatically generated,

15 interactive charts and reports, and there's lot of

16 downloadable data sets. We have what we call the

17 filter data set, the work -- filter data sets are

18 essentially what you're seeing in any slice or any

19 report that you're seeing.

20   The working data set is actual, the data

21 set out of which any bad data has been culled. The

22 raw data set is actually the full, complete data

23 set, including any data that is -- has deemed to be,

24 you know, not -- it has some errors in it. So you

25 have the complete data set.

1   And then there's the archival data set.

2 This is the data set where you can access any

3 complete set of data from any week of the program

4 from January 2009, when we first started reporting

5 this, to the current date.

6   We also have information on contract

7 resourcing. So this is where you can search to see

8 what projects have been done in various areas. So

9 if you're looking for a contractor for a project, if

10 you're a host customer, prospective customer, you

11 can find and search for projects in a variety of

12 ways on the site, and this enables research.

13   And then we also track metrics and budgets

14 for the program. In terms of the standard reports,

15 there's about 12 standard reports, each one of them

16 has some standard features that enable public

17 reporting. So we have interactive figures and

18 charts that let users quickly understand the program

19 metrics and data.

20   Every chart has a record count of the data

21 that's going into it, and the ability to download

22 the data that's being displayed in this chart. Now,

23 this is a really key feature because it lets others

24 do their own analysis.

25   And actually, in the simplest way, we had

1 people who -- newspapers or media outlets who wanted

2 to include this data in their own articles and

3 reports, and this lets it put that into their own

4 reporting features and display it in the ways that

5 they want to.

6   So it promotes more of a public discourse

7 around this data. Every chart has standard display

8 options that let you -- let the user select

9 different data types, time scales and other high

10 level attributes associated with the program, and

11 every chart has standard data filters that allow you

12 to narrow and refine your queries and to visualize

13 differences across multiple program components.

14   And in a number of charts we often let two

15 sets of filter data be compared one against each

16 other. So the values of these very interactive

17 reports is you don't just get the data. You

18 actually get the data in a way that you can

19 immediately engage with and manipulate and answer

20 questions you might have about the program.

21   And for a lot of people this site is

22 sufficient to answer their questions. In fact, one

23 of the motivating factors was initially approached

24 by Molly Sterkel, who was the Energy Division

25 Manager on this project from the beginning, and she

1 was being inundated by requests from the

2 Legislature, from regulators for reports all the

3 time, also from media and others, and she was just,

4 I need this. I need some self service reporting

5 just to reduce the costs associated with tracking

6 this program.

7   And so that was an early success. We just

8 took all the reports that we were providing on an

9 annual basis and made them accessible on a weekly

10 basis, and all of that, all those reports went away.

11 So that was early success.

12   Finally, we have lots of fine print. We

13 want to be very, very clear and transparent about

14 where this data is sourced, what it means, what are

15 the different terms that are being used. So there's

16 lots of supporting detail. So you don't have to

17 wonder what the data means.

18   So that's what CSI is. What are some of

19 the success factors and what are some of the lessons

20 we learned in actually doing this? So a key success

21 factor is that a rigorous data integrity process

22 insures data quality and allows for automated public

23 reporting.

24   No one's checking these reports. They're

25 being generated automatically, and data integrity is

1 key, and that means we have extensive validation on

2 every single import and we're filtering out data

3 that is deemed to be erroneous for fixing later on.

4 And I'll talk a little bit more about how that

5 process works.

6   Frequent updates and feedback loops

7 provides insight into market drivers and

8 continuously enhances our data quality. So every

9 update is a chance for us to improve the data, to

10 find problems, to push it out to the public, to get

11 feedback and to make that data better, and that was

12 a key factor.

13   Downloadable data, very important to

14 provide unfettered access. We're not limiting

15 access to this data. We want that feedback, and

16 that does essentially enable this crowd sourced

17 quality assurance. And as Commissioner McAllister

18 said, in the early days it was a little rough.

19   We had a lot of people pointing out a lot

20 of data integrity issues with the data, but because

21 we were updating this weekly, we very, very quickly

22 drove to a very clean data set, identified our

23 problems and moved forward.

24   You know, it's interesting. A lot of

25 people think that just having a database -- and we

1 did have a statewide database right from the

2 beginning of this project -- and you think that just

3 having a database is sufficient to have good quality

4 data, but that's not necessarily true.

5   If you don't check it, if you don't, you

6 know, analyze it and if you don't review it, if you

7 don't provide access to it, you're not sure that

8 that data is good, and that was very clear in this

9 program, as well.

10   So data visualizations give policymakers

11 and stakeholders of all sorts the tools necessary to

12 look and examine real program performance. And then

13 this user friendly interface grants the public the

14 ability to view the data multi-dimensionally and

15 answer the questions that they have very freely.

16   So what are some outcomes from all of this?

17 Well, having an iterative data integrity look yields

18 high quality data and that's really keen. The data

19 availability transparency and the quality that we

20 get creates a trusted data set.

21   And as I mentioned before, having a

22 trusted, unquestioned data set leads to the ability

23 to assess the outcomes of the program very

24 transparently, and in real time. EM&V costs are

25 minimized by the availability of this trusted data

136

1 set.

2   And more importantly, in situ program

3 modifications are enabled by having a current,

4 quality data set about how the program is trending.

5 And we saw this on numerous occasions with CSI, not

6 the least of which was recognizing that there was an

7 error in the program such that we were under budget

8 by I think, what was it, $200 million or -- yeah, it

9 was a lot.

10   And the real time reporting actually was

11 able to project that the PBI calculations were off

12 and we were able to correct that.

13   Reduced administrative costs through

14 automation, standardization and self serve

15 reporting. And probably the most important is that

16 all stakeholders, the policymakers, the investors,

17 the solar industry the customers are able to make

18 data driven decisions.

19   And finally, the cumulative impact is to

20 yield more reliable and actually larger program

21 impacts. So a little bit about data integrity and

22 automated validation. So this would seem to be

23 obvious, but you'd be surprised at how many systems

24 do not do this.

25   What you want to do is have multi levels of

1 validation on every field, and data just is simply

2 not accepted in a system unless it passes

3 validations. So we have a field level validation.

4 We have multi field validation.

5   So if a field has this value, then another

6 field must have that value. We have record values.

7 If we have one project of one type, then we must

8 have a project of another type where we can't have

9 another project of another type, and then we can

10 have program logic validations. You cannot have

11 data of a certain type based upon the program

12 qualifications and requirements.

13   And then total data set validations. If

14 we're getting a file, just for example, that just

15 doesn't match the specifications, we're not going to

16 accept it, as well. So the program administrators

17 for this program initially provided us raw program

18 data.

19   We have sets of, you know, thousands of

20 validations that are being performed on these in

21 real time, and every week we produce a data

22 integrity report. From that data integrity report

23 we create an internal feedback with the data

24 administrators where they're -- will take the data

25 that's good, but any data that's flagged as being

failing validation for whatever reason is reported

back to the program administrators, and they are

expected to fix that in the next week's export. A

lot of times it's just missing data.

         And then, finally, we have a public

feedback loop from external stakeholders where

they're doing their own analysis. They reported to

the program administrators and that data is fed back

into correcting the data and also new validations,

as well.

         So when we set this up we knew that this

data was going to support diverse needs. And one of

the key factors was making sure that we had out of

the box reports and the data that would enable all

the different stakeholders.

         So for example, policymakers, we wanted the

data to inform timely program refinements. For

customers and vendors the data facilitates a

competitive market, both between vendors and also

for customers in choosing vendors.

         One of the things that we were surprised

about because the leasing model sort of originated

during this program was that this data was going to

be so important to investors and Wall Street. And

in fact, outside of California the biggest hits we

1 get from this website are from Wall Street.

2   And then, you know, academia and the

3 research industry, this data has been the source of

4 many, many reports and analyses about the solar

5 industry. And as I said, this data is widely used,

6 not only across the nation, but worldwide.

7   COMMISSIONER McALLISTER: I want to kind of

8 interject here, too, because I mean, one of the

9 things we talk about, you know, in the action plan

10 and I think it's got a long history here with mixed

11 success, I think at best, is the valuation problem.

12   You know, how can we assist in the having

13 energy efficiency characteristics of a home or

14 business, you know, impact the real estate market,

15 right? So you know, we have some statutory

16 obligations to create tools there, but we also want

17 to make them work as much as possible.

18   Well, in solar they're -- you know -- on

19 the research side, you know, LBNL and UC Berkeley

20 have done quite a bit of research on when you have

21 solar on a home what is the impact on its home, on

22 its value.

23   And they now have enough reliable data,

24 both from the building markets, and the real estate

25 markets, and the solar industry based on this data

1 that it does -- there is a statistical impact and it

2 can be quantified.

3   And so then it can be built into

4 transactions. How do we do that on the efficiency

5 side is kind of part of our broader question here.

6 So I want to just remind people of that.

7   MR. BURMESTER: All right. So just a

8 couple slides to think a little bit about, based

9 upon what we've learned from CSI public reporting,

10 some of the features that we want to do. What are

11 some near-term opportunities for expanding this type

12 of public reporting to the IDSM arena?

13   And by that I mean efficiency, demand

14 response, you know, all distributive energy

15 resources, and of course, the topic of today's

16 Workshop, Energy Efficiency in Existing Buildings.

17 The first thing we need to do is capture the data we

18 already have.

19   I mean, this is, again, simple things that

20 we can do now. And you know, my sense is that this

21 is all publicly funded projects and data. We should

22 get this data being captured. We need to

23 standardize the data scheme in a format. This is a

24 big part of this.

25   Obviously, the CSI data set is essentially

one subset example, and the efficiency problem is

much more complicated, but it's not intractable.

It's very doable. I think those of us who do this

kind of work know that this is possible.

It's just a matter of rolling up your

sleeves and getting into that data, and again,

creating some of these frequent updates of data, and

establishing these feedback channels, because right

now this data is what I would essentially call dark

matter.

It's not really super available. I know,

through my work, I know that the utilities are

starting to work internally with tools that mix up

demand data and project data in ways that are

incredibly simple, but also, incredibly powerful in

terms of prospecting for efficiency.

And we want to support common use cases.

We want to support the common use cases, as we saw

earlier in this presentation, about the different

stakeholders. You know, what does the vendor

community need?

What are the host customer needs? What are

the utility needs? What are the regulator needs,

and make sure that we're thinking through that and

providing data reporting that immediately addresses

1 those needs, and also reporting that data, as well.

2   In terms of some of the more future things,

3 and we've heard some people talk about it today, we

4 want to integrate, you know, detailed project data

5 and report those for buildings. We want to be able

6 to support the creation, the prefab creation of

7 building models.

8   We're seeing companies like First Fuel and

9 Retroficiency go out, and using publicly available

10 data sets, build models for the building energy use,

11 and in a way that the building order doesn't have to

12 start from scratch.

13   They can basically go on, a model already

14 exists and they can start tweaking it. And they,

15 oh, no, no, you know, you thought I had, you know,

16 fluorescent lights; we in fact have, you know, a

17 different kind of lights in the system and you tweak

18 them all a little bit and you get zeroed in.

19   We want to be able to bring in lots of

20 different data sets and we're seeing this in the

21 private sector, as well. I think we want to be able

22 to support this, is bring in the public data sets,

23 but also bring in lots of different data sets in

24 terms of the data that's available from real estate,

25 the data that's available from, say, the Google

1 Earth type data set, also from benchmarking, from

2 the projects that are being funded through the

3 energy efficiency portfolios, all these things.

4   We want to be able to bring all these

5 things together. And obviously, I know a lot of

6 people are talking about this as part of the energy

7 efficiency in (indiscernible) buildings, integration

8 with energy data center data and climate and

9 marketplace indicators.

10   And I think a lot of us are struggling with

11 the privacy concerns around energy data, but it

12 seems to me that even something so simple as

13 classifying buildings into energy intensity and

14 providing a gradation that, you know, you're not

15 giving the actual use, but you're giving them

16 essentially a rank or an interval, even that would

17 be useful to know that this building has this sort

18 of energy intensity or this sort of peak demand.

19 You don't have to give away the detail data, but

20 even with that data we can do a lot.

21   And I just want to end with the decision,

22 this recent decision from November of last year that

23 was essentially authorizing the interconnection

24 process to gather CSI data. And I think this is

25 really great.

1   It recognizes that we don't just have a

2   single purpose here. Publishing this data serves

3   multiple goals for multiple people. It supports

4   host customers. It supports academic researchers

5   and journalists.

6   It supports utilities. It supports the

7   entire marketplace in accelerating the

8   transformation around these technologies. So open

9   and transparent reporting should be a part of every

10   initiative, and I'm excited that it is a part of

11   this bill. So thank you very much, and that's --

12   COMMISSIONER McALLISTER: All right. Let's

13   give everybody who has participated a hand,

14   including Chris.

15   (Applause.)

16   MS. BROOK: We want to take a few

17   questions, or?

18   COMMISSIONER McALLISTER: Yeah, let's take

19   a few questions. I'm going to let -- we've made

20   everybody sit in the hot seat, sit in their seats

21   and bite their tongue for all morning, but I think

22   we can all agree that that was a really, really

23   great slate of presentations, and I want to thank

24   everybody for being here.

25   Also, I want to point out just -- but we'll

1 meet more of staff, as well. So let's -- I think I

2 want to just make sure that everybody knows that

3 hopefully, our panelists will be around for the

4 whole day and you can talk to them directly.

5   But also, our staff is available to provide

6 feedback, get orientation on what kinds of topics

7 might be most -- if you have limited time -- direct

8 comments, most helpful to us, because we want to

9 develop the record in this direction and try to get

10 some idea of where we're best going to go with this.

11   So with that I'll just open up for

12 questions, and Heather can manage that on the web

13 and on the phone, as well. So do we have any blue

14 cards at all? I think we're --

15   MS. RAITT: Not that I'm aware of.

16   COMMISSIONER McALLISTER: I think we're

17 going to be a little free form here. If people want

18 to comment on what we've seen this morning, then

19 you're welcome to do so.

20   MS. RAITT: All right. Is there anyone in

21 the room that wanted to make comments? If you could

22 just go to the center podium, identify yourself and

23 we'll have the timer going.

24   MR. NESBITT: George Nesbitt, HERS rater.

25 I want to just hit a couple things, access. On the

1 residential end it's been fairly good, I think, even

2 when you had to fill out a form, although you didn't

3 get as much data that you can online.

4   Quality, I mean, quality is important.

5 Garbage in and garbage out. Compatibility, we

6 definitely need a lot more compatibility, because

7 often, we recreate models in different software.

8 And every time you recreate the real wheel you have

9 room for error.

10   So I'm happy to see greater compatibility

11 being worked on. Privacy, I think privacy is -- I

12 think sadly been an excuse to hide failure and

13 success. If you're not disclosing names and

14 addresses, I don't really see where there's a

15 privacy issue.

16   Too much data can be a problem, as much as

17 a problem as no data. And back on the access, we

18 have a lot of databases, whether it's New Solar Home

19 Partnership, California Advance Home, CSI, but a lot

20 of that data is not available, and then it may or

21 may not be used.

22   I want to hit on sort of Matt Golden's

23 presentation. On the one hand, I think we all

24 agree, what we ultimately need is real savings.

25 Yet, I think there's a lot of data, and as you point

1 out, even though there's uncertainty looking at an

2 individual house, and individual results, on average

3 we're getting savings and we're doing pretty good,

4 and that it's really not -- despite that

5 uncertainty, it's actually -- there's good stuff

6 there we can use with.

7   So there's always this, like, talk of going

8 to performance space. But here's the -- you know --

9 so if you want to go with the results at the meter,

10 here's the problem. I have really low use. So what

11 you're saying is I should go home, turn on all my

12 lights.

13   I should buy a freezer to add to my two

14 refrigerators, despite my low use, crank up the

15 heat, increase my energy use so I'm incentivized to

16 save real energy at the meter, and that's where, you

17 know, ratings and predicted savings have an inequity

18 thing, because if you're looking at -- when you're

19 looking at real results, going back to quality, what

20 happens if my customer adds -- just decides they

21 just saved a bunch of energy.

22   They go out and buy that electric hot tub,

23 so they increased -- even though they save, they

24 increase energy. So it doesn't look like we saved

25 as much. And then the other big issue is PV and

1 that metering.

2 Wow. It looks like we did really good.

3 Well, how much of that was actually efficiency and

4 how much of it was because they added solar. And so

5 you know, this is where it's really critical in

6 going back to things like quality, knowing what's

7 done.

8 And the one other comment I want to make

9 is, I think a lot of these tools to streamline

10 things are great, but even with commercial clients,

11 they often don't know or don't understand what's in

12 their building and their systems, and even with

13 professional staff.

14 And so at some point it comes down, if they

15 want to move, once they want to decide, actually

16 getting someone out there with boots on the ground.

17 COMMISSIONER McALLISTER: Thanks.

18 MR. CORMANY: Hello. It's Charlie Cormany,

19 from Efficiency First. I want to support the idea

20 of measured performance systems, a major reward for

21 major performance that Matt had described earlier.

22 One of the things missing in this industry

23 as a contractor is feedback on the performance of

24 your jobs. There's a lot of assumptions that are

25 made. There is trainings that we've gone through.

1 There's mentors that we've subscribed to their

2 theories and practice in the industry.

3   But unless you were able to do actual data

4 logging of your own job, you had no real feedback

5 mechanism to measure this. In my own company we

6 were using Green Button data. We were actually

7 getting permission from people to monitor their

8 electrical use.

9   COMMISSIONER McALLISTER: Um-hum.

10   MR. CORMANY: And we have -- did before and

11 afters, and it was valid tool and we could refer to

12 it later after the post-retrofits. So basically,

13 expanding on that concept and making it available, I

14 think should really be supported and it's a great

15 effort.

16   I think PG&E deserves a lot of accolades

17 for their efforts in that direction with CalTEST and

18 CalTRACK. I think they have the potential to change

19 the industry and I'd like to support those. I think

20 when we start making data driven decisions we can

21 make business models that revolve around success and

22 not around predictions and deemed results. I think

23 that's really critical.

24   And I just think the pay performance will

25 lead to business models that have a clear-cut way

1 for a contractor to differentiate themselves in the

2 marketplace and say that we can provide -- we can

3 charge this because we're providing that.

4   That's something that is sorely lacking.

5 There's very little for comparisons. So in general,

6 I think that this is the first time we've seen a new

7 approach or anything within the industry. The data

8 has always been the missing link.

9   I think we have effective means to get

10 there. I think EE meters are the right step and we

11 should embrace this technology and move in that

12 direction.

13   COMMISSIONER McALLISTER: Okay. Thanks

14 very much. I have a question, actually, for you and

15 the panelists. So you know, one, so there's

16 obviously a very relevant conversation about sort of

17 the program environment, and you know, both at the

18 POUs and the IOUs and sort of, well, how ratepayer

19 funds are being used to incentivize efficiency and

20 how we create accountability, as we must and, you

21 know, should be accountable for.

22   So that's kind of the program nexus that I

23 think this can help function and streamline and

24 reduce friction of. But I guess more broadly I

25 think our task is actually a lot greater than just

making incentive programs functions.

It's activating the marketplace and, you know, whether or not a project, a given project, receives an incentive from ratepayers, we want that project to take place and we want it to be as efficient as possible and we want it to be in the customer's best interest or the consumer's best interest.

So in that, if we look broadly at the landscape, you know, we have windows and doors guys, you know. We have -- the contractor community has many upstanding citizens who do fantastic work and who are completely trustworthy and delivering on their promises and treating customers in an excellent way.

If we activate the marketplace and scale it 10 or 20 fold, let's say, as you know, basically eight to 10 fold we think is the minimum to get to where we need to be in terms of scale. So we're going to have some new actors here.

We've seen, you know, 30 years ago we had the solar water heating programs that you could argue, you know, weren't all that well designed. I think you don't have to argue that. I think it's fact.

1   But I guess my question is, how do you see

 2   these kinds of tools helping to create -- playing a

 3   consumer protection role and not just sort of

 4   getting -- you know -- I think Michael said, you

 5   know, we don't want to sick salespeople on

 6   everybody.

 7   But so the flip side of that is how do we

 8   make sure that the offerings people do get are from

 9   credible, not over-promising contractors?

 10   MR. CORMANY: And you know, I think that's

 11   actually pretty easy to speak to. In today's

 12   environment, I can say from being a former

 13   contractor, negative comments from social media that

 14   are out there are so detrimental to your business as

 15   far as search engine optimization and other things

 16   that contractors, once they get into a marketplace

 17   like an eBay scenario where you have a star

 18   performance rating or a percentage rating, I think

 19   those external factors and those people who are

 20   watching the markets, the Angie's List of the world,

 21   those kind of things are really, really important to

 22   making sure.

 23   And I think the market will take care of

 24   itself in that regard. You're not going to have to

 25   monitor because I know from my own situation, we

1 were very concerned about YELP and all the rating

2 systems, and those in and of themselves become the

3 driver for doing performance, because one bad rating

4 in those environments can be so detrimental to your

5 existence that it will raise the bar and self

6 police, is my take on that situation.

7   COMMISSIONER McALLISTER: So you don't even

8 think this tool needs to necessarily be tilted

9 towards providing that consumer protection or it

10 sort of will be automatically or what?

11   MR. CORMANY: I think by default of having

12 the information available it will serve that

13 purpose.

14   COMMISSIONER McALLISTER: Okay. Thanks.

15 Anybody else have any comments on that?

16   MR. GOLDEN: Yeah, I do, actually, just

17 kind of building on those comments. I think

18 actually the solar PV market is a good place to look

19 for some inspiration on this front. I mean, if you

20 look at these -- to the solar providers like the

21 Clean Power Finances and Sungevities and the Sunruns

22 of the world, they're exposed to performance risk,

23 and so that alignment of interest, they're actually

24 -- if these projects don't perform, if those -- you

25 know -- if someone does a project that the local

154

1 contractor screws up, they have contingent liability

2 on that for their brand and everything else.

3   And we're actually seeing, you know, the

4 biggest supplier of quality assurance in the solar

5 market are the solar finance companies, not

6 programs, and there's hundreds and hundreds of these

7 inspections going on, and it's really turning into a

8 function of the rating agencies.

9   And if you want to get capital you have to

10 manage your performance risk and you have to keep

11 your customers happy.

12   COMMISSIONER McALLISTER: So in that sense

13 these tools would actually play a fundamental role

14 in helping develop that sort of quality assurance.

15   MR. GOLDEN: Yeah. The performance of

16 these projects no longer --

17   COMMISSIONER McALLISTER: Microscope.

18   MR. GOLDEN: Yeah -- it's no longer just

19 the customer --

20   COMMISSIONER McALLISTER: Yeah.

21   MR. GOLDEN: -- that's taking the risk.

22 It's the marketplace.

23   COMMISSIONER McALLISTER: Yeah. Great.

24 Thanks. Go ahead.

25   MR. KNOX: I'm Bill Knox and I'm just

1 speaking as a residential customer, essentially,

2 today. But I think that the issue of privacy

3 sometimes gets a little overblown. I think it's

4 really important for especially residential

5 customers to have control over the privacy, or not,

6 of their data.

7   And you know, on the one hand, you know, we

8 get contacted by solar marketers probably three or

9 four times a year, and probably a couple times a

10 year by performance contractors. And actually, I

11 think in general that's a pretty good thing for me

12 as an energy wonk anyways.

13   But I do think that if I was able to say

14 just, you know, make my own data public about my

15 energy consumption, in some ways it would actually

16 reduce the number of contacts because I already use

17 so little energy that solar's not terribly cost

18 effective.

19   And also, you know, if I had already

20 participated in say the performance contracting

21 stuff or the Energy Upgrade California, which I

22 haven't yet, but I think then people would know not

23 to contact me, which could be another benefit for

24 me.

25   So and I would also just finally point out

1 that, you know, mostly I get, you know, many, many

2 times a year I get asked how much I want to restrict

3 information from companies that have information on

4 me. And I think in the case of my utility

5 information I don't recall getting that from PG&E.

6 But you know, those forms that I get

7 saying, you know, what can we do with your private

8 information, if there was a way that I got a request

9 from PG&E, can we share this for this reason, that

10 reason or that reason, then it would be nice to be

11 able to say, yes, you can share it with, say, solar

12 installers, but not performance -- or vice versa.

13 And that way, I could sort of make my data

14 available as -- you know -- I could also say it's

15 available for research, even by address and phone

16 number.

17 COMMISSIONER McALLISTER: That's a really

18 interesting point. So basically, you're saying an

19 opt out instead of an opt in, right?

20 MR. KNOX: Yeah, well, it kind of -- it

21 should be in my --

22 COMMISSIONER McALLISTER: Sharing.

23 MR. KNOX: -- since it's my data.

24 COMMISSIONER McALLISTER: Yeah, absolutely.

25 MR. KNOX: I should be able to opt in or

1 out for a variety of --

2   COMMISSIONER McALLISTER: Yeah. Or you

3 should at least be asked, you know, whether you want

4 to sort of play, you know.

5   MR. KNOX: Yeah. I mean, don't just assume

6 that I want it all private.

7   COMMISSIONER McALLISTER: Um-hum.

8   MR. KNOX: Especially if I have choices

9 about for which purposes it might be used.

10   COMMISSIONER McALLISTER: Yeah. I mean,

11 that's actually an interesting question about, you

12 know, if we make the right sort of public service

13 pitch, you know, maybe a significant minority of

14 people would actually -- maybe a majority -- if we

15 think optimistically -- would actually opt in.

16   MR. GOLDEN: They actually have -- Matt

17 Giller I worked with in -- they did some analysis

18 for (indiscernible) Chicago and they just asked --

19 it was a very unscientific study -- by they asked

20 about 90 people, I think, to share their data and

21 about 40 did.

22   Now, as a performance contractor I find

23 that, like, if people have any level of trust, we

24 think this is really confidential information, but

25 consumers don't tend to have that same opinion about

1 their energy bills and are much more free with it.

2   COMMISSIONER McALLISTER: Yeah. It's not

3 the same as their credit card number, right.

4   MR. KNOX: Medical, yeah, lot of --

5   COMMISSIONER McALLISTER: So yeah, or

6 medical history or whatever, yeah, so.

7   MR. BURMESTER: Yeah, I just want to agree

8 with that. I mean, if you look at, as more of the

9 private sector moves into energy, the energy

10 industry, as well, like with the NIST thermostat and

11 other providers who provided residential products

12 that gather information about them, people routinely

13 grant access to this data for a variety of uses.

14   And I think we can see in the private

15 marketplace customers being very comfortable, you

16 know, or far more comfortable than we're assuming

17 about providing data. And especially, as you were

18 saying, if you make the pitch for this is a public

19 service, or this is beneficial for you, you know,

20 exposing the benefits of sharing this information, I

21 think we would find that there'd be statistically

22 significant subset, at least, of data available to

23 companies to do analysis and ROI on a variety of

24 energy strategies.

25   COMMISSIONER McALLISTER: Yeah. Yeah. I

1 mean, and I think, you know, the law of large

2 numbers would show that the percentage of

3 participants doesn't have to be that big, as long as

4 it's diverse enough and dispersed enough, right, to

5 really get some good information about the building

6 sector and habits and behavior.

7   MR. BURMESTER: And if we're thoughtful

8 about how we stage this, again, the use cases and

9 case studies of how people have benefit, how the

10 society benefits, how the sectors have benefitted

11 from this kind of analysis would support further

12 comfort with people disclosing their life.

13   COMMISSIONER McALLISTER: Yeah. So I think

14 this is a line I'd like, if people have some

15 expertise or some thoughts on it, I really like if

16 people could put some views of that in their

17 comments, because I think this is something

18 worthwhile to move forward with in terms of

19 empathizing the public benefit.

20   You know, everybody acknowledges that, you

21 know, privacy is what it is and customer control of

22 data is what it is, but there is a public benefit

23 that I think is going under -- sort of under-

24 represented throughout this whole discussion, that

25 you know, I think as we move through this long-term

1 project of reducing our carbon footprint statewide

2 we're going to have to figure out ways to empathize

3 and to get people to buy in. Michael, yeah.

4   MR. MURRAY: Just a quick point. It's

5 worth noting that I think that the privacy and the

6 use of the data can -- they don't always have to be

7 opposed to one another.

8   COMMISSIONER McALLISTER: Yeah.

9   MR. MURRAY: How a lot of companies these

10 days operate that use your energy usage, they do

11 what's called scraping where you give that company

12 your login and password to your utilities website,

13 and they just have carte blanc access to do whatever

14 they want.

15   And the reason why they do that is because

16 it's easier than going through the front door and

17 filling out the forms and so on. And so it's kind

18 of a gray area, you know, if you technically reads

19 the terms and conditions of access, you know, that

20 utilities only want the customer and only the

21 customer to access their website.

22   And so I think by actually bringing that

23 system that's currently in kind of a gray area into

24 you know Green Button Connect, where you have, you

25 know, companies that are registered and there's a

1 very clear list of who has the authority, you know,

2 for how long to access this usage data, I think you

3 could actually better align, you know, customers'

4 expectations about their privacy with outcomes.

5   So because once you give your username and

6 password to someone else who knows what they might

7 do with that.

8   COMMISSIONER McALLISTER: What they'll do.

9   MR. MURRAY: Right.

10   COMMISSIONER McALLISTER: I'd be interested

11 to hear the utilities later on, whether they know,

12 you know, what their sense of how common this is and

13 are they -- what are they doing about that, if

14 anything. Matt, did you want to say something or --

15 yeah. Okay. Great. Go ahead.

16   MS. LITTLE: Hi. I am Debra Little. I'm a

17 valuation and home performance consultant. Heard a

18 lot of discussion today in relation to residential

19 data about that that we can get from Smart Meters

20 and utility bills, all about the utility bills.

21   I just wanted to bring up or ask about the

22 interest that folks have on granular data on the

23 actual home performance measures installed. If we

24 had a way to collect that and share that in a really

25 fast, mobile app that contractors can use in like

1 five minutes, that could also produce reports that

2 are valuable to homeowners and home performance

3 contractors and the whole real estate segment,

4 agents, appraisers and lenders, would anyone find

5 that useful?

6   COMMISSIONER McALLISTER: That's a great

7 question. Maybe I want to -- I think all three of

8 our panels could talk to this, but in particular, I

9 think, Chris, you started the suggestion. You know,

10 you can drill down into it, that you know, we need

11 some analog to the CSI that would be -- you know --

12 that is related to energy efficiency and other

13 demand side stuff, but that it would be more complex

14 and would require some thought, but it's doable.

15   And maybe I think at least in part, that's

16 what you're asking, is like if you had a -- you know

17 -- project-wise, you know, it wouldn't just be they

18 got solar. It would be they got HVAC and windows

19 and whatever else.

20   MS. LITTLE: Right.

21   MS. BROOK: I think it also relates back to

22 what Ethan was mentioning in terms of the historical

23 energy audit information.

24   COMMISSIONER McALLISTER: Right. Yeah.

25   MS. BROOK: So I think it's related to

1 that, also, like what has happened in these

2 buildings, you know, specifically, but go ahead,

3 Debra.

4   COMMISSIONER McALLISTER: Oh, yeah. I

5 mean, I guess I would be interested -- that's

6 exactly kind of -- that's sort of the big question

7 we're trying to answer, is that what would a

8 resource like that -- it's one big question we're

9 trying to answer, what would that look like.

10   And so how would we go about putting that

11 together and what the -- you know -- eventually,

12 like, what would the fields of that database

13 actually have to look like.

14   MR. BURMESTER: Yeah. I think most of us

15 in the industry, I think at any level, recognize the

16 value of having this data be more accessible. I

17 mean, obviously, there's a lot of discussion that

18 needs to go on about the privacy concerns of that

19 data and how you get access to it.

20   But for example, right now we have Green

21 Button Connect and customers can authorize vendors

22 to get that data. There's really no database right

23 now that would allow a vendor to get access to

24 everything that's been done at that facility in the

25 past.

1   And theoretically, that data is out there,

 2 but I think most of us who have worked with this

 3 data know that it's in a lot of very disparate data

 4 sets and there's a tremendous amount of work to be

 5 done, but it can be done.

 6   I mean, that's not an undoable problem. I

 7 mean, bigger problems are being solved all the time.

 8 So just assembling that data set would be useful,

 9 and it's in a variety of containers throughout the

10 state in other resources.

11   So that could be done independently of

12 having the privacy conversation, because the value

13 of having that data would be huge, I think. On the

14 privacy front, you know, I think most of us -- I

15 want to just surface one issue, which is -- and I

16 think I've spoken to others about this -- the

17 collective data set in terms of customer data and

18 all these measure data represent a huge what I'll

19 call prospecting resource.

20   If you think about it, it's like all of

21 this data is like having the GEO exploration seismic

22 data for the entire State of California from energy

23 efficiency as a resource. And if we're looking for

24 where we're going to harvest energy efficiency in

25 the future, there -- you know -- we'd like to get

1 access to that data set to do analytics on that,

2 because with that we can zero in on, you know, the

3 cost effective resources that are out there.

4   And customers may not even know that

5 there's a huge benefit to them that could be done

6 and a huge benefit to the state by doing a project

7 that is clearly in the data that we could do. Of

8 course, there's privacy concerns with getting access

9 to that data set.

10   But you know, some simple things is

11 providing access to the full data set, but

12 anonymous, and once you've identified a facility or

13 a customer who might benefit from a project, the

14 utility themselves could decide to make the

15 introduction.

16   Or there could be some other process by

17 brokering that introduction, and so you keep the

18 anonymity in place. You know, you let the vendor

19 community or the public research community access

20 this data set in anonymous fashion, and once they

21 say, oh, here's a whole series of prospects, they

22 own that analysis, you know. So that's one way we

23 could go.

24   COMMISSIONER McALLISTER: That's

25 interesting. Sort of the analogy -- I mean, I think

Commissioner Doulgas would be very interested in
that analogy between say the DRECP analysis, you
know, as a sort of a resource that could be
exploited, you know, sort of across the state and
where's the best places for it, the most cost
effective places.

You know, they did a tremendous amount of
geo reference data, layer after layer of natural
resource and habitat, et cetera, et cetera, maybe
you know, sort of the, you know, okay, there's this
many fracking places and there's this many energy
efficiency places and let's do some compare or
contrast, all right, so.

MR. BURMESTER: Just a quick follow-on. I
mean, there's a lot of concern with, you know, San
Onofre going out and the once through cooling
plants, that there are some grid -- you know --
there's some capacity constraint areas, and being
able to do essentially exploration for efficiency
and peak demand shedding, unleashing that, not just
amongst the utility commissions, but amongst the
private sector to go after those resources.

And I think, you know, you were speaking
about energy efficiency as a resource. I know that
the CPC is looking at this and Edison has their

1 Preferred Resource Pilot. I know the vendor

2 community's very interested in getting behind this,

3 but again, providing access to the data in some form

4 that respects privacy --

5   COMMISSIONER McALLISTER: Yeah.

6   MR. BURMESTER: -- it should be a key issue

7 that we'd look at.

8   COMMISSIONER McALLISTER: All right.

9 Thanks. Matt, and then we're going to have to

10 finish up with the questions. We got a few more

11 people in line here.

12   MR. GOLDEN: I'll keep this brief, but I

13 think we do need -- I think there's a question of

14 are we talking about individual data.

15   COMMISSIONER McALLISTER: Yeah.

16   MR. GOLDEN: And there's some also question

17 about how, because of the counterfactual problem and

18 the diversity it needs, how much value you get out

19 of individuals' data --

20   COMMISSIONER McALLISTER: Yeah.

21   MR. GOLDEN: -- versus aggregated,

22 anonymized. And that's one of the use cases we're

23 kind of building into the meters, the ability to

24 very easily open your data set in -- through the

25 lens of the PUC ruling, aggregated and anonymized.

1   And that's actually where a lot of the

2   value lives, is to be able to look at that data set

3   and extract how do these measures perform in

4   aggregate. But I would also highlight that it's a

5   trade, right. You know, we have companies investing

6   in figuring out how to do this stuff.

7   So if we want to take that data and make it

8   public there needs to be a trade of value somewhere

9   in there.

10   COMMISSIONER McALLISTER: Um-hum.

11   MR. GOLDEN: Fundamentally with the folks

12   that actually own that data and are investing in

13   delivering it, basically.

14   COMMISSIONER McALLISTER: Yeah. I mean, I

15   would love to hear people's comments on that. I

16   mean, I see it as sort of, you know, the truly

17   public data would be some subset of the overall

18   available, and then there would be value added in

19   some way by private actors that could --

20   MR. GOLDEN: Depends where you get the --

21   COMMISSIONER McALLISTER: -- that could --

22   MR. GOLDEN: -- the project level data, the

23   auditing data, that's the data that like --

24   COMMISSIONER McALLISTER: Yeah.

25   MR. GOLDEN: -- we need to trade for,

1 basically, and exchange for something that it

2 becomes public.

3   COMMISSIONER McALLISTER: Yes. So I agree

4 that's a valuable conversation. Matt, thanks for

5 coming in. Appreciate it.

6   MR. HARGROVE: Hello. Thanks for having

7 this Workshop. Matthew Hargrove, with the California

8 Business Properties Association. I represent a

9 number of different commercial real estate groups,

10 including Boehm (phonetic) of California and

11 (indiscernible) of California, ICSC and a number of

12 others.

13   Most of our members are very active, large

14 real estate companies and are bought into a lot of

15 what we're talking about here today. A lot of them

16 are already doing it in-house, internally, and we

17 find data very helpful.

18   I think a lot of companies aren't going to

19 view what the Energy Commission is doing here with

20 data as in any way a threat or cumbersome or

21 anything like that. However, as the Commission

22 moves forward we just, you know, we want to caution

23 that as we look on the commercial real estate side

24 of things, it's a lot more complicated than the

25 residential side of things.

1   And it's even much more complicated than we

 2   think. Most of our conversations here today, as

 3   they veer into commercial, really is focused on

 4   owner occupied, and owner occupied is not the

 5   majority of properties out there that this type of

 6   program really needs to get at and we know that.

 7   So it seems a lot of the conversation on

 8   the very complicated data issues are really talking

 9   towards your very large real estate companies that

10   are somewhat familiar with this and already doing

11   this.

12   How do we translate that over to where we

13   know we really need to get, and those properties

14   that we really didn't even talk about today, those

15   very small properties. A lot of this stuff in

16   downtown Sacramento, that's what this program was

17   really written to go after.

18   And I'm not hearing linkages in the plan or

19   in the lot of the discussion today of how we crack

20   that nut, to use the cliché. We as an industry have

21   been saying for years, you know, you can regulate

22   new buildings out of existence and you're not really

23   going to do anything to greenhouse gases.

24   We really need to get at those pre-Title 24

25   buildings that aren't currently doing the types of

1 things we're talking about, and really aren't going

2 to do a lot of this data techniques that we're

3 talking about unless somebody gets in there, buys

4 that building, completely refurbishes it and then

5 already has a preexisting relationship with somebody

6 in-house, has an energy firm they're working with

7 and the like.

8   So that's what we want to help figure out,

9 is how we get at those types of buildings and most

10 of those folks aren't going to be members of my

11 association.

12   COMMISSIONER McALLISTER: Right.

13   MR. HARGROVE: So how do we get there?

14 Even with the large commercial real estate

15 companies, we want to make sure that there is

16 sensitivity, and I do know that there is over the

17 last few years of coming here and 1103.

18   COMMISSIONER McALLISTER: Yeah.

19   MR. HARGROVE: That the multi-tenanted

20 buildings are -- that we take care to figure out how

21 to work through those issues. Especially in the

22 beginning of 1103, the easy answer was to let's

23 ignore the complications of business contracts that

24 are out there with leased spaces in buildings, and

25 put the onus on the folks who own the properties and

172

1 the owners of the buildings to report this

2 information, even though we all knew that it was

3 putting a third party into an awkward position

4 between a tenant and the utility that they had. We

5 were able to work through those issues with 1103 and

6 --

7   COMMISSIONER McALLISTER: Almost.

8   MR. HARGROVE: Well, I mean, we're there,

9 but again, today in this discussion with a lot of

10 this what we're hearing from a lot of your folks

11 that are presenting today is there's -- we're not

12 hearing a connection between how 1103 is working,

13 how that data is provided.

14   COMMISSIONER McALLISTER: Right.

15   MR. HARGROVE: And that contractual -- how

16 that got fixed and how that actually gets applied to

17 this use of data over here. Again, you know, it was

18 acknowledged that there's some legal issues that we

19 need to work through. And our message as an

20 industry is help us help you work through some of

21 that and --

22   COMMISSIONER McALLISTER: I appreciate --

23 oh, go ahead. I'm sorry.

24   MR. HARGROVE: Well, and finally, because I

25 seem him blinking, I want to bring up just a big

political thing that I think is baked into the

current, the initial plan that was released that I

just -- I want to caution the Commission from

sending mixed signals on some of this today, on all

this data discussions that we've been hearing.

My folks, we're hearing all the right

things. Your data's going to be protected. It's

going to be aggregated. You know, we're going to do

this in a way that folks aren't going to come after

you. But in the plan you have baked into the

initial release of the plan public disclosure of

building performance. And we think that that's

sending mixed signals to folks out there.

On the one hand you're telling us, this

data's great and we're going to use it to allow you

to get your buildings to become more efficient. On

the other hand, we're going to provide information

so you can be publicly shamed up and down the state,

on Facebook and on YELP and everywhere else.

And that type of things makes folks a

little bit nervous, saying, I'm hearing two

different things coming out of this plan. And as

somebody who shows up to all these workshops, I get

that they're two different things and they're two

different strategies.

1   But as that unfolds out there with folks in

2   the industry who maybe don't read my newsletters

3   closely, that tends to send a little bit of a mixed

4   signal and causes some worry that, well, what do

5   they want all of our data for over here; is it just

6   to spank us over here.

7   COMMISSIONER McALLISTER: Yeah. So I

8   really appreciate the point, and you know, I think

9   there is both a private benefit and a potential

10   public value to those two things. You know, we've

11   taken care in the plan to say, look, what we're

12   really first and foremost concerned about is the

13   benchmarking itself.

14   And then at some iteration down -- you know

15   -- the second down the road, and we need to define

16   what that looks like in a conversation, there is a

17   proposed disclosure, not necessarily the energy

18   consumption, possibly, but you know, monthly,

19   annual, something, but the benchmarking score, for

20   example.

21   And I think the purpose behind that is to

22   provide some standardized viewpoint of the building

23   stock to the world. And the idea isn't to shame.

24   The idea is to say, hey, you know, provide some, you

25   know, appreciation of the diversity of the stock,

and yes, to focus in -- you know, I'm a glass half

full guy -- focus in a positive way on the buildings

that need the most resources and the work to be

done, and create, kind of align all of the planets

so that that can happen, not, you know, negatively

to shame.

But in any case, this is more of a -- I

think where we've maybe left out some pieces in the

conversation today is linking up the benchmarking.

You know, we did mention SEED and BEDES and that

kind of thing, well, 1103 and the new benchmarking

program would kind of pass data into a database that

would allow us to understanding the building stock

more and create better policies that get to these

very issues of making sure that assistance and help

gets to the right buildings where the savings are.

MR. HARGROVE: Yeah. And again, we

appreciate that, and in terms of the public

disclosure, the feedback I'm getting, and you know,

I know Martha' heard this for five years through

1103, is the folks are making decisions about energy

efficiency. That information's being provided to,

through 1103.

Putting up a red bear in my lobby isn't

providing the information to anyone who can actually

1 make any decisions.

2 　　　　MS. BROOK: Red bear.

3 　　(Laughter.)

4 　　　　MR. HARGROVE: But what it is doing is

5 making my property more difficult to bring in

6 tenants who can then help me bring in the cash I

7 need to put the building through a complete energy

8 efficient retrofit.

9 　　　　And I mean, you know we're having this

10 discussion with the new code setter out there, that

11 the disconnect between existing buildings and these

12 extremely efficient new codes we have, we feel that

13 disconnect is just drifting these further and

14 further away, and it's making it harder and harder

15 to take older buildings --

16 　　　　COMMISSIONER McALLISTER: Yeah.

17 　　　　MR. HARGROVE: -- and bring them up to new

18 code, and that just kind of feeds into all of this.

19 　　　　COMMISSIONER McALLISTER: I feel like we --

20 so these are tough problems, but I feel like we've

21 really keyed these up reasonably well in the plan.

22 I mean, you know, the two code problem, you know,

23 we're not saying exactly here's how we need to solve

24 that problem, but we need to talk about it.

25 　　　　We also need to make code more relevant for

1 existing buildings and I think we've really -- I

2 mean, you know, we've identified that problem at our

3 Commission and we've said, we're going to try to

4 solve that problem.

5   And I think that's the kind of open the

6 kimono approach we're kind of trying to take here,

7 because that's the -- we have to be collaborative

8 and team-based to get this stuff done, so.

9   MS. BROOK: Yeah. That's --

10   MR. HARGROVE: And I started all this by

11 saying, we are very much in support of what you're

12 doing. We recognize that. I think we're 98 percent

13 with you right now on all of this.

14   COMMISSIONER McALLISTER: Okay. I really

15 appreciate it, yeah.

16   MS. BROOK: Yeah.

17   MR. HARGROVE: And appreciate the fact that

18 we can come and have this type of discussion with

19 the staff.

20   COMMISSIONER McALLISTER: Absolutely. The

21 door's open. Yeah. Okay. Great.

22   MS. BROOK: Great. Thanks. And I'm going

23 to limit my comments, because I could go on forever

24 with you, Matt, but it's already 1:15 and my

25 stomach's growling.

COMMISSIONER McALLISTER: Yeah, mine is

2 growling, too. Amy is going to bring up the caboose

3 for lunch. Yeah, that's great. Thank you very

4 much.

5   MS. REARDON: Right.

6   COMMISSIONER McALLISTER: Thank you very

7 much.

8   MS. REARDON: Thank you, Commissioner

9 McAllister.

10   COMMISSIONER McALLISTER: Thanks for being

11 here, Amy, from the PUC.

12   MS. REARDON: Absolutely. My name is Amy

13 Reardon. I'm with the California PUC. My

14 colleague, Chris Villareal, will speak after lunch

15 in greater detail about what the Commission has done

16 in terms of data access, very important data access

17 developments recently.

18   But and I'm really here in listen mode and

19 to be supportive of my colleagues. However, I would

20 be remiss if I did not point out my background, of

21 course, I grew up in the CSI Program and I am very

22 much aware of all the wonderful things that

23 happened, and how exciting all those days were and

24 what a whirlwind it was, especially when it became

25 truly a market transformation program.

1   Well, you know, you move around, you get

2   promoted, and so I was given a job as the Energy

3   Efficiency Data Management and Reporting Lead. And

4   so my first order of business was to create a

5   website called -- well, we basically ripped it off

6   from the California Solar Statistics, and it's

7   called California Energy Efficiency Statistics.

8   You can Google it during lunch. It's

9   EEstats.CA -- no -- .cpuc.ca.gov. To the extent

10 possible, given the differences between the kind of

11 data available for solar versus the kind of data

12 available for the mind boggling array of data

13 available for energy efficiency and the kind of data

14 basis that we curate, to the extent possible I have

15 made a one-to-one match with the California Solar

16 Statistics site and EE stats.

17   Okay. With all the caveats, millions of

18 them, but I'm going to stop there. We do want

19 feedback. You know, it's in beta mode right now and

20 we're still working out some of the bugs. But you

21 know, we -- there's a site feedback button and I

22 think you guys, you know, know that, you know, we're

23 only putting more and more resources into this as

24 time goes by.

25   But a lot of things, I think somebody

mentioned where can I get measure level detail. I'd

be happy to show you. We have a heat map that shows

measures at the ZIP Code level, actual measures. We

have a wonderful plethora of data that is currently,

you know, for public consumption. Thank you.

COMMISSIONER McALLISTER: Thanks for being

here. All right.

MS. RAITT: Actually, we do have a few

people on WebEx.

COMMISSIONER McALLISTER: Oh, we do, okay.

MS. RAITT: Yeah.

COMMISSIONER McALLISTER: Okay. Who?

MS. RAITT: So --

COMMISSIONER McALLISTER: We're all --

their stomachs are probably rumbling, too, so.

MS. RAITT: Absolutely.

COMMISSIONER McALLISTER: Or maybe they're

in their kitchens. Who knows.

MS. RAITT: We'll open up the lines one at

a time. But right now, Chick Bornheim, if you're

there, will go ahead and make your comments.

MR. BORNHEIM: Can you hear me?

MS. RAITT: Yes. Thank you.

MR. BORNHEIM: Okay. Good. So I think,

you know, we're in the data business and a lot of

1 this stuff looks great. We're in the commercial

 2 side of things.

 3   COMMISSIONER McALLISTER: Could you

 4 identify yourself?

 5   MR. BORNHEIM: And looking forward to --

 6   COMMISSIONER McALLISTER: Could you

 7 identify yourself, please?

 8   MR. BORNHEIM: This is Chick Bornheim.

 9   COMMISSIONER McALLISTER: Great. Thanks.

10 From what company?

11   MR. BORNHEIM: Oh, Light Pro Software.

12   COMMISSIONER McALLISTER: Great. Thanks.

13   MR. BORNHEIM: We're also an electrical

14 contractor, little company called Power Down Energy

15 Services. And what we're seeing with Title 24 is a

16 lot of chaos. And so I'm wondering, I mean, just

17 looking at this as a pre -- Title 24 as a precursor,

18 you've got lots of resistance to compliance.

19   You've got building inspectors telling

20 companies they don't need to comply. All they have

21 to do is write a letter saying they did comply and

22 they don't need to follow the rules, get the

23 inspections, et cetera.

24   It seems pretty chaotic out there. How are

25 you going to, I guess, get people that don't want to

1 conform to these, I guess, standards that are

2 evolving to do it? What kind of money do you have

3 to enforce any of this stuff if people don't want to

4 spend the money?

5   COMMISSIONER McALLISTER: Let's see. So

6 this is not exactly the topic of the day, but I

7 guess --

8   MS. BROOK: He says, like, how do we get

9 people to comply with the standards? Is that the

10 question?

11   COMMISSIONER McALLISTER: I mean, that's

12 really up to --

13   MS. BROOK: Sorry. I listened to the EE

14 stats --

15   MR. BORNHEIM: To participate --

16   COMMISSIONER McALLISTER: I think.

17   MR. BORNHEIM: Participate.

18   COMMISSIONER McALLISTER: Well, there's

19 really two points here that I would make and then,

20 you know, Martha or another staff can chime in. I

21 mean, that's the still a responsibility of the local

22 Building Department to enforce the code.

23   We at the state level don't actually have

24 enforcement authority in the Title 24 realm in terms

25 of being able to levy fines and all that sort of

thing, as we do in the appliance realm. So you

know, it is a compliance that is law, but you know,

obviously we know that it can be spotty.

         I mean, in some areas there's actually

over-compliance, but in any areas there's not,

particularly residential.

         MR. BORNHEIM: Right.

         COMMISSIONER McALLISTER: But so I think,

you know, you've identified a great problem and I

think we, you know, would love to hear sort of your

pragmatic boots on the ground kind of view of how we

could make it work better and be more streamlined.

But you know, fact is, we do have aggressive codes.

That's part of our policies.

         MS. BROOK: Yeah. And so we do have

specific strategies in this action plan to target

code advancements, improvements, streamlining for

existing buildings. So we're not tackling the whole

code domain, but certainly are interested in -- you

know -- there's definitely some market failures

there and we want to try to remedy those.

         And one of the market failures about

people, you know, completing an upgrade and not

meeting the code requirements, we definitely take

that to heart and we want to do everything possible

1 to improve that situation in the marketplace.

2   The interesting part to me is that there's

3 another market failure and that's basically that

4 people see the costs of an upgrade to be so onerous

5 that they don't -- they actually defer upgrades.

6   So we sort of expect in the program world

7 that people are changing out their equipment every,

8 you know, five, 10, 12 years, but in actuality,

9 there's 50 to 100-year boilers that are too

10 expensive to replace.

11   So those are the kind of additional market

12 failures that we do think are very important to

13 achieving our goals in existing buildings, and we're

14 working with the PUC staff to target figuring out

15 ways that we can improve those market situations.

16   COMMISSIONER McALLISTER: Great. Thanks.

17 Next call.

18   MS. RAITT: Steve Uhler. Are you there,

19 Steve?

20   MR. UHLER: Hello.

21   MS. RAITT: Hi. Go ahead.

22   COMMISSIONER McALLISTER: Okay.

23   MR. UHLER: Can you -- hi. I'm Steve

24 Uhler. I'm a residential energy user. My comments

25 are related to Michael Murray's presentation, the

1 many uses of energy data. I agree that the energy

2 savings increases with granularity and frequency of

3 feedback.

4   He had a slide in his docketed version

5 called, "Data Access Method to Home Area Network

6 Activation." I'd like to hear more about that and

7 whether or not more systems can be used with Smart

8 Meters.

9   Right now, I'm with SMUD and they have one

10 device that's actually no longer made, and it's only

11 for loan. I'd like to have one all the time. I'd

12 like to have one that used a hub or something so I

13 could hook it into other things.

14   I believe that the real time energy use

15 information needs to be easily available, as

16 available as a clock hanging on the wall, and is

17 reliable and low cost. I find some metering costs

18 to be lower than Michael Murray's 2900 to 6400.

19   I use a low cost sub-meter energy monitor

20 and it costs about 120 bucks. They're easy to

21 install. My energy use monitor allows me to easily

22 know where to find savings. I'm joining real time

23 information with information on energy sources and

24 appliance efficiency.

25   I use some CalISO data, energy appliance

1   data and made up a couple sites, wwmpd.com. That's

2   What Would Mr. Peabody Do, dot com, and ugemrp.com,

3   and I find knowing when green energy is in season

4   through the day, that would be the Mr. Peabody site,

5   uses CalISO information and allows me to see when

6   the energy's the greenest.

7   That site you might have to check to see

8   whether or not you have an up-to-date browser. My

9   understanding is the Energy Commission browsers are

10 not able to look at it. But a phone or tablet will

11 work.

12   And then I also made up a version of the

13 Appliance Database to allow me to find appliances to

14 help me reduce greenhouse gases. These are some of

15 the arrows in my quiver that I use to improve my

16 energy use.

17   Data centers can be virtual data centers

18 that as long as they give data dictionaries and

19 indexes to the data. Not being bound by new data

20 standards is an advantage; easy access to raw,

21 unaltered data in whatever interchange format,

22 except for spreadsheets and PDF, through an index of

23 data sets would be nice. Thanks.

24   COMMISSIONER McALLISTER: Thanks for your

25 comments.

1   MS. RAITT: Okay. Last one is Michael

2   Nguyen.

3   MR. NGUYEN: Hello. This is Michael

4   Nguyen, from the SoCalREN. My question is to all

5   the panelists and also the Commissioner, with all

6   the discussion today on AMI and near real time data

7   that potentially enable programs to deliver and

8   measure actual impacts.

9   So I would like to hear your thoughts on

10   Ms. energy efficiency program design with a baseline

11   based on actual conditions versus a cold baseline.

12   COMMISSIONER McALLISTER: I'm going to

13   defer to the panel on that one. Go ahead.

14   MR. GOLDEN: I think that this is a

15   critical point. There's a fundamental, existential

16   problem with energy goals driven by incentives that

17   are above code, while we're driving code to zero

18   energy in the same time frame, and I think there's

19   some sort of dilemma there that seems kind of

20   insurmountable if we don't start addressing this

21   issue.

22   But you know, I think we have to start just

23   treating energy savings from a baseline as a

24   resource and say, look, if we reduce consumption for

25   whatever reason, whether it's a retrofit or,

1 frankly, code or anything else that drives up

 2 behavior, we're not building power plants. We're

 3 not emitting carbon.

 4   And again, some of the issues that we're

 5 trying to protect against around all of these

 6 ratepayer protections is we've historically fixed

 7 the price. So if you start getting lots of savings

 8 it would have happened anyways. It costs more.

 9   But if we start to move towards markets

10 that establish pricing based on supply and demand,

11 that stops being such an issue. So, you know, and

12 then we need to mention that -- Mr. McAllister --

13 that there isn't exactly 100 percent code compliance

14 anyways at this point.

15   So somehow, we have to kind of move past

16 this paradigm, and I think code baseline is one of

17 the first things we have to get over.

18   MR. UHLER: This is Michael. My sense is

19 that as the goals of, you know, by 2050, as those

20 get closer and closer we should -- we need to really

21 think hard about uncertainty of, you know, what --

22 are the energy savings real.

23   And you can ask the same thing of a

24 performance based structure like Matt had proposed,

25 but you can also ask the same about the widget

1 programs, too, you know. How many hours do those --

2 did those CFLs really get used per year, you know?

3 What's the actual measure life?

4   And we can argue about that until the cows

5 come home. And if you're going to argue about

6 something anyway, why not just make it about, you

7 know, performance. So I guess what I'm saying is,

8 our risk tolerance should increase as the scope of

9 the problem increases.

10   And if -- you know -- yes, there might be

11 some, you know, vacancies in buildings that lead to

12 some sort of subsidy, right? Their energy use went

13 down because their occupancy rate dropped. Well, I

14 think we're just going to have to accept some of

15 that.

16   And that's not to say that, you know, we

17 don't accept some of that today, right? I mean, we

18 have --

19   COMMISSIONER McALLISTER: Yeah. Yeah.

20   MR. UHLER: There are uncertainties with

21 how we do things today, and there will be

22 uncertainties with how we provide public subsidies

23 for efficiency in the future. Let's just have an

24 honest -- you know -- let's just face that honestly.

25   COMMISSIONER McALLISTER: So you're saying

1   that utility efficiency goals would have to go up.

2   MR. UHLER: No. Well, yes and no. I mean,

3   there are issues of commingling widget programs and

4   a performance-based program on the same home or the

5   same commercial building, definitely.

6   COMMISSIONER McALLISTER: Right, for sure.

7   MR. UHLER: But yeah, I mean, there are

8   uncertainties. You know, I mean, as we've said

9   before, you know, mild weather is not an energy

10 conservation measure. Well, you know, what about

11 vacancies?

12   What about a four-person household that

13 goes down to a two-person household, you know? I

14 think we should just accept that there might be some

15 of that, that happens, and --

16   COMMISSIONER McALLISTER: In reverse,

17 right.

18   MR. UHLER: -- it can be managed and --

19 yeah, or the reverse, and you can take a portfolio

20 approach and you do the best that you can and

21 that's, you know, that's okay. And it just pains me

22 to see, you know, so much resource going into EM&V

23 to calculate to 10 decimal places, you know, the

24 useful, you know, measure life and these other

25 numbers, and the reality is, there's false precision

1 there, as well.

2   COMMISSIONER McALLISTER: Yeah.

3   MR. GOLDEN: I think where an issue, it's -
4 - we're roughly accurate or precisely wrong on some
5 of these situations. The one thing to consider, as
6 well, is we start to think about EM&V not as like a
7 backwards looking knob that we're turning, but as a
8 procurement, you know.

9   The utilities are faced with keeping the
10 lights on. As they start to look at energy
11 efficiency as a resource, frankly, if there's a
12 bunch of stuff that they're counting in their
13 baseline that they expect to be there, like free
14 ridership and code, that means they have to -- and
15 so if they're procuring savings and they expect some
16 percentage of that's already in their calculation,
17 they have to procure more of it.

18   I mean, that's how markets work
19 fundamentally. And then it's a solar work. I mean,
20 think about it.

21   COMMISSIONER McALLISTER: Yeah, exactly.
22 Yeah, that was my point.

23   MR. GOLDEN: Yeah, exactly.

24   COMMISSIONER McALLISTER: Yeah. All right.
25 We have anybody else on the line?

1   MS. RAITT: Well, we'll just open it

2   briefly to anyone on the phone. So if you are on

3   the phone and don't want to make comments, please

4   mute your line now. So okay. Sounds like they --

5   COMMISSIONER McALLISTER: Okay. I want to

6   just thank everybody. I'm sorry for running over.

7   I just, sometimes I can't help myself and I think

8   all of us are interested in the conversation. I

9   don't know if I'm responsible for the whole thing,

10   but maybe just for not being the task master.

11   But I'm going to cut lunch to 45 minutes.

12   So 2:15 I think is the best time for us to get back,

13   and hopefully, we can get back on track and not go

14   too far over the end of the day. Great. We'll see

15   you at 2:15. Thanks.

16   (Recess at 1:31 p.m, until 2:21 p.m.)

17   COMMISSIONER McALLISTER: So pass it off to

18   Heather.

19   MS. RAITT: Great. Thanks for coming back

20   to our workshop, and so we'll jump right into --

21   we're going to hear an overview of CPC's May 2014

22   data decision from Chris Villarreal.

23   COMMISSIONER McALLISTER: Okay. Thanks for

24   being here.

25   MR. VILLAREAL: All right. Okay. Thank

you, Commissioner McAllister, and everyone with the

CEC for inviting me to participate in today's

Workshop. I'm Chris Villareal. I'm a Senior

Regulatory Analyst at the California PUC, and I work

in our Policy and Planning Division.

And I'm going to just give a -- hopefully,

a not terribly lengthy overview of what we issued

last May 2014. To provide a bit of context, this

slide provides you with the information about the

three major privacy decisions that the Commission

has issued over the last almost four years now.

The one thing I want to point out about

these decisions is that while they are ostensibly

about privacy, they are also about data access. And

the reason why I point that out is because, as we

heard earlier today, in my opinion, privacy and data

access are viewed as things that don't work

together.

You either have privacy or you have data

access. You don't have the two working together. I

began to think about this, having worked on some

cyber security stuff. When you think about cyber

security you want cyber security built into the

process, and not bolted on later.

And I'm viewing privacy sort of the same

1 way, is that I just talk about data access. If you

2 build privacy into it up front you don't have to

3 deal with it later on. You don't have to deal with

4 the headaches going on afterwards.

5   You can have the rules on access and

6 privacy together so everyone knows what I going on

7 up front. And then as you continue to move forward,

8 then you can start modifying the rules as you see

9 fit through technology advancements.

10   Maybe things no longer have a privacy risk

11 anymore, but it allows everyone to know what the

12 rules of the road are for privacy and access, so

13 that those two can work together to, then, further

14 the goals of data access.

15   The Commission is very supportive of

16 getting data out there to become used and useful.

17 After all, the utilities, we did authorize the

18 utilities to spend upwards of $10 billion to invest

19 in AMI just on the residential side.

20   And having the data that's been generated

21 from the AMI to become used and useful in the

22 market, to the utility and to the customers, will do

23 nothing more than get greater savings out of that

24 investment.

25   Just quickly, our privacy rules are based

on the Fair Information Practice Principles.
They're just a basic set of rules that -- or
principles that have been adopted at both the
Federal Trade Commission, as well as in Camden
(phonetic), by the Office of Privacy Council in
Ontario.

The rules as I described them generally
apply to the utilities, utility contractors and the
third parties that obtain data from utilities. They
May decision modified that slightly, but generally
when we're talking about our rules, those are who we
are applying to.

The rules were mostly a consensus of the
parties themselves in our proceedings. That
includes utilities. That includes consumer
advocates. That includes privacy advocates, and
that includes third party participants.

One of the things that I always found
interesting, especially after reading Ethan's paper,
is that it's Berkeley is sponsoring his paper. Our
rules were developed by two different schools inside
Berkeley, the School of Information and the
Samuelson Law Clinic.

So we have two arms of Berkeley that helped
write our rules, and then you have another arm of

Berkeley sort of taking issue with them. So I enjoy

the irony of it. As I noted earlier, the goals of

the rules are to protect privacy, but also enable

customers to give the information or share their

information with a third party of their choice.

We had a discussion earlier with Chairman

Weisenmiller about ownership. Ownership was

actually a very big discussion in the context of our

proceeding in the development of our 2011 rules.

And all the parties, again, all the parties in the

proceeding agree that ownership acted more as a red

herring, and that the more important question was

access.

So earlier in the day I think it was

explained accurately that customers have the right

to access their information and they also have the

right to share their information. Beyond that,

ownership confers a whole series of legal arguments

that the Commission at that point then decided not

to get into around ownership rights.

In other words, what was told to us is that

if the consumer is conferred with ownership rights

over data that has a potential to lead into certain

tangles, legal tangles that we would rather not get

into over how the utility can then use the data for

1 other purposes, or how the Commission can use the

2 data or provide it to other entities. So we just

3 completely avoided the discussion of ownership and

4 decided that access is in fact the more important

5 aspect of these rules.

6   So here's a short overview of the May

7 decision. It is roughly 177 pages long. I invite

8 you all to read it, you know, before you -- if you

9 can't go to sleep. It does put on at least six

10 things.

11   It directs the release of usage

12 information, so this would be your identifiable use

13 information, to educational institutions for

14 research purposes. And the decision outlines what

15 we mean by an educational institution and what we

16 mean by research purpose.

17   Number two, it directs the IOUs to make

18 available on a public page, on their web page,

19 certain monthly, total monthly sum and average

20 electricity use and natural gas use by ZIP Code and

21 by customer class.

22   We provided, and I'll show you the long

23 language of what we mean by how to aggregate that,

24 but that allows and puts out some information about

25 customer usage information by customer class, by ZIP

1 Code, on a public page, without NDAs, without any

2 need to go through the utility, other than to go

3 onto their web page, and that page should be up,

4 should be up by now.

5   Three, it directs the IOUs to make

6 available to local governments yearly, quarterly and

7 monthly usage and other usage related data by data

8 request to the utility, provided the results meet

9 certain aggregation standards. And I'll outline

10 what those are later.

11   It reaffirms the ability of federal or

12 state agency that has the direct statutory authority

13 to access the information to get the information.

14 Many of the requests in this proceeding were in

15 conjunction with the CEC around implementing similar

16 statutory requirements.

17   We again reaffirm that the other agencies

18 are allowed to go and ask and get the data provided

19 it meets specific statutory requirements. And then

20 the last two things is --

21   COMMISSIONER McALLISTER: Chris, can I just

22 jump in on that point four?

23   MR. VILLAREAL: Sure.

24   COMMISSIONER McALLISTER: So is that --

25 when you say "the data," do you mean the same kind

1 of data you're talking about in these other points

2 or is that, you know, basically the state and

3 federal have special status or what's the --

4   MR. VILLAREAL: Well, I wouldn't call it

5 special status, Commissioner. If you look at the

6 enabling statute under the Public Utilities Code it

7 allows the PUC and other federal -- other

8 governmental entities, predominantly state agencies

9 or federal agencies --

10   COMMISSIONER McALLISTER: Yeah.

11   MR. VILLAREAL: -- to obtain information

12 without customer consent. And what this does is if

13 an agency in the purpose of implementing a statute -

14 -

15   COMMISSIONER McALLISTER: Okay.

16   MR. VILLAREAL: -- says, to do this statute

17 you should use or must use usage information for

18 this purpose, you don't have to go through the

19 rigamarole that you may have done in the past. You

20 can go and say, we are implementing statute one,

21 two, three.

22   COMMISSIONER McALLISTER: Okay.

23   MR. VILLAREAL: It asks for this

24 information, please let us have get it, please let

25 us have it.

1   COMMISSIONER McALLISTER: Yeah. So then --

2   MR. VILLAREAL: And so I also understand

3 1103 then has the second language about how to

4 protect customer privacy.

5   COMMISSIONER McALLISTER: That's kind of

6 where I was going with that. But also, just you

7 know, the Warren Alquist Act gives the Energy

8 Commission, per se, also some authority in this

9 area.

10   MR. VILLAREAL: Yes.

11   COMMISSIONER McALLISTER: And I just wanted

12 to make sure that we weren't getting crosswise.

13   MR. VILLAREAL: No.

14   COMMISSIONER McALLISTER: Yeah.

15   MR. VILLAREAL: The decision explicitly

16 states that existing authority under the Warren

17 Alquist Act --

18   COMMISSIONER McALLISTER: Yeah, great.

19   MR. VILLAREAL: -- for the CEC is -- you

20 have it.

21   COMMISSIONER McALLISTER: Yeah. I

22 understand. Great.

23   MR. VILLAREAL: You have it. And the last

24 two points talk about a process to allow these

25 authorized entities how to do the requesting to the

utilities. One of the concerns we heard in the

proceeding is many of the local governments and the

universities noted there was not a similar process

across the utilities.

Each utility have their own unique process

for obtaining or for requesting and obtaining

information. So this decision streamlines the

process so all four utilities, because this does

include SoCal Gas, has -- this is the same process

across the four utilities.

It has the same steps along the way for all

four utilities, and I'll get into this later. And

then number six, creates an Energy Data Access

Committee, and you heard earlier from my colleague,

Amy Reardon, she has been tasked with helping to

move that committee forward, and I can talk a little

bit more about that.

At the proceeding itself we considered 12

use cases. Those use cases helped inform the six

things that we're doing here. We did not always

approve these cases, because as I pointed out

earlier, we are at the beginning stages of this

process.

And it's my expectation, especially through

the Energy Data Access Committee, that as we

continue to move forward we will identify new use

cases, new processes and modifications to the

processes that we've adopted in this proceeding as

we go forward to help facilitate the use of this

information.

This is just a short thing on data

aggregation, and this is going to be me opining for

a little bit. Aggregation anonymization is a tool

or two tools that can be used to lower the risk

through identifying a custom.

So while we talk about usage information,

think about it as ones and zeros, right. So what

the data analysts want to get are the ones and

zeros. And what I point out, those ones and zeros

are atoms and you start putting enough ones and

zeros together, or enough atoms together, you start

to form a body.

You start to form an entity and then that

becomes an identifiable person. And of course,

under state law and the Constitution, everyone has a

right to privacy. And that's where the Commission

is sitting, is trying to manage our way through two

arguably competing interests of data access, but

also protecting customer privacy.

And so by moving forward on data

1 aggregation techniques and methodologies is a way

2 that we can hopefully provide more information out

3 for the public. But there are varying risks to the

4 data and there are varying risks to re-

5 identification, and I just identified four of them

6 here.

7   As we think about the data, the granulary

8 data provides different risks. If we have 15-minute

9 or hourly information that is arguably higher and it

10 has more value -- that does have more value, but it

11 has more risks associated with re-identification

12 versus if you had daily, monthly or even yearly, you

13 have lower risk of re-identification. Geography --

14   COMMISSIONER McALLISTER: Chris, this re-

15 identification term, I guess, could you give us a

16 little background on that? Is that just a priori a

17 bad thing or is there some scenario where even

18 though re-identification in theory might be

19 possible, it's still okay from a privacy

20 perspective?

21   MR. VILLAREAL: That's why I talk about it

22 in the terms of risk. I won't say whether re-

23 identification is, in and of itself, a bad thing. I

24 think in our interpretation of the statute we wanted

25 to minimize the risk to the customer to be re-

1 identified.

2   And understanding the risks associated with

3 the data and how it can be used to re-identify a

4 customer, at least in the way we've developed our

5 methodologies, can help lower or mitigate the risk

6 to the customer of being re-identified.

7   If you wanted to avoid re-identification

8 risk entirely you would not make any of this data

9 available, and that is not a position that the

10 Commission wants to take either. We want to make

11 the data available, but we want to manage the risks

12 to the individual customer appropriately.

13   And there are four basic buckets that as

14 you start to develop aggregation methodology you

15 have to manage over the course of time. So as you

16 have granulary data, you have geography. So the

17 smaller, smaller blocks you go and the more granular

18 the data, the greater the risk to re-identifying the

19 customer.

20   I also understand that it's also more

21 valuable. So as you start to, you know, have larger

22 granulary time and larger geography, you have lower

23 risk of re-identification. And time frame. Do you

24 want the time frame over all customer usage over an

25 hour, over a day, over a year.

And of course, customer classes themselves

pose a different level of risk. So where you have a

ZIP Code with 100 customers or 1,000 customers, that

has less risk than a ZIP Code with one industrial

customer.

          COMMISSIONER McALLISTER: Could you maybe

characterize the -- so you had a lot of different

stakeholders on that issue and I imagine this was

probably an area where they disagreed at least

somewhat.

          Could you maybe characterize the

conversation about, you know, where the various

stakeholders were? You don't have to name them, but

how wide was that spectrum of how big a deal this

re-identification risk actually is?

          MR. VILLAREAL: The private advocates,

obviously, were very strongly concerned about the

risk of re-identification. They would argue that

there is no data set that you cannot re-identify

somebody from.

          So if you have an energy data set that has,

you know, simply a line of one to 100 usage and

let's say a ZIP Code, you can then take that

information and match it with other publicly

available sources of information, perhaps from the

1   Assessor's Office.

2   And if you have a big enough or robust

3   enough algorithm you can then do a reasonable job of

4   re-identifying which usage goes to which customer.

5   I don't think we were -- that's -- obviously, if you

6   wanted to avoid that you would have no data

7   available.

8   COMMISSIONER McALLISTER: Well, I guess my

9   -- and I don't want to put you on the spot, because

10 you're facilitating. You're not -- you know -- I

11 mean, I'm not saying you're owning this stuff, per

12 se, but like, that's kind of exactly where we want

13 to go with policy, is crossing energy with buildings

14 data, with, you know, other kinds of data to inform

15 where the opportunities and then offer the right

16 services, depending on what that indicates, and

17 right, whether that's -- you know -- who does that

18 and how it happens and all that, that is a process

19 question.

20   But I guess, you know, kind of like if I'm

21 a local government and I want to know how I can

22 reach my carbon goals, I need some --

23   MR. VILLAREAL: Right.

24   COMMISSIONER McALLISTER: -- I need to be

25 able to match up the energy data with the buildings

1 data to have some reasonable policy in place, right?

2   MR. VILLAREAL: Correct. And I'll answer

3 it this way. The fourth, fifth person, the fifth

4 bucket in here, which is not identified, is the

5 requester themselves.

6   COMMISSIONER McALLISTER: Right.

7   MR. VILLAREAL: Local governments have a

8 very clear interest in getting the information to

9 meet certain requirements. Many third parties have

10 a very positive need to get the information. So we

11 aren't -- what our rules -- and this is what it

12 does, is it enables local governments to get the

13 information, but as it applies to the market we have

14 not gone that step to allow market -- the market to

15 get this information, and I'll say it for a reason.

16   The people in our proceeding, as in your

17 proceedings, are good actors generally. They want

18 to do positive things for the state and to meet our

19 energy policies. So if we made one characteristic

20 of, this is how you get information for everyone,

21 the good actors will do good jobs with it.

22   The bad actors will go in and say, oh, look

23 at all this information I can get that I don't have

24 to do anything with and now I can do all sorts of

25 bad things with the information. And unlike other

1 aspects of our lives, once something is gone we

2 can't give the data back.

3   The data is out there and there's nothing

4 that the Commission can do or the utility can do

5 except be sued to get that information or protect

6 that privacy back. So this decision is our first

7 step into doing this, and I fully expect the Access

8 Committee and the utilities and the Commission in

9 general, with working with everyone in this room and

10 who wants to participate in the PUC proceeding, to

11 keep moving forward.

12   COMMISSIONER McALLISTER: I really

13 appreciate that. I mean, this is a tough, tough

14 area and we're --

15   MR. VILLAREAL: It is; it is.

16   COMMISSIONER McALLISTER: -- we're

17 navigating it.

18   MR. VILLAREAL: And of course, our

19 statutory authority, which is slightly different

20 than yours, says we have to protect customer

21 privacy. And so we have to come up with ways to

22 lower the risk of re-identification of customers,

23 but also get the data out there. And this is just

24 simply the first step in getting that done.

25   So with these four buckets there we've

1 adopted several different aggregation methodologies,

2 based on the premise that the data, the geography,

3 time frame, the customer class themselves provide

4 different levels of risks.

5   Hopefully, this will all be posted on the

6 web page. This slide and the next slide I just put

7 up there for you to read later.

8   (Laughter.)

9   MR. VILLAREAL: What it generally says,

10 these are the aggregation methodologies that are on

11 the utilities for the public posting of data. What

12 I'll point out is the residential class has a

13 different aggregation methodology than commercial or

14 ag or industrial.

15   Because, as I pointed out, this is our

16 first step, we want data to be out there and we

17 didn't want to be too aggressive on getting data

18 publicly available, because we don't know what the

19 market wants to do with this data.

20   We don't know who the good or the bad

21 actors are with this data, but we wanted to get some

22 of meta data out there. And we figured this was our

23 acceptable level of risk as of May 2014. Again,

24 these can all change going forward, as technology

25 progresses, as research with data queues progresses,

these methodologies are subject to change.

But for today, these are the aggregation methodologies as it applies to the public posting of information. This, these, are the aggregation methodologies for local government. Local governments have a very clear need and a direction to get customer use of information to satisfy certain goals and statutory mandates.

Again, these are our first steps at making this happen. As things continue to progress, as risks change over time, I would expect these things to be modified, as well. One of the main differences, well, there are several differences between what you saw and this one.

The aggregation is much lower for residential and all of them have a percentage of load. So if y'all are familiar with the 1515 store where you have to have 15 customers and no one customer can be more than 15 percent of the aggregation, that's kind of how this works.

So for example, if the first bullet, res, commercial and agricultural customers, you must have at least 15 customers in that request and it's by customer class. No single one of the accounts must be more than 20 percent of that aggregation.

1   There are other requirements put in here,

2   as well, around anonymized data. For example, if a

3   certain request has a handful of solar customers

4   that are very obviously identified in the

5   anonymization set because they are zero, those have

6   to be removed because they have been identified.

7   You can easily take publicly-available

8   sources of information to identify who those are.

9   But this is, again, read this later. It's all in

10   the decision. The third part of our decision was

11   creating a data request and release process. Now,

12   this is intended to streamline the process so that

13   all the eligible entities, and by eligible entities

14   I mean universities and local governments, and

15   potentially other federal, state agencies seeking

16   information, can now have a single point of contact

17   at each utility.

18   They know what the process is for getting

19   information because we are told for too long they

20   would make a request and they would wait and wait

21   and wait, and the utility would finally get back to

22   them with some answer that they either did or did

23   not like, and they had no alternative means to

24   request changes or something else -- or change some

25   other way to make the request.

1   So the utilities are also going to create a

2 website, in fact, I think it may already be online,

3 to identify all the -- create a catalog of all the

4 requests they've received. I have identified what

5 the process is so that everyone knows what the rules

6 of the road are.

7   So they know -- the requester knows that

8 the IOU got it. They know that the form is complete

9 or incomplete. They know when to expect the data or

10 not to expect the data and they know what they have

11 to do to change the request if the data cannot be

12 provided.

13   Any disagreements between the utility and

14 the requester can be informally provided to the

15 Energy Data Access Committee, and the next slide

16 will talk about that. Prior to getting the data you

17 have to complete an NDA and this decision provided a

18 model NDA so that local governments do not have to

19 abide -- do not have to sign NDA.

20   And the IOUs can notify the Executive

21 Director of the PUC that they are making the data

22 available. The PUC encouraged the utilities and the

23 requesters to use standardized formats as much as

24 possible, in other words, XML or CSV is the

25 preferred format.

1   Additionally, the delivery of the data

2   should be done in a standardized manner as much as

3   possible, as well, including, and the Commission

4   specifically identified, it should leverage the

5   funding that the PUC approved for the utilities to

6   utilize the energy services provider interface,

7   NAESB REQ 21, which is the standard underlying the

8   green button.

9   I should note that I am the Task Force

10 Chair at NAESB for that standard. So I'd be happy

11 to answer any additional questions later on about

12 the standard itself. But we've provided utilities

13 direction and funding to use the SB Standard and

14 we'd like to see that funding leverage much as

15 possible.

16   Finally, we directed that no fees at this

17 time shall be assessed upon any of the requesters,

18 but to the extent the IOUs determine that they have

19 been getting a lot of requests, they are free to

20 request a fee in the next GRC case.

21   COMMISSIONER McALLISTER: Chris, did you

22 identify funding needs or did the utilities bring up

23 any funding needs for just developing the IT

24 infrastructure to generate the responses to these

25 data requests?

1   MR. VILLAREAL: The utilities always

2   request funding to implement any of these directions

3   to utilities -- or from us. They did say that this

4   would of course cost money, but in this proceeding,

5   since from a legal perspective it was not a rate-

6   making proceeding, we said that they should use a --

7   not memorandum -- balancing account.

8   COMMISSIONER McALLISTER: All right.

9   MR. VILLAREAL: At the Commission to track

10   their costs.

11   COMMISSIONER McALLISTER: Okay.

12   MR. VILLAREAL: So that in the GRC they can

13   recover their costs then, or utilize existing

14   budgets.

15   COMMISSIONER McALLISTER: Okay. So yeah, I

16   guess we heard Ethan in the morning and I think a

17   couple other people alluded to something like this,

18   where -- and then you just said they're free to

19   request some kind of fee structure.

20   But I guess there's also a lot of argument

21   that, well, there's some social benefit, public

22   benefit to this, and maybe it is rate -- you know --

23   ought to be rate based a little more broadly and

24   this IT infrastructure is going to help everybody.

25   So just wanted to see -- I mean, was that a

1   part of the conversation in the proceeding among the

2   stakeholders?

3   MR. VILLAREAL: Not explicit -- I mean,

4   there were parties who raised that.

5   COMMISSIONER McALLISTER: Um-hum.

6   MR. VILLAREAL: But since this was not a

7   rate-making case we could not make such

8   determinations.

9   COMMISSIONER McALLISTER: Okay.

10   MR. VILLAREAL: All we could say is the

11 utilities should track their costs for many of those

12 reasons, because the Commission -- I would agree --

13 likely believe that to the extent these costs are de

14 minimis or not a lot, it can just be recovered

15 through the rate case.

16   So they're going to get their costs of

17 service recovered anyway. It's just a matter of how

18 much of that should be borne by requesters versus --

19   COMMISSIONER McALLISTER: Versus the

20 public, yeah.

21   MR. VILLAREAL: -- versus the public as a

22 whole.

23   COMMISSIONER McALLISTER: Okay. Great.

24 Thanks.

25   MR. VILLAREAL: This is a bit of the Energy

Data Access Committee. Again, my colleague Amy

Reardon is the PUC representative shepherding it

through. It is to provide assistance to the IOUs in

their data access programs.

Again, this would be at least as imagined

in its decision where ongoing discussions around

aggregation methodologies would be held. This is

considered in forming any disputes, so if a

requester says I want data that does this, and the

utility says, no, you can't have that because it

violates this rule y, they can go to the committee

and the committee can informally advise both parties

of this solution.

Neither party has to accept it. The hope

is that they both will. But the PUC retains the

final authority to arbitrate any decision in any

disputes, should either of the party want to come to

the PUC to do this.

It consists of representatives from across

the board, including the CEC Commissioner,

researchers, consumers and privacy advocates and

other interested parties. I believe Michael Murray

is on it, as well, or at least he participates.

By the Commission decision they are to meet

at least once a quarter for the first two years,

then as needed thereafter. The first meeting was

held April 6th in the Bay Area. The next meeting is

scheduled to be in July in Southern California at

SoCal Gas.

          And as noted, the last bullet is, again,

this is the form where the Commission hopes to get

the -- get individuals interested in this topic to

start discussing what's next. What are the issues

that the Commission and the parties see coming up

next?

          For example, when we talk about building

benchmarking, a, the Commission has been very

supportive of getting the consent up front from the

tenant with the landlord. So how does the lease

need to be revised so that customer consent is done

in the lease as opposed to some later document?

          And so what is a legally binding language

in the lease that the utility would accept, the

utility lawyers would accept? That's the type of

issue that may come up in the context of this

committee, to get some ideas going, get some new

ideas generated, and hopefully, get some solutions

so that we can start avoiding some future

implementation problems, because as the first step

there are growing pains.

1	And as we continue to move forward we will

2	identify new growing pains that hadn't been

3	considered before. And this is a way for everyone

4	to discuss how to find solutions, creative solutions

5	to these issues.

6	And with that, I'd be happy to answer any

7	questions or I can deal with them later,

8	Commissioner.

9	COMMISSIONER McALLISTER: Yeah, let's -- I

10	think let's move on. I know we're all looking

11	forward to maybe even running over business hours

12	here, so hopefully not. Thanks a lot, Chris. I

13	really appreciate you and Amy being here today, and

14	George Degneba (phonetic). I saw him, as well. So

15	that's great areas. So I'm really looking forward

16	to working with the PUC on this.

17	MS. RAITT: Next, we have the Utility

18	Panel. So the folks on that, if you could come up

19	to the table. And we also have one participant

20	joining us from WebEx on this panel. We have

21	Jonathan Changus from NCPA on WebEx.

22	MR. JENSEN: So well, thank you, Heather.

23	So these panelists received some questions regarding

24	their --

25	COMMISSIONER McALLISTER: Okay. Somebody's

got some feedback on the line here. Could you mute

yourself on the phone, please?

        MR. JENSEN: Maybe we'll have Jonathan mute

his phone until it's time for him to go. Anyway,

okay. So these panelists received a set of

questions regarding their respective utility's

practices on sharing data with customers, the market

and policymakers.

        Here in the room we have Manny Alvarez and

Mark Podorsky from SoCal Edison, Jan Berman from

PG&E, and as Heather mentioned, on the phone we have

Jonathan Changus from NCPA. He'll be talking about

POUs. So let's go ahead and get started. Manny,

would you like to start us off?

        MR. ALVAREZ: Yeah. This is Manuel

Alrvarez, Southern California Edison. I'm in the

Regulatory Affairs there and I've come before the

Commission a number of times, and over the years

I've dealt with a lot of these data questions and

issues.

        I'm not going to specifically talk about

that. I'll let Mark get into the specifics of data.

But I guess I just wanted to kind of express, you

know, some views here in terms of some of the

evolution that we're involved with.

1   I think this particular topic is timely.

2 We're all facing a number of industry changes, as

3 well as governmental changes. The technology of

4 data management, collection and processing is

5 definitely going through an evolution.

6   Edison itself is actually going through an

7 internal structuring of its IT and its information

8 and its data management system. So it's real

9 relevant to what it is that we're doing, as well as

10 how we provide it.

11   The transition to the distribution planning

12 process, I think we're all aware that the utilities

13 will be filing those reports or those proposals

14 before the PUC in July, and we'll look at the

15 evolution of the grid and the implications of energy

16 efficiency, demand response and distributed

17 generation.

18   Plus, we have our implications of the SONGS

19 development, the SONGS shutdown and what's going on

20 in the PRP, and so there's relevance there. so

21 there's a number of areas where things are coming

22 together in terms of the evolution in the management

23 of this data and information going forward and what

24 decisions the utilities think they have to make, as

25 well as the regulators, both the PUC and the CEC,

they have to make what decisions and what to do

where. So I think it's timely.

At least some of the things I heard this

morning I was pretty pleased with, the groups that

are being organized for data access, as well as the

proposal I heard earlier today for an ad hoc group

to kind of begin to discuss those kinds of issues.

I think working groups work really well. I

think the Commission has used the Demand Analysis

Working Group to deal with some of the forecasting

methodology questions and debate that goes on, and

that seems to be working.

There hasn't been too many conflicts, at

least that I'm aware of, but I'm sure there'll be a

few as we go through this IEPR process. And the

other issue that I find intriguing is this

discussion between the privacy and the need for the

public interest decisions need to be made.

I think that's an area still where there's

a need for some discussion at some point. You know,

where those edges are, what are the implications on

some of the privacy requirements, as well as the

need for the public interest decision.

So perhaps in our comments when we filed

with those, we'll give you some guidance on where we

1 think some of those edges can be and we can discuss

2 those.

3   COMMISSIONER McALLISTER: And also, I would

4 just say, just to interject, I mean, so part of it

5 is it's great to hear that you're revamping your IT

6 infrastructure and everything, and I think there's

7 an opportunity to, where data has to pass between

8 entities.

9   You know, say it's one of the Commissions

10 and you guys directly or some system that we think

11 about what the standardization and the protocols

12 look like and work through those issues to make sure

13 that we're all sort of talking the same language

14 going forward.

15   MR. ALVAREZ: Right. Now, I understand,

16 and I think the cyber security question came up,

17 also. I think that's very relevant in terms of

18 issues that we're dealing with, our data and our

19 information. So with that, I'll turn it over to

20 Mark, and you know, he's the point person at Edison

21 where the rubber meets the road and he has to kind

22 of deal with how we manage our data and actually get

23 it out and about.

24   COMMISSIONER McALLISTER: Right.

25   MR. ALVAREZ: So Mark.

1   COMMISSIONER McALLISTER: Great. Thanks,

2   Manuel.

3   MR. PODORSKY: Okay. Thank you,

4   Commissioner. Thank you --

5   COMMISSIONER McALLISTER: Microphone,

6   please.

7   MR. PODORSKY: -- for having us. I am Mark

8   Podorsky. I oversee and manage a group called

9   Information Data Governance. So excuse my hoarse

10   voice. I'm just getting over some of the crud I

11   think everybody have probably gotten over the last

12   week here.

13   But data is very important to me. I love

14   data. I live data. So I appreciate the folks that

15   understand the value of data and what it brings to

16   the table to help solve problems. I will tell you,

17   from Edison's perspective we also think the customer

18   is the owner of their data.

19   However, we do feel that we are the trusted

20   custodians of that data, and as any trusted

21   custodian we have a responsibility that comes with

22   that. And so we are very committed to our privacy

23   and security rules and policies that we have in

24   place to protect that customer's data as their

25   custodian.

1   And I say that not because in the spirit of

2   sharing data to advance all things good. We're in a

3   place where we have to follow policy and we have to

4   follow decisions. And oftentimes we're in a place

5   that doesn't make it easy for us to do that.

6   But that said, we are behind partnering

7   with folks to do the things that we can't. We're a

8   utility. We know we're not great at everything,

9   right. So we want to bring and partner with those

10   experts that can help us achieve goals and help us

11   achieve state goals.

12   So we want to help support you guys. We

13   want to share the information that you need to do

14   your jobs. We just have to do it within the bounds

15   of the rules and decisions that we have been given.

16   So I'm glad Chris went through the latest decision,

17   because I think it helped frame up the environment

18   that we have to operate in.

19   But I will tell you a couple things. We

20   want customers, certainly, to have access to their

21   own information and we do it through a variety of

22   ways. Whether it is through their "my account" to

23   look at usage, run reports, forecast a bill

24   prediction, next bill, bill alerts, all the things a

25   customer should get, we have provided those

1   opportunities through our portal.

2   You know, secondly, we understand that

3   customers want to be able to download insure their

4   data. So we did ask for a funding for what we call

5   our SB Platform. The first applications to run on

6   this SB Platform was the Green Button.

7   We did it in three phases. Green Button

8   initial phase was so customers can download the data

9   that they were looking at on their web page in CSV

10 human, readable format. The second phase of Green

11 Button was to say, forget just the web page that

12 you're looking at, tell me what did you want to

13 download, how long a period of time and do you want

14 it CSV or XML.

15   Theory being, if you downloaded XML, that's

16 machine readable format, and then you can share that

17 file with whatever third party that you authorize

18 and choose, right. So we give the customer that

19 flexibility.

20   And then finally, Green Button phase three

21 we implemented, I think folks know it here as the

22 Green Button Connect My Data. So that is where they

23 can not only download their data, but they can

24 choose a third party of their choice that will

25 provide them value added services.

They can connect their data with that third
party, authorize that third party, and we will send
them not only historical data, but periodic, mostly
daily feeds of any incremental data or prior period
data changes to that third party, automatically,
machine readable, on behalf of the customer.

So that is one way that we try to share the
data and get it out to third parties, if the
customers choose. Then according to the ruling that
Chris went over, specifically Decision 140515, we
did take the necessary steps to comply with that
ruling.

So we did create a web portal specifically
where third parties, whether it is government
entities, municipalities or research institutes, to
come and request data. It's not specific data. You
tell us what you're looking for.

In fact, the joint IOUs worked on the
request pages together so that they were consistent.
And it's free form boxes that really say, what kind
of data are you looking for, what are you trying to
use it for.

And then through the necessary process
apps, we'll say, who is the requester; do you have
authorization; are you registered; are you -- did

1 you sign an NDA with us and all those things. And

 2 then we'll take the necessary steps to either

 3 deliver on the data that they asked for, or we go

 4 back through and say, look, we can't give you this

 5 detail level of data you are looking for unless you

 6 get customer consent.

 7   However, if you're willing to take it in

 8 this aggregated format I think we could do this for

 9 you. So it's not just a one and done, come onto the

10 request page, ask for some information and I can't

11 give it to you, I say no.

12   I say, here's the rules I have to live by.

13 I can't give you this, but maybe I can give you

14 this; will this help you. And we'll work through

15 them, at that iterative process with the requesters

16 to make sure at least we're getting them some

17 information that they can use.

18   So I think that was another step forward in

19 helping information get out there so that we can

20 share it. And then the third thing again, according

21 to the ruling, is I am a sitting member of the

22 Energy Data Access Committee.

23   So as issues come up around data access and

24 what we can and can't do, I think that's the perfect

25 place, and I would encourage the CEC to leverage

1 that body so that as we come up with issues or

2 questions around what data should be accessible or

3 not, or what level of authorization does it need, I

4 think that would be the perfect body with the

5 correct participants to address those issues.

6   So those are some of the things around data

7 access that, you know, I feel that we are doing

8 everything we can within our rules to help support

9 the market. I do have a list I was jotting down of

10 what I saw as some of the barriers, specifically

11 because, as Manny talked about, we're going through

12 our IT restructuring.

13   Everything costs money nowadays and the

14 more we can use standards, the more we can leverage

15 the tools we already built. That would be

16 preferable, instead of asking the ratepayers to fund

17 more solutions that maybe we don't need to do.

18   So when I talk about some of the barriers

19 and some of the hurdles we have to get over to make

20 this work, I think we do need to look at standards.

21 The SB standards Chris talked about, supported

22 through NAESB, again, are a great start.

23   The first rev of it was really based around

24 usage, but the standards body is opening it up to

25 additional data items, specifically around billing,

billing determinants. I think if there's any

questions around what should be part of that

standard, we have a seat, I think a couple of folks

have a seat with the standards body.

         If there's some piece of information or

data that's not in the standards, let's ask them to

get it in the standards. Let's not create another

standard, right. So I think that's one of the ways

that we can work with the standards bodies to, one,

make it consistent, but then get all of the things

that we need into the standards and leverage the

standards.

         Second thing, I think we talked about

actually at the first EDAC meeting last week was

around data definition and data dictionary and

terms. It would be great if we could all get on the

same page as to the data items and data definitions.

         When somebody says "usage" to me, first

response is, what kind of usage. Are you looking

for estimates? Are you looking for best available?

Are you looking for actual? Are you looking for

real time, new real time?

         So those are the kinds of colors and

attributes that we also need to tee up around the

data items. And then I think for consistency, if a

1 third party says, I need data X, all the IOUs, all

2 the third parties, everybody understands what data

3 item X means and there's no questions about, when I

4 get X, oh, that's not what I meant, I meant

5 something else, right.

6   I think that's where data definition, a

7 data glossary, data terms and certainly, data

8 attributes come into play. I also like to think

9 about what I call the transport method. Pulling

10 data and putting in a file, to me that's the easy

11 part.

12   Making sure that it's secure, making sure

13 that it gets to a secure website where somebody

14 could either get at it with a token, because you

15 already did a pre-determined, technical handshake so

16 that you can get the data out of that mailbox in a

17 secure place, that's what I call a transportation

18 model and it's all wrapped in, how do I get the data

19 out there in a safe manner to a safe place where a

20 trusted person with lock and key can pick it up.

21   The next thing I'd like to talk about is,

22 kind of how do we support the market and make it

23 work, right, and that comes down to I think the

24 customer experience. One of the things people don't

25 want to do is have to go onto the IOUs website, get

a password, login, and say, yep, I authorize this

third party and then jump to the third party website

and say, oh, now, I've got to set up a sign on and

account here, then I can pass my data.

So I like to think we're going to advance

in terms of all getting on the same page around

single sign ins. Single sign ons should make that

experience easier so that once you sign in one place

you can go between the different vendors and people

that you had authorized and easily go onto their

sites and see the results without actually having to

do all of that re-logging in.

And then, certainly, I think the last piece

or hurdle that we need to look at is, everybody

understanding the privacy, security rules, and then

what would governments, what would third parties,

what would research institutes have to do to be able

to play in this game.

And we had an interesting conversation last

week at EDAC. Again, the utilities can post on

their website. If you're a research institute

looking for data, here's what you have to do. You

have to be accredited.

You have to state your case with the

Commission to make sure that you're working towards

some goal that we're all after like energy

efficiency, right. You have to sign the NDA. All

these things that folks have to do to play in the

game, it would great if it was posted on a single

site so that you didn't have to jump from IOUs

website to IOUs website.

But if you can get all of these rules, all

of what's the obstacles and hurdles to even get in

the game, it would be great to have it in one place

so that it is consistent, so that I'm not getting 15

phone calls a day about, how do I get in, why can't

I get my data.

And I think that would be a great way to

help everybody play in the market and understand the

rules and participate fully so that we can achieve

the goals that we're all after.

MS. BROOK: Great. This is Martha Brook.

I just wanted to ask one clarifying question about

the Energy Data Access Committee. Is the scope

billing data or does it also include utilities from

the program implementer perspective, data about

project costs and savings?

MR. PODORSKY: So I'm going to ask maybe

Amy to speak to that.

MS. REARDON: Sure, anything. You know, I

1 guess --

2   COMMISSIONER McALLISTER: Amy, can you come

3 up to a mic. Thank you.

4   MS. BROOK: You can come here, Amy.

5   MR. PODORSKY: Called on you.

6   MS. REARDON: But I've got one of those

7 voices. Amy Reardon, with the California PUC. My

8 understanding that any data is actually covered

9 under the Energy Data Access or Data Request -- DRRP

10 -- Data Request and Release Protocol.

11   I guess, you know, I'm in energy

12 efficiency, so I get very siloed into that and I

13 start thinking, well, it's all about, you know,

14 energy efficiency data, but of course not. I mean,

15 a lot of the requests that I'm seeing internally

16 have to do with people trying to locate distribution

17 lines or identify distribution lines for certain

18 substations, or stuff involving research adequacy

19 work and like the SONGS, I mean, a real variety of

20 different requests.

21   On one hand, that makes it difficult to

22 create an off the shelf data model, you know, but

23 you know, because it's such a wide range of

24 requests, but we're working on it.

25   MS. BROOK: Okay. I think the first group

1 of questions we asked you guys to consider were

2 really trying to focus on consumer needs for data,

3 and so that's why I brought up the cost and savings.

4 I don't think we provide anything near the adequate

5 in information about helping people make decisions

6 about how to invest in energy efficiency.

7   I don't think the calculated or deemed

8 estimates work. I think they need to see

9 actuarials. And so I'm wondering if we can come and

10 talk to the committee about getting the market, that

11 kind of -- that type of data.

12   MS. REARDON: Well, that's one of the

13 reasons why the committee exists, is to find out,

14 you know, how this is going to unfold in the future.

15 So we certainly welcome any and all participation.

16   COMMISSIONER McALLISTER: So let's move

17 onto the next. I guess Jan and then Jonathan,

18 probably?

19   MR. CHANGUS: Yeah.

20   COMMISSIONER McALLISTER: Or -- yeah.

21   MS. BERMAN: I'm Jan Berman, Senior

22 Director of Energy Efficiency Strategy from PG&E,

23 and in the interest of time I'll just call this, 10

24 ways to get your data from PG&E. They're pretty

25 similar to Edison's ways.

1   Number one, you could go on "My Energy,"

2   which is our website, as a residential or business

3   consumer. You could get a best rate analysis that

4   uses 12 months of actual billing data to examine

5   your best rate situation.

6   You could also get, for residential

7   consumers we call it a neighbor comparison, to

8   similar houses in your same neighborhood. For small

9   business it would be a comparison to similar small

10 businesses.

11   There's load disaggregation analytics on

12 the web if you want a rough estimate at which of

13 your loads is using how much. Also, weather

14 normalization analytics on the web, and finally, a

15 progressive energy audit tool.

16   What that does is it allows you to go on

17 the web and input your data over a period of time

18 and get increasingly customized tips as your data

19 set gets more robust, but you don't have to do it

20 all in one sitting and it saves your data.

21   Those tools are backed by our partners, OPR

22 and C3, who won the original contracts to do those

23 tools, but they are something that we redid. Number

24 two would be the Home Energy Report. Right now, we

25 have about 1.2 million residential customers that

1   get the Home Energy Report and another 750,000 in

2   the control group.

3   We're also piloting business Home Energy

4   Reports, if you will. I think the success of the

5   Home Energy Report in actually driving energy

6   savings poses the question from my perspective, will

7   we get to a point where we don't want control groups

8   anymore because we actually want everyone to get it,

9   because as much as we love the web and we all really

10 love to look up our energy data on the web, it turns

11 out paper is actually pretty effective with

12 residential consumers.

13   Our partners on those reports are OPR for

14 the residential and Inter-knock (phonetic), formerly

15 Pulse, for the small business. And number three,

16 Download My Data, also known as Green Button, which

17 I think Mark already covered how that works.

18   Number four, Share My Data, which is also

19 known as Green Button Connect My Data, and that Mark

20 already talked about, as well. It's just a system

21 where customers can provide an online authorization

22 to share their data on an ongoing basis with

23 specific providers.

24   Number five, the good old Customer

25 Information Standardized Request process, or CISR,

1 still exists. So that's the old-fashioned way to

2 request info from your utility. Number six, the

3 new-fashioned Energy Data Request Program, which

4 Chris covered quite extensively, and Amy, as well,

5 that the EDAC Committee's been looking at. So I

6 won't cover that any further.

7   Number seven, the Green Communities

8 Program. That's one I started working on in about

9 2006, and then we got energy efficiency funding for

10 it. That program is specifically for local

11 governments of all types to work with us on

12 obtaining data they need for climate action

13 planning.

14   Number seven [sic], Stream My Data, which

15 is also known as Home and Business Area Networking,

16 and that provides inner -- sorry, that was number

17 eight, Stream My Data Home and Business Area

18 Networking. That provides the link up for customers

19 who get a home energy network or hand device or the

20 business version of that device to connect the

21 device and their meter information.

22   Number nine is building benchmarking.

23 That's something we've worked on for about seven

24 years and I'd done a lot of working partnerships

25 with cities like San Francisco that have passed

1 benchmarking ordinances. And obviously, we've

2 talked about 1103 quite a bit already.

3   Some of the things we've done to facilitate

4 that are build the automated data transfer into the

5 portfolio manager tool, because previously,

6 customers were having to retype their data in, which

7 is quite irritating and time consuming.

8   We also do training about 12 times a year,

9 live training. We have a web training course and we

10 have a call center to help people. Some speaker

11 noted earlier that it's perhaps not the easiest

12 process, but we are trying to provide a lot of

13 support for our customers or their consultants who

14 are doing benchmarking.

15   And then finally, 10, I wanted to give a

16 nod to the EE Stats website and the CSI website,

17 both places where we're providing information that

18 gets uploaded into data sets that is statewide. And

19 I will stop there with 10.

20   COMMISSIONER McALLISTER: Thanks, Jan.

21 That was great. Very efficient.

22   MS. RAITT: So next we have Jonathan

23 Changus on the WebEx, and I'll just mention that we

24 do have some time constraints and we need to --

25   MR. CHANGUS: I don't (inaudible) --

COMMISSIONER McALLISTER: Heather, do we

2 have a presentation for Jon?

3   MS. RAITT: Yeah, we do. Just one moment.

4   COMMISSIONER McALLISTER: Thank you.

5   MS. RAITT: That was just --

6   MR. CHANGUS: Yeah. This is Jonathan.

7   MS. RAITT: Okay.

8   MR. CHANGUS: And I apologize for not being

9 able to be there in person, but I have a slight

10 fever. So I'll be doing this remotely. I had some

11 I think initial questions directed to me about the

12 difference between IOUs and POUs and I think that's

13 kind of a good place to start.

14   If you go to the first slide, I'm going to

15 start with the (indiscernible) of public power, and

16 this is an awkward chart and I've tried to find a

17 better way of displaying this data, but what we're

18 looking at is the retail sales POUs across the

19 state.

20   And what we're seeing is that you have SMUD

21 and you have LAWP and we pretty much have everyone

22 else in the tail there towards the big Pittsburg

23 Power. And these are incredibly small communities

24 and cities that have very small loads, biggest I

25 believe, and this one is about 16,000 megawatts

hours compared to over 22 million megawatt hours for

Los Angeles.

And so the customers that we serve, their

interest, their sophistication, what their needs

are, are very specific to the communities they live

in, as well as their climate zones, the economies.

There is very targeted issues and concerns that vary

significantly from each community.

And the second slide kind of helps share

how this compares to the IOUs. It's similar data,

comparing retails sales of POUs versus the IOUs.

And so if LAWP was significantly larger then, you

know, the smaller POUs, then you look at how they

compare to PG&E and SCE.

And the smallest 20 POUs are incredibly

tiny. This is going to have a direct impact on the

resources they can bring to bear for things like IT

upgrades and services that are kind of a necessary

backbone to providing more granular level data.

In general, I per CEC staff request,

surveyed POUs, not just in CTA numbers, but

(indiscernible) simulate, as well, on you know, the

prevalence of Smart Meters. And while some, such as

SMUD, are very close to having kind of a full

deployment of Smart Meters across residential and

commercial customers, that's really not the case for

a lot of other small utilities in which a

(indiscernible) roll out is maybe still three years

plus away at the residential level.

In addition, a lot of these utilities do

not have a specific IEP department to help support.

So the same folks that are the account managers and

engineers also wear in many cases the IT hat. And

so the reporting and the collection of data

envisioned will disproportionately impact the

smaller POUs versus the state's larger utilities.

I do want to note that there has been an

incredible amount of really quality data. I'm very

interested in reading more about the CPUC decision,

and in particularly, about this issue of privacy and

versus access.

I think for us, as we mentioned in our AB

1103 comments, the code section that we look at that

makes us nervous or that we're most concerned with

is in the Government Code and it's Section 6254.16,

which makes pretty clear what we can and can't do as

far as disclosure of utility usage data.

There is some possibility there's some

direction that allows us to provide to government

agencies, to local agencies, but I think the area

1 where we get most concerned is with the third party

2 vendor or to the market.

3   And I think one of the things we're really

4 looking for is some clarity as far as how we're not

5 liable pursuant to that statute for a broader

6 disclosure. I would also echo I think some of the

7 comments and concerns of Matthew Hargrove regarding

8 the kind of mixed messages as far as we want

9 anonymized, aggregated data, but then we continue to

10 have reinforced, no, what we really want to do is

11 pair and match up building specific information with

12 customer utility usage data, as well.

13   And I think there's probably some -- on the

14 anonymized and aggregated level, especially after

15 what we just saw from the CPUC, some space and

16 scenario in which that could be possible without

17 changing the statute.

18   But I think that we have some serious

19 concerns with respect to -- I think came from both

20 the CPUC and the CEC there's talk on how 6254.16,

21 how it applies or doesn't apply, as that's been I

22 think one of our main areas, legal issues.

23   Beyond just the potential statutory

24 constraints or challenges, I think there's also a

25 huge issue about the cost to doing this and what it

1   means we're not spending money on. And the

2   collection of data, especially equipping customers

3   with data, I think is an area where we would be in

4   full agreement.

5   We agree that the usage data is very much

6   that owned by the customer, but as I think was

7   mentioned eloquently about the utilities view

8   themselves as custodians of that data, and needing

9   for things to be very explicit in how a utility can

10 be protected from making this data more available,

11 since the Legislature in a couple of its arenas has

12 been clear that privacy is something that we need to

13 honor. So with that I'll turn it back over.

14   COMMISSIONER McALLISTER: Thanks, Jonathan.

15   MS. RAITT: And excuse me. I was just

16 going to add that we do have some time constraints

17 and we'll try to wrap this up, this panel up, at

18 3:40 today. Thank you.

19   COMMISSIONER McALLISTER: Okay. We may be

20 able to do it more quickly, then, I think.

21   MS. RAITT: Oh, great.

22   COMMISSIONER McALLISTER: And then we're

23 going to go with a speaker, flip the next panel so

24 that our external speaker from LBL can go first.

25 Well, see, I have just a couple questions. I'm sure

1   others do, as well.

2   So what is the -- like with your respective

3   utilities, at least Edison and PG&E, what percent of

4   your customers -- well, so let me first say. I'm a

5   PG&E customer now and I think of the 10 Jan

6   mentions, I've probably used, let's see, about

7   either four or five of them.

8   I might not be quite matching to the 10,

9   but in any case, my energy -- I'm not sure if I'm

10 the control group or the participant group in the

11 Home Energy Report. Green Button, Green Button

12 Connect, yeah, maybe that's it, and you know,

13 obviously interested in benchmarking green

14 communities and all that kind of stuff.

15   So it's good to sort of have the panoply of

16 pathways listed. I guess, talking about Green

17 Button and Green Button Connect, you know, what

18 percentage of your customers are actually

19 participating in those? Like, who's pushing -- what

20 percentage are actually pushing the Green Button and

21 either authorizing a third party on an ongoing basis

22 to work with their data, or just getting it one time

23 and, you know, through Green Button.

24   MS. BERMAN: I don't have an exact

25 percentage with me. So I'll follow up on that. I

1 don't think it's what you would call a large

2 percentage, and I would characterize you as an

3 unusually engaged customer.

4   COMMISSIONER McALLISTER: No doubt. But

5 you know, I think probably everybody in this room is

6 not -- I mean, none of us are typical, right? But I

7 guess part of the message in that 758 action plan is

8 to the extent that we already have these tools, we

9 need to make them inter-operable.

10   You know, and I'm sympathetic with Edison

11 on the, you know, you want to sort of help others

12 get the data that they are due under the

13 interpretation of the decisions and everything. But

14 I also think part of it is avoiding bottlenecks to

15 the absolute extent we can.

16   And so to the extent that we can make those

17 processes not sort of discretionary on anybody's

18 part, like, look, this is what's going to happen and

19 it's pretty plug and chug, and then push out to as

20 many people as possible, get the word out, you know.

21   I'd love to have a, you know, world aware,

22 you know, not necessarily that everyone was

23 interested in the same things I'm interested in,

24 because that's not going to happen, but that the

25 right kinds of information, the diversity of

1 information, the particular things that each

2 customer might want to see, is available easily and

3 simply and automatically to them.

4   So I guess ramping up, you know, to get to

5 that big percentage of people, seems like that ought

6 to be, you know, kind of how we put our communal

7 heads together in some ways so you get that

8 percentage up, I guess, and do you have any thoughts

9 on that?

10   MS. BERMAN: I mean, my expectation would

11 be that the market will drive that, because

12 customers will be searching for some assistance

13 from, you now, many market actors, and as part of

14 that -- and Mark spoke to the one sign on process --

15 it'll get to a point where they're on that site, ah,

16 this is exactly what I want, oh, click here to share

17 your utilities data with the provider.

18   So it'll become more seamless, but I

19 wouldn't expect us to get the percentage up, because

20 utilities send out huge marketing campaigns saying,

21 go on and share my data. I would expect it to come

22 from the desire for products by the customer.

23   COMMISSIONER McALLISTER: Who controls or

24 who selects the third parties that are eligible to

25 link up with the Green Button Connect? Is that the

1 utility that evaluates them, or is there some -- is

2 it anybody who wants to can come up and plug in, or

3 is there some minimum standard?

4   MR. VILLAREAL: Yes. So there's four steps

5 that a third party would have to do to satisfy to be

6 eligible to be Green Button Connect. The first one

7 is you have to utilize and show that you can use the

8 standard, the SB Standard. So it's predicated on

9 the use of the standard.

10   The second one is acknowledgment of the PUC

11 privacy rules adopted in 2011. The third one is

12 that you're not a prohibited party on the PUC side,

13 and I forget the -- oh, you have to provide the

14 utility with contact information.

15   You have to tell the utility, I'm Joe's

16 Data Shack and this is how you can get a hold of me.

17 The PUC has decided that addressing the liability

18 risks that the utilities told us in the proceeding,

19 what we've said is the third party, by interacting

20 with the utility, acknowledges that there are

21 certain rules that they need to follow in order to

22 be that good party, to be that good advocate in the

23 market.

24   If the utility suspects that the third

25 party is violating some aspect of the rule they are

to notify the Commission of this third party, and

then the Commission would investigate whether that

third party is indeed violating the rules.

Until the Commission makes the

determination that the third party's in violation of

the rule they continue to get the data, unless the

Commission acts that -- decides that they are

violating, or the customer makes the decision that

he no longer wants the data.

COMMISSIONER McALLISTER: Right.

MR. VILLAREAL: At the end of the day we

can adjudicate that, but the customer still

maintains its role in overseeing how long or with

what third party. But that is -- I mean, we think

that's a pretty low bar, to try to not create

barriers to the third party marketers and service

providers that want to go out and utilize the

standard.

Again, show that you can use the standard,

that you can integrate that standard the way the

utilities integrated it, and then you're all set

from a technological side.

COMMISSIONER McALLISTER: One of those --

maybe Martha's going to ask the same question I'm

thinking of, about the quality control over the

1 analytical firms or?

2   MS. BROOK: Well, I was just going to just

3 look at that question a little bit, because when we

4 did some preliminary research it looked like the

5 list of third party tools were very different,

6 depending on which utility we were shopping at.

7   And so that's why I was originally

8 intrigued about, well, how are you making the

9 decision about who you list there. And so that's

10 sort of a follow-up I think to Andrew's question.

11   MR. VILLAREAL: From the Commission's rules

12 perspective, as long as you satisfy those four

13 requirements, that's all you need to do to get on

14 there. Now, how you interoperate and exchange

15 information via the standards, I would expect it's

16 not unusual to see slight differentiations of usage

17 of the standard.

18   And that's just something that we have to

19 continue working on, is to make sure that the

20 utilities are implementing the standard in a

21 consistent manner. Some third parties may not want

22 to participate in some parts of the state. I don't

23 know. That's completely up to the market to decide.

24   Maybe they decide that it's better to work

25 in San Diego's territory than Edison's or PG&E's.

The standard is there to do lots of things. And as

Mark pointed out, the SB Standard is capable of

doing lots of stuff.

        We haven't the utilities -- and we haven't

directed the utilities to enable all the other

things that the SB Standard can do. It can do

building determinants. It can do power quality. As

long as the utility starts collecting this

information and then we direct or someone -- or the

utility decides that there's enough market need to

have this, then they can make this data all

available.

        The standard really isn't the bottleneck

here. It's the market and we're waiting for the

market to progress in a way that really will want to

utilize the vast services that the standard itself

can provide.

        COMMISSIONER McALLISTER: That's very

helpful. I guess I was wondering, do you see a need

-- so maybe -- who's the gatekeeper for who actually

gets in? Is it just any firm that checks those four

boxes can just waltz up and PG&E will immediately

put them on their website or --

        MR. VILLAREAL: That is the intent of the

decision. I will leave it to the utilities to tell

1   you how they are actually doing it.

2   MR. PODORSKY: Actually, because there is

3   the security piece, that token exchange that we have

4   to do.

5   COMMISSIONER McALLISTER: Yeah.

6   MR. PODORSKY: I call it the technical

7   handshake. In the old days, I'm kind of an old guy,

8   we used to call it a penny test with a bank or --

9   COMMISSIONER McALLISTER: Is that beyond

10 the standard that Chris was talking about?

11   MR. PODORSKY: It's part of the process to

12 implement according to the standard. So because

13 there is an authorization piece and a token exchange

14 piece, it's that technical handshake, exchanging the

15 tokens, make sure you can open up your mailbox when

16 I put data in it.

17   COMMISSIONER McALLISTER: Yeah.

18   MR. PODORSKY: That kind of thing has to be

19 tested with a third party, and we do it on a first

20 come, first serve basis. So again, we're not trying

21 to evaluate or judge anybody. If they pass those

22 qualifications and they can do the technical

23 handshake with us, then we list them on the drop

24 down box.

25   COMMISSIONER McALLISTER: Well, so one of

1 the things that is in the action plan is actually,

2 you know, I guess it's a question. Is there a need

3 for kind of minimum quality standards for these

4 analytics firms, you know, so that we know that,

5 okay, once they get approved by you maybe there's a

6 need for some minimum bar of standards of quality.

7   If they pass that, then the utilities then

8 have to put them on their website and then they can

9 know where to go.

10   MS. BROOK: Yeah. Well, from the point of

11 view that they're making recommendations on

12 improvement strategies.

13   COMMISSIONER McALLISTER: Yeah.

14   MS. BROOK: For the consumer.

15   COMMISSIONER McALLISTER: It sounds like

16 that quality kind of control in terms of the product

17 they give the customer is not really built into the

18 -- you're kind of relying on the customer to gauge

19 that, I guess, is what it seems like.

20   MR. VILLAREAL: So this may not be

21 addressing your question, okay. But what I can say

22 is, as it applies to Mark's technical aspect of it,

23 there is an ongoing effort at UCIG and EPRI and UL

24 to develop a testing certification program and

25 process so that any third party can go through this

1 third party testing certification process, become

2 "certified" as Green Button certified.

3   COMMISSIONER McALLISTER: Yeah.

4   MR. VILLAREAL: Which will then alleviate

5 on a case by case basis steps.

6   COMMISSIONER McALLISTER: Then they could

7 just bring that certification and, bam, they're in.

8   MR. VILLAREAL: That would be the idea,

9 yes.

10   COMMISSIONER McALLISTER: Yeah. Okay.

11   MR. PODORSKY: Oh, I'm sorry, Jan.

12   MS. BERMAN: I was going to say, one place

13 you might see -- it's not exactly a quality control,

14 but in EENDR the utilities have many partnerships.

15 So you could potentially see a partnership to

16 advance energy efficiency or DR where there's push

17 marketing for some specific vendors that happen to

18 also be Green Button Connect.

19   COMMISSIONER McALLISTER: Oh, interesting.

20 Okay.

21   MS. BERMAN: Which is different from a

22 minimum bar for quality.

23   COMMISSIONER McALLISTER: Okay. Yeah. So

24 that's one of the things we're contemplating in the

25 action plans is that, look, if in order to -- if

1 this marketplace needs some standardization or at

2 least some minimum bar of quality that gives the

3 marketplace some assurance, then that means that we

4 can kind of be the ones to stamp the availability of

5 a given tool.

6   And then every utility that has

7 compatibility with it would have to use that, would

8 have to enable that to work with their customers,

9 and that's a system that if it's needed we're

10 certainly open to putting in place.

11   I'll let other people ask questions if they

12 have them. Anybody else? I guess I'm wondering, so

13 Jan, it's great that you've put together this tool

14 to roll up whole building data and report it up in a

15 portfolio manager.

16   I'm wondering if Edison has done that or if

17 Jonathan can tell us about any of the POUs who are

18 working on that or have done that.

19   MR. PODORSKY: That I'm not sure I know,

20 but I think it's great and we can certainly talk

21 more after this, but I don't specifically know the

22 answer to that.

23   COMMISSIONER McALLISTER: One of the things

24 in 1103 and for other benchmarking tools, but we're

25 really interested not in individual customer data.

1   We're interested in the whole building data and that

2   tool to roll up and actually, you know, get the

3   buildings matched and then get the whole building

4   information and then put that through a benchmarking

5   process, get the costs down and get the speed up on

6   that would be something that we're pretty much

7   expecting.

8   MR. PODORSKY: Yeah. I know we support

9   1003 and I do know we provide files, but I don't

10 know that we're doing kind of a --

11   COMMISSIONER McALLISTER: Could you put

12 your microphone -- yeah.

13   MR. PODORSKY: We're going to follow up.

14   COMMISSIONER McALLISTER: Okay. Great.

15 Jonathan --

16   MR. CHANGUS: Yes, this is Jonathan.

17   COMMISSIONER McALLISTER: Oh, there you go.

18   MR. CHANGUS: Checking with -- I know that

19 through 1103 and trying to figure out compatibility

20 with Energy Start, Portfolio Manager, there was some

21 output and challenges that we've been trying to work

22 through, and I can get back to you on that with more

23 specifics.

24   COMMISSIONER McALLISTER: Okay. Great.

25 Thanks.

1   MR. CHANGUS: Thank you.

2   COMMISSIONER McALLISTER: That's obviously

3 going to be important.

4   MR. CHANGUS: Yeah. I think one of the

5 other kind of related issues, too, that we're still

6 trying to work through and we offered in our

7 comments was if we're seeking consent from customers

8 versus to provide access, that's a really different

9 animal than if we're just, as you said, being asked

10 to provide the customer data in some way, shape or

11 form without the consent, that really changes, I

12 think, the nature of our concern.

13   If they've approved it then, obviously, a

14 lot of the hurdles or concerns that we have go away.

15 I understand that creates some additional layers of

16 complexity and delay potentially for the market, and

17 perhaps you don't get the full data set.

18   But I think one of the general comments I

19 wanted to make was, you know, we talk a lot about

20 utility and the market, as well as the, you know,

21 Energy Commission and CPUC needs, but I think we

22 can't understate, and I'd be curious to hear a

23 little bit more about, you know, customers' concerns

24 about how their data is (indiscernible) and shared

25 and how we make sure that we're being sensitive to

1 that so we don't have a fire up there later on that

2 folks did not know or were unaware that their data

3 was going to be used in such ways or put out there.

4 As we've seen, it's been a hot topic in other areas

5 previously.

6   COMMISSIONER McALLISTER: Yeah, for sure.

7 I mean, I think that conversation is and will be

8 ongoing for -- definitely. And again, I think it

9 has to do with this balance that we've been

10 discussing between -- well, he -- yeah, I won't

11 repeat it all here. Anybody else have any

12 questions?

13   MS. WADHWA: This is Abhi Wadhwa. I have

14 just one question for the utilities. I understand

15 when we are talking about data we are primarily

16 talking about energy consumption data, but the

17 utilities also collect a lot of characteristic data

18 about the buildings that the customers are

19 occupying, which my understanding is, is some of it

20 is all defined (phonetic) into ratepayer dollars.

21   So as a customer, if I am requesting my

22 data am I privy to accessing back some of this

23 characteristic data or are you constrained in

24 sharing anything outside of the consumption data?

25   MR. PODORSKY: I would say just from our

1 perspective, I don't think there's a constraint

2 outside of when I get back to leveraging the

3 platforms we have and the standards that we're using

4 I would hope that some of those characteristics, if

5 we have them and can share them, that we'd be able

6 to put them in the standard in some way.

7   In XML, the standard gives you some

8 flexibility because you can just put tags, XML tags

9 to identify what the data item is. So I mean, you

10 know, perhaps there's some leeway there. But again,

11 if it's something specific they're looking for that

12 we're not sharing already, I would hope that we

13 identify it, there's a big enough market need for it

14 so we can actually get it into the standard, because

15 I don't want to vary off the standard, if at all

16 possible.

17   MS. WADHWA: Just a follow-up question to

18 that. Just roughly, how many data feeds are in the

19 standard right now?

20   MR. PODORSKY: I don't even -- off the top

21 of my head, I don't know.

22   MR. VILLAREAL: The technical answer is

23 lots.

24   (Laughter.)

25   MR. VILLAREAL: No. So there's plenty --

1 there's lots of fields in it. There's like address.

2 There's climate zone. There's ZIP Code. There is

3 usages as in kWh, KW therms, whatever you want to

4 think of. There's time period is a -- you know --

5 15 minute, one minute, one hour, you know, one year.

6   It is, you know, the 24-hour clock.

7 There's a period for how long -- what the actual

8 time that the period was that you're reporting on.

9 There is lots of fields that, as it was written

10 initially, was done very purposely to identify the

11 world of information that the drafters of the

12 standard thought people would want to know about.

13   If you would like to see a copy of the

14 standard, you are a government entity so you're

15 allowed to access the standard itself, and you can

16 look through it. As Mark said, it's XML. It's IP

17 based using XML, and the SB is basically the

18 transport for the standard. So I'd be happy to help

19 get you a copy of the standard if you'd like to see

20 it.

21   MS. WADHWA: And this is the Green Button

22 standard, right?

23   MR. VILLAREAL: It's the SB.

24   MS. WADHWA: So it's downloadable from

25 this?

1   MR. VILLAREAL: A version of it may be

2   available through this, but it is a NAESB standard.

3   MS. WADHWA: Can you say that again?

4   COMMISSIONER McALLISTER: NAESB.

5   MR. VILLAREAL: It is a NAESB standard.

6   MS. WADHWA: Okay.

7   MR. VILLAREAL: So the standard development

8   agent off -- organization that houses the data, the

9   standard itself, is the North American Energy

10   Standards Board. So if you were to use it, that's

11   why I would recommend to you, one of these is

12   actually that standard.

13   There are drafts of it available and there

14   are proposed edits for the next round of it

15   available, I think are public. But the official

16   standard is at NAESB.

17   MS. WADHWA: Thank you.

18   MS. BERMAN: We're currently scoping a

19   phase two for the Green Button Connect that would

20   include other data elements. So I'm interested in

21   what people think would be the most useful data

22   elements to include.

23   We're looking at PII data, gas billing

24   data, every usage, so other characteristics. I

25   mean, I share your perspective that it's really

1 linking usage data to other types of information

2 that make the data really powerful.

3   I note that the Energy Data Request Program

4 is pretty open-ended in terms of what kinds of

5 linked data could be obtained. So maybe that's a

6 good opportunity for researchers to take a look at

7 the question of, you know, what linked data together

8 is most valuable and then we could look to further

9 development of Green Button Connect in those

10 directions.

11   MR. CHANGUS: This is Jonathan again with

12 NCPA. With regard to the question about granular

13 level and building data beyond usage, for the most

14 part that's not information that been collected in

15 the past through energy efficiency programs.

16   However, to go into more custom programs

17 and more deeper energy savings context, we're

18 starting to collect some more of that data. So I'd

19 say it's an emerging area proposed, but very, fairly

20 significant (indiscernible) to the utilities.

21   COMMISSIONER McALLISTER: Thanks. Okay.

22 So we're at 3:40. I think we need to give our --

23   MR. VILLAREAL: Commissioner, could I just

24 take one minute?

25   COMMISSIONER McALLISTER: Yes. Yes, Chris.

1 Go ahead.

2 MR. VILLAREAL: When we've talked here

3 about the Green Button, availability of that data, I

4 also want to reemphasize the Home Area Network is

5 also an active option for consumers, predominantly

6 residential consumers who want to get the real time,

7 seven second direct feed off their meter.

8 The Commission policies on that is the --

9 as long as it is a ZigBee one net x (phonetic)

10 certified product, the utility is required to

11 attempt to connect that device.

12 COMMISSIONER McALLISTER: Okay. Great.

13 Yeah --

14 MR. VILLAREAL: So that is -- the only bar

15 is that it has to be a ZigBee one net x certified

16 device.

17 COMMISSIONER McALLISTER: I guess maybe

18 some of might be interested in knowing what

19 "attempt" means, but what's the definition of

20 attempt? I ended up being able to commit my -- you

21 know -- I'm sorry, Jan, I'm a PG&E customer, but so

22 you're the only example I have.

23 I have a data point of one, but it wasn't

24 easy to get my thermostat connected to the Smart

25 Meter, and maybe that's changed. It's been a little

1 while, but definitely, I guess that's, you know, if

2 there's a theme it's sort of like, look, let's make

3 this plug and play and ready for prime time and just

4 sort of so that it's part of the ether.

5   MR. VILLAREAL: And we wanted the market to

6 really develop the products and we did not -- again,

7 we didn't want the utility to be the bottleneck

8 where only utility tested in certified products are

9 the only one that could connect because the

10 software's constantly being updated.

11   COMMISSIONER McALLISTER: Yeah.

12   MR. VILLAREAL: So we really wanted the

13 market to try to work its way out to figure out what

14 it wanted to do so that at the end of the day the

15 utility is sitting there with the meter and ZigBee

16 one net X radio, and anything that the market then

17 decides that it wants to do, we can try to work

18 those together.

19   COMMISSIONER McALLISTER: Yeah.

20   MR. VILLAREAL: But we did not want to have

21 a limited number of devices out in the market. We

22 wanted to have as many as possible in the market.

23 So I apologize if you had -- you're doing --

24   COMMISSIONER McALLISTER: Oh, no, that's

25 fine.

1   MR. VILLAREAL: -- only getting connect.

2   But it's available out there. Customers can choose

3   to do that of our regulated utilities. So the

4   caller who was in SMUD, I cannot help him address

5   SMUD, but all I can say is that PH&E, Edison San

6   Diego, that is an option for customers.

7   COMMISSIONER McALLISTER: Yeah. Okay. All

8   right. Got somebody --

9   MS. BERMAN: I've been in our employee

10   group that volunteers to test the connectivity of

11   new devices. So I've definitely experienced that it

12   wasn't that easy in the early adopter phase. But

13   what we do is we take new devices as they come

14   available and we run them through some processes to

15   try to test out the inner connections.

16   COMMISSIONER McALLISTER: Right.

17   MS. BERMAN: And work the bugs out.

18   COMMISSIONER McALLISTER: Thanks. Thanks

19   for everybody on the panel. Appreciate it. All

20   right. So we're going to go -- let's see, we're

21   going to go to Robin Mitchell, right?

22   MS. MITCHELL: Okay. Yes. So this is

23   Robin Mitchell and I work at Lawrence Berkeley

24   National Laboratory. Can you hear me okay?

25   COMMISSIONER McALLISTER: Yeah, we can.

1 Thanks. Thanks for being here.

2   MS. MITCHELL: And so yeah, I'm sorry I

3 couldn't attend in person, but there's too much

4 going on. So I'm going to talk about BEDES and

5 SEED. Next slide. And then first I'm going to talk

6 about BEDES which has been -- I think both of them

7 have been referenced in various contexts in this day

8 Workshop.

9   So next slide, please. So what BEDES is,

10 is it's a Building Energy Data Exchange

11 Specification. So basically, it's data terms,

12 definitions, field formats that software tools can

13 use and other, you know, data schemes, databases

14 that are in the building energy performance

15 environments can use in order to try to standardize

16 what the terms are that everyone's using.

17   Next slide. And so the problem is that

18 there's a lot of data out there, a lot of different

19 databases, as we've been talking about today. And

20 because they are slightly different from each other

21 there's a lot of cost when people try to combine the

22 data or share the data, aggregate it, that kind of

23 thing, and this prevents more analysis being done,

24 as been discussed today.

25   And so the solution is to have some common

1 terms and definitions for these data formats in

2 order to reduce the cost of looking at that data

3 across different data sets. Next slide. And so the

4 Department of Energy started this project called

5 BEDES and the first use cases that we were looking

6 at were building performance tracking.

7 So that's the benchmarking policies that

8 different cities and entities are implementing.

9 Then also, the energy efficiency investment

10 decision-making. So this is maybe more on

11 individual buildings, maybe building owners across

12 portfolios, that sort of thing.

13 And then energy efficiency program

14 implementation evaluations, so larger programs that

15 utilities or other organizations might be putting

16 together.

17 Next slide. And so BEDES originally

18 started because DOE has several energy efficiency

19 software programs, none of which have the same

20 definitions for the same field content. And so

21 internally, they worked to develop standard data

22 formats across their different platforms, and they

23 did a scoping study asking people out in the world

24 if this kind of thing would be useful to other

25 stakeholders besides DOE.

1   And the scoping study said yes, that would

2 be useful. And so LBL worked last year with a

3 technical working group composed of software

4 developers, program implementers, people --

5 consultants -- people that work with data, this kind

6 of data, to develop this BEDES format, definition,

7 whatever. And after nine months of review and lots

8 of workshops we released 1.0 in October of 2014.

9   So next slide. And so what BEDES is, is

10 it's actually a dictionary. So it has data terms

11 and the definitions of those terms, associated units

12 of measure, data types. It's really just a

13 dictionary, and what it is not is a database format

14 or a schema that has hierarchical relationships.

15   And we had a lot of discussion about this

16 in these working groups and the software developers

17 that were in those working groups did not want to be

18 told how to put these different terms together,

19 because for different use cases you might set up

20 your hierarchies differently.

21   And so we decided that really the thing

22 that made the most sense is just a dictionary with

23 terms and definitions that everybody agrees on, that

24 that's what, you know, a term means. Next slide.

25 So we just released on Monday Version 1.1 of BEDES

1 and it's -- we basically released it on a website.

2   So BEDES.lbl.gov, and so part of the

3 website has this online dictionary. So it has all

4 the terms and definitions in a searchable database

5 on the web, and you can sort by -- or you know,

6 filter by different categories, envelope, HVAC, that

7 kind of thing.

8   And again, that doesn't represent the

9 hierarchy. It's just a way of categorizing the

10 different terms, and it doesn't really mean

11 anything. It's just grouping. And so you can

12 search through the database or through the

13 dictionary and see what the different terms are that

14 we have included in it.

15   Next slide. So and the way that we

16 envision that BEDES would be used is, so it's

17 basically sort of for a machine to machine data

18 exchange. And so what would happen and what has

19 already started to happen is that different software

20 developers would make a mapping between their

21 internal field names and the BEDES terms.

22   And so because we sort of disaggregated a

23 lot of the terms and definitions, and again, that

24 was based on a lot of back and forth with the

25 working group, that we decided that more granular

1 was better, and then the terms can be built up to

2 make, you know, a field name that you would actually

3 want to use in your software.

4   So the idea is that the software developers

5 wouldn't change their internal terms or field names

6 or anything like that, but they would generate these

7 mappings so that someone would know if they looked

8 at4 this mapping what the BEDES terms are that are

9 associated with internal field names.

10   Next slide. So there's a couple different

11 ways that an application might use BEDES. So in

12 some cases on the left-hand side, maybe an

13 application is fully defined within the terms that

14 are in the BEDES dictionary, which is fine.

15   But in a lot of cases the application might

16 use some of the terms in the BEDES dictionary, but

17 it might have a bigger scope, and so there would

18 definitely be terms outside, field names and such

19 data that they would collect would be outside the

20 scope of the BEDES sharing, and that's fine, too.

21   Next. So in order for an application or

22 even, you know, it's not just software applications,

23 although that's mostly how it's being used. The way

24 you would say that your BEDES compliant, there's a

25 couple different options.

1   You can say that you have mapping

2 compliance, which means that you've just developed

3 and published, hopefully on this website that we're

4 in the process of putting together, the mapping

5 between your application and field names and the

6 BEDES terms.

7   And then the next level of BEDES compliance

8 would be that you've actually, from your software,

9 you have an export file that is actually completely

10 BEDES compliant, that it actually has field names

11 that match the BEDES terms.

12   And so that's kind of the next level, is

13 different pieces of software actually export, and

14 you can have your own export, you know, that you use

15 for other things with your own field names, but then

16 if you would specifically have a BEDES compliant

17 export that would have the field names in the BEDES

18 terms, and then when multiple, different vendors

19 produce these kinds of exports, then hopefully, it's

20 easier to pull the data together, to merge the data

21 and know that the terms all mean the same thing.

22   Next slide. And so on this website we have

23 a bit of information about who's doing these

24 mappings and adopting BEDES. And so in the middle

25 where on the right-hand side, compliance product, it

271

1 says -- or compliance product, it says "available."

2   So those are basically the DOE tools. So

3 they're actually BEDES compliant and they aren't

4 necessarily by default BEDES compliant, because we

5 did, you know, make some changes and additions. So

6 we have had to do a little bit of work to make them

7 compliant, so the Building Performance Database,

8 Building Sync and SEED are all BEDES compliant at

9 this point.

10   Then Portfolio Manager is in the process of

11 doing a mapping. We're actually helping them.

12 We're doing it for them. We're making a mapping for

13 them to Portfolio Manager. And then the RESO Data

14 Dictionary, that's the Real Estate Standards

15 Organization, they're very interested in getting

16 energy efficiency information into their real estate

17 world, and so we're helping them do a mapping to

18 BEDES.

19   And then the Energy Commission's STD Data

20 Dictionary is also being mapped to BEDES. And then

21 there's the ones at the top, a lot of different

22 formats are being planned to be made -- you know --

23 mappings generated for BEDES, to show BEDES

24 compliance.

25   Next slide. And so there's a couple

1 different ways that, you know, BEDES could be used.

2 So for example, if Portfolio Manager, it has its own

3 field definitions. We're not proposing they change

4 any of that stuff. They do their standard export

5 with their own format.

6   And then there's some sort of translator

7 that could take many different forms that using the

8 BEDES portfolio mapping specification, it translates

9 the sort of native Portfolio Manager export file

10 format into a BEDES compliant format, which then

11 could be used for other applications. And this is

12 exactly what we've done for SEED, is that we have

13 built this little translator inside SEED to take the

14 Portfolio Manager data that comes in, in its native

15 form and we put it into a BEDES compliant form

16 inside SEED.

17   And then on the bottom, the audit data

18 tool, this is an example where maybe, for example,

19 Building SYNC, which is an audit schema, basically,

20 and it was developed at the same time BEDES was. So

21 it is BEDES compliant sort of by default.

22   All its internal field names and everything

23 are BEDES compliant. So there's no need for a

24 translator. It just has BEDES compliant information

25 and data sets, and so it doesn't need a translator

1 and it can be just used with other applications.

2 So next slide. And so if you're interested

3 in BEDES, definitely get in touch. If you're

4 interested in developing a BEDES compliant product

5 we can help you do the mappings. It's a little

6 tricky, and so we're definitely, you know, helping

7 lots of people do their mappings, because you sort

8 of have to know how the BEDES world is put together

9 in order to construct your multiple term definitions

10 that work with the existing field names that you

11 have.

12 And if you're already using BEDES and we

13 don't know about it, we'd like to know about it. We

14 can put information up on our website about who all

15 is using BEDES. We also have a BEDES working group

16 forum where you can comment on topics that come up

17 and you can introduce new topics, and we're always

18 interested in developing additional terms and

19 definitions for new areas that are, you know,

20 relevant to energy efficiency, but that -- and

21 that's part of what happens on the forum, is that

22 people introduce new topics about terms that they

23 think should be added.

24 So I'm going to -- this is it for the BEDES

25 part of my presentation. I don't know if you want

1 to take questions now about BEDES or if I should

2 just move right on into SEED.

3   COMMISSIONER McALLISTER: Why don't you

4 just move on into SEED.

5   MS. MITCHELL: Keep going? Okay.

6   COMMISSIONER McALLISTER: Yeah.

7   MS. MITCHELL: So next slide. So now, I'm

8 going to talk about SEED, which is an actual

9 software -- yeah, you can go to the next slide --

10 software program, platform, and it was developed by

11 the Department of Energy, LBL and Institute for

12 Market Transformation.

13   Next slide. And so SEED was primarily

14 developed in order to help cities and counties,

15 states, whatever entities that are trying to do

16 different kinds of energy efficiency programs. It's

17 basically a data management tool in order to get

18 data into a form that people can use to evaluate the

19 energy efficiency state of their city or whatever

20 they're trying to analyze.

21   So next slide. So and again, the idea is

22 to try to make all this data and the systems that

23 use them interoperable. So SEED is being developed

24 as an Open Source Project, and it's basically web-

25 enabled software, again, to allow people, whoever

1 wants to use it, to import data, perform data

2 quality cleaning on it, track what's going on in

3 their different buildings, and then potentially

4 share the data and even make it public, because some

5 of the benchmarking legislation requires that they

6 make at least some of it public.

7   And the idea is to reduce the cost of, you

8 know, dealing with all this data, as y'all have been

9 talking about all day, and trying to get good

10 quality data and having a common format so that it

11 can be shared across different platforms.

12   Next slide. So we started our first use

13 case that we've really been concentrating on in the

14 first phase of development is benchmarking, because

15 there's a lot of cities around the country that are

16 doing benchmarking, and it's a significant amount of

17 data crunching that they need to do.

18   And so that was our first use case, and I

19 put Berkeley on there because they just passed the

20 benchmarking policy I think last week or something.

21 So next slide. And here's just an example of

22 Seattle's benchmarking data, and they've been doing

23 benchmarking for quite a while.

24   They actually implemented their own system

25 in order to manage all the data. And so this just

1 shows, you know, by building type what the site EUI

2 is for these different building types, and what the

3 range is across -- even within a building type what

4 the range is.

5 And so it just starts to give you a sense

6 when you do this kind of analysis of where you

7 should target some of your energy efficiency

8 programs, what kind of buildings to target, that

9 kind of thing.

10 Next slide. And so you can use

11 benchmarking as kind of a foundation for all the

12 other energy efficiency programs that you might want

13 to implement. So it's a good place to start.

14 Next slide. And so what the cities are

15 faced with is that they have a lot of different

16 sources of data and they need to somehow figure out

17 how to pull it all together.

18 Next slide. Next slide. Go back one.

19 Yeah. So what they've been doing in the past, the

20 cities that are doing the benchmarking, is that

21 they've been using spreadsheets to collect all this

22 data and put it all together.

23 And that works as long as you're only

24 dealing with maybe one or 200 records, but as soon

25 as you start to be dealing with 1,000 or tens of

1 thousands of records, the spreadsheet just doesn't -

2 - it just isn't possible to deal with it in a

3 spreadsheet form.

4   Next slide. So what SEED is, is it's

5 basically a database, so that little cloud in the

6 middle represents the database that all this data

7 stored in. And so for example, of a city that's

8 trying to do benchmarking, on the upper left they

9 have their tax records. So that's from their tax

10 assessor.

11   So maybe they have to benchmark -- building

12 owners have to benchmark buildings that are 50,000

13 square feet or great, commercial buildings. So they

14 pull that information from the -- the city pulls

15 that information from their tax records, and so

16 that's their basic starting point. This is their

17 list of buildings that need to be benchmarked.

18   So that gets imported into SEED, and then

19 the owners are required to input their information

20 to Portfolio Manager, and I think almost all the

21 benchmarking programs that I know about use

22 Portfolio Manager as the platform to do the basic

23 benchmarking.

24   So the owners get their information into

25 Portfolio Manager. So now, they have energy

1 information, as well as some other kinds of

2 information in Portfolio Manager, and then the city

3 -- and that data is shared by the owners with the

4 city, and then the city can sort of bulk load that

5 into SEED.

6

7   So now, you have two data sets. You have

8 the tax records and you have Portfolio Manager data

9 that has to be mapped. They have to be matched

10 together so that you know which Portfolio Manager

11 data goes with which tax record building.

12   And that's what SEED. That's one of the

13 main components that it does in terms of data

14 management, is just matching all these records

15 together. So that's the use case that we're

16 currently that currently we have in the program.

17   The other thing that people are very

18 interested in doing is adding audit data through

19 different audit tools, and so we're working on

20 incorporating that this summer. And that's probably

21 going to be in an HPXML.

22   We're basically going to be able to import

23 HPXML files from the commercial asset score tool,

24 and so that will give us the functionality to have

25 HPXML, you know, as an import file format into SEED.

1 And so if you have the audit data and you have your

2 Portfolio Manager data and your tax assessor data,

3 it all gets matched by some identifying field in

4 there.

5   Usually, it's address, but it could be

6 other things, and then you get a building record for

7 each one of these associations. So then you have

8 your core database, and the idea behind SEED is that

9 all the way that it functions is through API calls,

10 and that means that other pieces of software can be

11 written to do those same calls to a SEED database.

12   So then you can get third party

13 applications written and various plugins. So then

14 you start to get, you know, third party developers

15 working on plugins and apps for SEED that they could

16 actually, potentially make a business around, so

17 that SEED itself is the Open Source platform and

18 different people can contribute it, and DOE is

19 supporting some of the funding of it and it's kind

20 of the core data management tool, but then a lot of

21 the fancy stuff, like all the visualization and

22 stuff would happen from outside vendors that would

23 hopefully be able to make a business case about

24 generating those things.

25   So once you get the data into SEED, the

1 little red box on the right-hand side, the city can,

2 you know, with their organization they can get to

3 it. They can go through and say, oh, this -- you

4 know -- this building didn't actually get their

5 Energy Star score; we'll get in touch with them and

6 see if we can get them to fix their data.

7   So there's some data cleansing that could

8 happen that way. Then they can actually, you know,

9 if they had an IT department or they could hire

10 somebody that wanted to add some extra applications

11 or functionality onto the program because it's Open

12 Source, they can just do that.

13   The data can be then exported to the DOE

14 building's performance database, which is anonymized

15 data, but it is publicly accessible so the people

16 can see what the energy consumption is for different

17 building types and that kind of thing.

18   So that's sort of the basic structure of

19 how SEED works, pulling in data from different

20 sources, matching the records together, and then

21 different applications can access that data and it

22 can be put out into the public sphere, whatever

23 pieces of it that you want put out there.

24   Next slide. And so this is just an example

25 of some apps that the third party vendors could

1 potentially make. So there's a lot of interest in

2 having, you know, like a Google map application

3 where you actually have little markers for all the

4 buildings that were benchmarked.

5   And some cities are already -- you know --

6 they've kind of already done that with their own

7 internal data, but this is the kind of things that a

8 third party developer could make that cities might

9 want to purchase.

10   And then heat maps of, you know, how the

11 different buildings are consuming energy across the

12 city. You could do mobile apps, lots of things that

13 people have talked about. And so SEED just provides

14 a data source for all these different applications

15 to be built on.

16   Next slide. And so we have SEED 1.1, well,

17 in the public repository and also LBL has an

18 instance of it running on the Amazon Cloud. And so

19 we have the basic data matching functionality in

20 there. We have exporting capabilities and then it's

21 on -- platform architecture is that it can be hosted

22 in the Cloud or on local servers.

23   Like some cities don't want to do it in the

24 Cloud. They want to have it just on their local

25 servers. Some of the bigger cities that have IT

1 departments, they'll just put it on their local

2 servers.

3   And the idea, also, is that we're trying to

4 encourage third party hosters to have instances that

5 the cities could then -- you know -- that the third

6 party hosters would support and the cities would pay

7 a small fee to have their applications hosted there.

8   And again, you know, Open Source software

9 with lots of opportunities for third party software

10 extensions. And we do have -- we've built in

11 multiple levels of user access and control so that

12 not everybody can see everything.

13   Next slide. And so in terms of our core

14 use case being benchmarking right now, we're working

15 with five pilot cities that already have

16 benchmarking. They've been doing benchmarking for a

17 while. They've been doing it for two or three years

18 at least.

19   So they have their system in place. And so

20 we're kind of -- they're testing SEED in parallel

21 with their existing system so that we can make sure

22 that SEED does everything that they need to have

23 done, so that then next year they can transition

24 over to doing SEED exclusively.

25   And then there's a lot of interest in other

use cases, the audits they had already talked about.

There's been several people interested in interval

data, Matt being one of them, and but he's not the

only one.

There's a couple other people that are

interested in trying to figure out how to use SEED

for interval data. And then there's a lot of

interest in the real estate community that, you

know, they want to get, like, the Energy Star score

of a building into the MLS, that kind of thing,

which they could do through SEED.

And then there's, even without us really

going after third party developers, a lot of people

have started looking at the code and trying to

figure out how they might use it for their own

application, whether they would put some of their

changes back into the public Open Source version,

and most of what they are doing, again, is the cool

visualization stuff. That's what everybody's

interested in.

And someone had a question of scalability,

and there aren't real technical barriers for

scalability and the only thing that someone brought

up here was just, if you have a lot of data and it's

very bad data, it'll just be hard, you know, to get

1 it into good quality data, but that's part of what

2 we hope that SEED will help with.

3   Next slide. And so this is just the login

4 page of SEED. So on the left-hand side it's kind of

5 small, but where it says "data," that's where you

6 would import your data, and then once the data's in

7 it makes a set of buildings, and then under projects

8 you can filter the data and get out the records that

9 you want to do an export to or whatever.

10   Next slide. And so if anybody -- because

11 we do have this instance of SEED, we've put up an

12 instance of SEED on the Amazon web. Anyone that

13 wants to try it out, you know, I'm happy to set up

14 an account for you.

15   I can go through a little webinar about how

16 to use it, sort of visit little test beds and you

17 can see, you know, if you think that it would be

18 something that would be useful for you. And we've

19 been talking to the CEC about using SEED for

20 potentially the 1103 benchmarking compliance, and

21 then also, the -- what is that that's the Prop 39, I

22 guess, for the schools.

23   So you know, it's not clear whether SEED is

24 the right fit for those things, but we're definitely

25 having that discussion. So and that's all I have

1 for this presentation.

2   COMMISSIONER McALLISTER: Great. Thanks

3 very much. That's super helpful.

4   MS. MITCHELL: Um-hum.

5   COMMISSIONER McALLISTER: I really

6 appreciate your being there. Can you be with us for

7 a couple minutes?

8   MS. MITCHELL: Yeah, yes.

9   COMMISSIONER McALLISTER: You have a 4:00

10 o'clock, I think, but anyway.

11   MS. MITCHELL: Yeah, that's okay, but I

12 told them to start without me.

13   COMMISSIONER McALLISTER: Okay.

14   MS. MITCHELL: It's the SEED developers and

15 I just have to make sure that they do what they're

16 supposed to do.

17   COMMISSIONER McALLISTER: Oh, they can

18 wait.

19   (Laughter.)

20   MS. MITCHELL: Yeah.

21   COMMISSIONER McALLISTER: So let's see.

22 Does staff have any questions? Are there any

23 questions in the audience for Robin while we've got

24 her here?

25   MS. WADHWA: I have a burning question,

1 which I believe I've asked before. And for some

2 reason I keep getting confused myself every time I

3 see a SEED presentation, Robin, I just want to put

4 you on the record here.

5   Does SEED or does it not actually host the

6 data that it takes into its own server? Or are the

7 servers in different places and the data still rests

8 there and SEED is basically just doing a relational

9 poll?

10   MS. MITCHELL: No. There's a database

11 that's part of the SEED platform. It's a postscript

12 (phonetic) database and when you install an instance

13 of SEED on a server you get the database installed

14 also, and then whatever data's imported is stored in

15 that database.

16   MS. WADHWA: So who's hosting that server?

17   MS. MITCHELL: It depends. It can be

18 anybody. So you know, right now we have a version

19 of SEED up on the Amazon Cloud, so we're being

20 hosted by Amazon. But others, like I think New York

21 City and L.A. is actually -- I think L.A. County has

22 a version of SEED that they are doing internally on

23 their own servers.

24   And then there's this option of third party

25 hosting that some cities might want to do, some of

1 the smaller cities that, you know, can't afford to

2 do their own instance. They would have an account

3 on a third party hosting -- host provider.

4   COMMISSIONER McALLISTER: Can I just --

5   MS. MITCHELL: So it can take lots of

6 different forms.

7   COMMISSIONER McALLISTER: Can I ask a

8 follow-up on that? So if, for example, L.A. County

9 has an instance and they have their own local

10 benchmarking program that they're using it for, and

11 then the state has a benchmarking program that is,

12 you know, similar in most ways, but isn't

13 necessarily identical to that local program, and we

14 each have an instance of SEED, how do -- can those

15 two instances communicate and that one and others

16 possibly roll up into the state one, or is there

17 some trick to doing that or is that not possible or

18 what?

19   MS. MITCHELL: Well, that functionality

20 doesn't exist now, but a lot of people have been

21 interested in it. And again, you know, it's Open

22 Source software. So if somebody wanted -- like if

23 L.A. County wanted to develop some code that would

24 do the roll up that could send to the state's

25 version of it, they could do that.

1   You could pay for somebody to, you know,

2   develop that, maybe DOE if they thought that it was

3   -- DOE funds stuff that they think, you know, is

4   useful to the larger audience. So it just sort of

5   depends. But that's the beauty of the open

6   sourceness of the -- you know -- the Open Source

7   software, is that lots of people can develop on it.

8   And you know, the hope, especially for

9   public agencies, is that they do something really

10 useful that they would put it back into the Open

11 Source so that everyone could benefit from it. But

12 you know, it's not required or anything.

13   COMMISSIONER McALLISTER: Right. Thanks.

14   MS. MITCHELL: Yes.

15   COMMISSIONER McALLISTER: I'm really just

16 want to congratulate you. Every time I hear about

17 SEED or interact with DOE folks for sure, and then I

18 know you guys are leading the charge for DOE, I want

19 to -- you know -- I say thank you for taking this

20 on, because I think it's really got a lot of public

21 benefit attached to it.

22   MS. MITCHELL: Yeah, and we're just in the

23 sort of infant stages now, and I think, you know, it

24 has a lot of potential, and especially if we get a

25 community of developers. One of the things that

1 we've done is that DOE has given money to hire five

2 private software developers to, you know, do some of

3 the -- add some of the functionality.

4   Like we want to have an automatic

5 connection to Portfolio Manager and that kind of

6 thing. And so really, I mean, it's yes, to get some

7 more features into the program, but the other aspect

8 of it is that we want to get more people, more

9 external developers understanding the code so that,

10 you know, they can be hired by other entities to do

11 work on the software, and basically, just to create

12 a community of people that know the code and can

13 work on it.

14   COMMISSIONER McALLISTER: Okay. Well,

15 thanks very much.

16   MS. MITCHELL: Sure.

17   COMMISSIONER McALLISTER: It doesn't look

18 like we have any other questions. We really

19 appreciate it.

20   MS. MITCHELL: Okay. Great. Thanks.

21   COMMISSIONER McALLISTER: All right. Okay.

22 Thank you. Bye-bye.

23   MS. MITCHELL: Um-hum.

24   COMMISSIONER McALLISTER: So Martha, I

25 guess, Martha, are you up next?

1   MS. BROOK: Okay. So this part of the

2   Agenda really all afternoon is supposed to be kind

3   of transitioning from consumer market facing needs

4   for data to government needs for data. So for

5   policy planning, policy implementation, policy

6   tracking, and so we just have this one slide

7   explaining sort of the State Government, what we

8   think we need to establish a baseline so that we can

9   measure the progress on our 758 existing building

10 strategies.

11   So when we say granular baseline data we

12 basically mean building energy use data by fuel

13 type, by building or business type, by building

14 size, by building age, by building location, so that

15 some of the things, basically the other things we

16 were talking about today, this could be very similar

17 I think to what I heard about the data decision in

18 terms of those groupings.

19   But we really don't want aggregate data.

20 We want distribution so we can understand means,

21 median, standard deviations. So we really are

22 looking at population statistics, and you know, I

23 think in the past we've used statistical samples to

24 get at some of this data.

25   But then we struggled to keep those samples

1 up to date, and in fact, you know, we have failed

2 miserably at keeping those samples up to date, I

3 would say, as not just Energy Commission, but

4 everyone involved in building characteristics, data

5 collection, we don't keep those data sources up to

6 date and that's very problematic to all of us.

7   So that's what we mean by granular baseline

8 data, population statistics that we can use to track

9 at a policy level impacts and progress on our goals.

10 And we also need to map this data to demographic

11 information so that we can understand natural

12 trends.

13   And are we going to get there anyway

14 regardless of lots of program activity? We don't

15 think so, but we need to understand not just energy

16 use, but how it relates to the demographics of the

17 building occupants and owners.

18   And for any of you who have been thinking

19 about this, you'll see lots of overlap with the same

20 data that you need for long-term demand forecasting,

21 and we acknowledge that, we agree and we're going to

22 be working with our data forecasting group to

23 collaborate on data collection needs for this type

24 of data. And that's all I have. I think we can

25 move onto our next speaker.

1   MS. RAITT: Next speaker is Ronald Mohr.

2   MR. MOHR: Really quick. The middle one?

3 Okay. Good afternoon. My name's Ronald Mohr. I

4 work with the County of Los Angeles. I'm with the

5 Office of Sustainability. I'm a Section Manager

6 there.

7   The county, we've been in data and efforts

8 and bill stuff and all for a long time. I've spent

9 about the last 15 years of my life on it. Right

10 now, under the umbrella of our Southern California

11 REN activities we have two big data efforts going on

12 right now.

13   One of them is what we call the Energy

14 Atlas, which is being done with PUC funding that we

15 manage, UCLA. We've also, then, we're going to

16 regionally host a SEED instance from the DOE tools

17 that we just heard about.

18   We're hoping to match them up with some

19 building analysis tools, such as the asset scoring

20 and some auditing schemas once they get built.

21 We've also internally over the last four years,

22 we're collecting monthly utility bill data for

23 around 55 municipalities throughout Southern

24 California.

25   We have roughly over a little over 15,000

1 service accounts for those cities. It's not really

2 done underneath the REN. We've kind of been stopped

3 right now because we can't get additional data. The

4 energy outlet itself, though, is what I'm here to

5 talk about today.

6   It's a reporting platform that combines all

7 sorts of different stuff. It combines GIS, energy,

8 greenhouse gas, economic, population,

9 climatological. It collects data from a bunch of

10 different sources and then they start analyzing it.

11   And they can slice and dice data a whole

12 bunch of different ways. Because of the

13 confidentiality rules some of the data that they're

14 looking at and that the UCLA staff knows about,

15 we're not going to be able to publish.

16   But UCLA has just flat out said, if people

17 were looking at the data that they were looking at

18 our EE programs would be significantly different.

19 There's a very, very small group of extremely high

20 users, especially in natural gas and water, and they

21 say programs would be vastly different if that type

22 of data was looked at.

23   COMMISSIONER McALLISTER: Ron, would you

24 kind of maybe back us out or back us up and talk

25 about where maybe the various sources of data, in

1 particular the energy data, and sort of how that

2 play by play has gone?

3   MR. MOHR: It's actually, I believe, on the

4 next slide.

5   COMMISSIONER McALLISTER: Oh, great. Yes.

6 Sorry. I'm jumping the gun.

7   MR. MOHR: Yeah, it's okay. I'll talk

8 about it anyway. I can go all over the place. The

9 original UCLA effort just started with UCLA and Los

10 Angeles -- not Los Angeles -- and the City of Los

11 Angeles and Department of Water and Power. UCLA

12 approached them, asked for some data.

13   Department of Water, Power, surprisingly

14 enough, supplied data and supplied it accurately and

15 fairly fastly, which was -- if you Department of

16 Water and Power, it's kind of surprising. And they

17 started doing some analysis on it and it greatly fed

18 into the City of Los Angeles' ordinances for the

19 benchmarking, reporting and things like that, that

20 are coming down the road within Los Angeles.

21   So once they got that, UCLA approach the

22 PUC. The PUC had collected data from the IOUs

23 themselves and the PUC handed off data to the

24 utilities and that's how they got it. I think the

25 data set that we're working on right now was from

1 2010.

2   So every day it turns a little bit more

3 vinegary on us, but it's providing information to us

4 and we're just about to go public. I think the

5 website and all the development's just about done,

6 and then we're supposed to have a back hackathon on

7 security where they bring in their experts and they

8 try to break into it and do stuff and see if they

9 can dis-aggregate it and identify customers and all

10 that.

11   But that was the roadmap, though, for UCLA

12 and where they got it. It was fairly -- I don't

13 want to say easy, but as far as the handoff of the

14 data and all, it went fairly well on the energy

15 data. The energy data was pretty much

16 straightforward.

17   Some of the other stuff, then, with

18 identifying where the accounts were and things like

19 that, addresses, parcels, that gets a little bit

20 more difficult because the parcel data, for

21 instance, and the address data, it's not necessarily

22 how the utilities serve on buildings and all.

23   It ends up from some other analysis and

24 some things that we're doing on the SEED platform

25 and the reporting, at least in Los Angeles County

1 right now, we found out, for instance, that every

2 building does have a unique building number in the

3 county.

4   One of the gentlemen mentioned that this

5 morning about, do buildings have IDs. Yes, they do.

6 It's part of our GIS Effort in the county, and all

7 the cities in the county are in the GIS Effort. So

8 we do actually have a building tracking number in

9 the county that we're going to incorporate it within

10 our SEED activities.

11   COMMISSIONER McALLISTER: There been any

12 discussion about -- so you said you have a static

13 data set from 2010. Is there any discussion about,

14 you know, doing an annual refresh or sort of setting

15 up those -- that infrastructure --

16   MR. MOHR: I believe --

17   COMMISSIONER McALLISTER: -- to keep it

18 update?

19   MR. MOHR: -- I want to be like 99 percent

20 sure that we're supposed to.

21   COMMISSIONER McALLISTER: Um-hum.

22   MR. MOHR: And I think it's on a schedule.

23 I don't want to swear to it. I can't absolutely

24 swear to it, but I'm 99 percent positive, because

25 we've already talked about that. There is a roadmap

1 for future development, what we want to do.

 2   It is based on some funding. The funding

 3 and the grant money has to come in. The county's

 4 not funding this out of their own pocket and neither

 5 is UCLA. So there's got to be a funding source

 6 somewhere.

 7   So the ultimate goal of that energy outlet

 8 is to influence policy, one way or another, whether

 9 it's governmental policy, tariff policy, grid

10 reliability. There's going to be a lot of social

11 justice things that show up as a result of thing.

12   Besides just the straight up energy

13 consumption, we've talked about looking at

14 transmission and distribution grids and things like

15 that, and where the transmission lines are, what

16 communities they roll through.

17   There's a lot of that stuff. The amount of

18 energy used by the upper income socioeconomically is

19 huge, and a very, very small percentage of income.

20 Lower income socios got a very, very small energy

21 usage, but a really, really high percentage of

22 income.

23   Some of the stuff when they start looking

24 at things like that demographically, I don't know

25 much about the social justice world, but it's going

1 to put stuff right out there in the forefront. It's

2 going to be there.

3   I'm not an expert in this, but when I start

4 to see stuff, even I kind of get interested into it,

5 you know, and this is not my background at all. But

6 they make it easily explainable. So we're hoping to

7 drive local codes, though.

8   I mean, as far as the government agencies

9 and the SoCal REN, it's hoping to develop policies

10 within our communities that make our communities

11 better in the long run. That atlas work that has

12 taken place, the development of the effort right now

13 in the City of Los Angeles under Mayor Garcetti,

14 when UCLA went out there to talk to the city and

15 some of the City Council, deputies and the chief

16 deputies and all, they were somewhat resistant to

17 the effort and they started quoting all kinds of

18 numbers on energy usage in their city and what was

19 going on.

20   And the UCLA folks literally smiled at them

21 and said, yeah, all those numbers you're quoting,

22 that all came from us. That's our analysis of DWP

23 data. That's not DWP analysis of DWP data, and

24 that's how they got buy in, and it really happened

25 in one meeting.

1   So here's just some of the samples results,

 2   for instance, that have showed up within the City of

 3   Los Angeles. Greenhouse gas emissions, roughly 51

 4   percent of those are coming from our building stock.

 5   Here's where we get into some of those numbers that

 6   are kind of shocking.

 7   This one kind of knocked me off my seat.

 8   Fifty percent of energy consumed by the local

 9   building stock came from just four percent of the

10   buildings. On natural gas and water, it's even

11   smaller percentage.

12   So when they start rolling up that data

13   they can, within the outlets, they can roll it up by

14   neighborhood, by city, by cog, by county level. You

15   can just start slicing and dicing stuff every which

16   way you want.

17   Our next goal on our atlas is we want to

18   take our atlas, and the county's been operating the

19   solar map for about eight years now. I think we're

20   on our second version, about to go to our third. We

21   want to combine our atlas and our solar map.

22   Somebody this morning mentioned matching up

23   where the load is, where we need that generation,

24   what the potential is there. One our solar for

25   instance right now, all of our solar map is actually

based on rooftop solar.

Our next version we're also going to go for parking lot solar and canopies, because that's what the vendors want to do now. Hoping that we start that within maybe the next year and a half, but that's one of our next goals on our atlas.

So here was that history that you asked about. It's like by UCLA. Originally, the city, PUC provided the IOU data and right now, we're funded off the PUC grant funding. So we've got the funding right now through the end of this year. Then we see what happens.

These are other efforts under the SoCal REN. We've installed and got a SEED instance going within the county's data center in Downey. We're hoping to offer it to any governments within the State of California that want to use it.

Right now, we've got the city of Los Angeles on board and that's the big one. City of Los Angeles has roughly 100,000 parcels that are classified as commercial parcels. We believe, based on a cutoff of round 7500 feet per parcel, we have over 35,000 parcels that are going to be in our targeted reporting group for -- those are commercial parcels.

1   So City of Los Angeles is significantly

 2 big. The other people around, I'm not trying to

 3 knock on anybody, but the other people around the

 4 nation who've done stuff, they're fairly small

 5 compared to us, except the City of New York.

 6   The City of New York, 20,000 parcels. They

 7 had an 85 percent compliance rate within two years.

 8 They absolutely hit a home run. They went through a

 9 little pain to get there, took them about three

10 tries, but the City of New York is definitely the

11 standard to follow. They got it done.

12   Right now, then, the next thing that we

13 want to do is, because it doesn't exist, it's

14 actually the one at the bottom. Right now, there's

15 a schema out there for doing the energy auditing.

16 They refer to it in our last phone call called

17 Building SYNC.

18   There's not really a product out there

19 that's been built on it that's in the public domain

20 yet. We're hoping the DOE builds one. There's a

21 group out of Texas, Texas wants to develop statewide

22 reporting, statewide benchmarking, statewide

23 auditing.

24   There's a group led out of University of

25 Houston or one of the institutions in Houston that

1 are working on a product right now that will

2 hopefully be in the public domain. If it becomes

3 available we're going to kind of follow that lead.

4 Then that'll tie into the energy asset

5 scoring, and we have the local database, then, in

6 Los Angeles for whoever wants to use it. Those DOE

7 tools are going to enable us in the administration,

8 benchmarking, auditing and reporting.

9 We are already hosting, like I said, and

10 we're in a collaborative partnership right now on

11 the DOE Building SYNC tools and to develop some

12 other capabilities with some parties out of New

13 York, and then working with Texas.

14 This is me. I'm available anytime. You

15 can call that number. I'll talk whenever you want

16 to talk. We want questions now or are we --

17 COMMISSIONER McALLISTER: Thanks for being

18 here. This is great. And we really -- it's great

19 to see L.A. just leading the pack on so many

20 different fronts, and congratulations on that, L.A.

21 County and City, really.

22 The gentleman from Berkeley this morning,

23 the first speaker of the day that talked about some

24 stuff that's needed and why it's needed, it's like

25 he's sitting in our conference room.

1   COMMISSIONER McALLISTER: Um-hum.

          2   MR. MOHR: Those are our conversations that

          3 have been taking place for about the last six

          4 months. So we sit around, talked about doing this.

          5   MS. BROOK: Great.

          6   COMMISSIONER McALLISTER: All right.

          7 Thanks very much. Anybody have any questions for

          8 Ron?

          9   MR. MOHR: Anybody want to share a cab to

         10 the airport?

         11   MALE SPEAKER: That's where we're going.

         12   MS. BROOKS: Thanks, Ron.

         13   COMMISSIONER McALLISTER: Great. All

         14 right. And last but not --

         15   MS. RAITT: Next.

         16   COMMISSIONER McALLISTER: Or let's see.

         17 Seems like Kevin needs to leave. So he wants to ask

         18 a question.

         19   MS. RAITT: Okay. So --

         20   MR. MESSNER: Thank you. Yes, thank you.

         21 I just wanted to -- I didn't know what the right

         22 spot is, but this is Kevin Messner. I represent the

         23 Association of Home Appliance Manufacturers. And

         24 just as you talked about DOE and databases, on the

         25 Appliance Database that CEC does, and I don't know

1 where it exactly fits into this, but there's a

2 Appliance Database at CEC.

3   There's an Energy Star database. There's a

4 DOE database. There's an FTC database. And if

5 anyone takes the time, which we have, to compare all

6 the databases that everyone's using to feed into a

7 lot of these others for information, you'll get

8 different results because every database has

9 different requirements, different fields.

10   So I think, and I've talked about this

11 before and I think CEC seems to be -- recognize this

12 or open to this, and that's to -- we should try to

13 consolidate these, all these databases into one,

14 whether it's DOE and CEC joint database or whatever

15 it is.

16   But I just wanted to add that to the mix of

17 today's discussion because it really would help from

18 a manufacturing company's perspective where there's

19 folks that are having to spend an exorbitant amount

20 of time sending data in to all different places with

21 different criteria.

22   So and then when people us it, if they use

23 one database they come up with, hey, here's the

24 results and a different one will get you different

25 results. So just wanted to bring that on the table

and we'd love to work with you guys and DOE and

whoever we need to, to try to help with the

appliance information that's out there. So thank

you.

COMMISSIONER McALLISTER: Thanks, and

probably Peter Strait is the most relevant staffer

for you to talk to. He's not in the room right now,

and really, there's going to be kind of a -- well,

probably from our perspective it's really more of an

inoperability thing rather than a consolidation

thing, but you know, that's -- you know -- we can

have that conversation.

MR. MESSNER: Okay.

COMMISSIONER McALLISTER: But certainly,

having them, having as many of these databases talk

to each other as possible, not that it would get you

out of reporting on each one of them necessarily,

but in any case. We did actually mention that,

something along those lines in the action plan, so.

MR. MESSNER: Oh, okay. Good. Good.

Yeah, and just even in the reporting it the same way

with the same fields or some kind of thing would be

great.

MS. BROOK: Okay.

MR. MESSNER: So thank you. Thank you.

1   COMMISSIONER McALLISTER: Thanks.

2   MS. BROOK: Hey, can we get Barry Hooper to

3 present before we open up?

4   COMMISSIONER McALLISTER: Yes. Yes,

5 absolutely.

6   MS. BROOK: That'd be great.

7   COMMISSIONER McALLISTER: I just -- Kevin

8 seemed like he really needed to get that off his

9 chest. Sorry, Barry.

10   MS. BROOK: No, that's fine. I just was

11 worried that --

12   MR. HOOPER: Good afternoon. I'm Barry

13 Hooper. I work for the City and County of San

14 Francisco, and today I'm also representing Green

15 Cities California, which is an organization of

16 progressive cities across the state focused on

17 environmental policy in general, topics as diverse

18 as bio-diversity, water efficiency and energy

19 efficiency.

20   So I'll have -- but I was also asked to

21 comment about some things that have been very

22 directly relevant to the thread of the conversation

23 today. So in terms of Green Cities California's

24 comments regarding the Draft Action Plan, it's

25 really just some quick words of strong support,

recognizing the action plans aim for expanding and

supporting benchmarking, particularly for multi-

family, which hasn't been done by any organization

yet in California at this scale that's being

contemplated.

It's a real cornerstone of affect because

you're making it for both local government and the

state and we're really encouraged by that effort.

Second, the Green Cities comments encouraged,

really, even aiming for more aggressive time lines

for benchmarking sta te and local facilities, if

possible, and also aiming for a demonstration of

energy savings before 2020.

And that was kind of a bit of a recurring

theme for several specific elements of the comments.

Again, I'm just kind of -- they have been submitted

in writing. So we have those available to you. But

one other idea that came up was a request in that if

-- as the statewide Public Disclosure Program and

Benchmarking Disclosure Program is implemented, the

ability to share that with local governments would

be another option for providing some efficiency for

administration of -- and informing local policies.

Last, in the section discussing asset

scores a suggestion was to potentially use the MLS

databases throughout the state as another

communication medium for accelerating discussion and

use of the asset score.

COMMISSIONER McALLISTER: Have you found or

have the members found that the MLSs are kind of

amendable to incorporating this in them, or do you

think it would require some sort of, you know, top

down initiative?

MR. HOOPER: Taking off my hat as the Green

Cities California presenter today, my experience is

no. I mean, so the San Francisco Association of

Realtors has been -- was very supportive and was the

first association of realtors in California to

include Energy Star Label, a HR score, lead

certification Green Point rated in their database,

that was really driven by a few individuals and

definitely not by the city itself.

And it wasn't, unfortunately, backed by a

commitment to obtain that data and it was done so

early that the quantity of data available wasn't

really relevant to the market. You know, when

there's one Green Point rated home on the market it

doesn't drive your purchase decision.

But that did lead to a lot of discussion

and some great work led by Built it Green in the Bay

1 Area, bringing together the various MLS providers

2 and really recognizing that they are -- it's a

3 little bit like how water utilities are managed

4 differently than energy.

5   They're balkanized and fundamentally

6 they're to serve the realtors. That said, you know,

7 a statewide push and an effort to improve

8 information transparency, and that's really what the

9 MLS is about, if this information's available,

10 portable, structured, I'd be shocked that MLSs would

11 refused to carry it. It's more the getting the

12 infrastructure up and ready to do it.

13   COMMISSIONER McALLISTER: Thanks.

14   MR. HOOPER: And then the cities really

15 love the idea of the competition and local

16 government challenge as a means of motivating

17 progressive cities to move faster and father and

18 demonstrate success. So for more information, I

19 refer you to the Green Cities California website.

20   And then I had a number of slide that I'm

21 going to skip because Robin covered the DOE system

22 in great detail and did a fantastic job. Pardon?

23   (Laughter.)

24   COMMISSIONER McALLISTER: Somebody needs to

25 mute their phone on the other end there.

1   (Unrelated colloquy.)

2   COMMISSIONER McALLISTER: Hey, Charlie,

3 could you mute your phone, please?

4   (Laughter.)

5   MR. HOOPER: The following does not

6 necessarily represent the opinions of Green Cities

7 California. San Francisco, as you know, operated a

8 benchmarking ordinance that went into effect in

9 2011, same year as New York and Seattle, and has

10 been requiring annual benchmarking, as well as a

11 mandatory audit or retro commissioning for

12 nonresidential buildings of 10,000 square feet or

13 larger, all very much in line with the ideas in the

14 Action Plan.

15   The actual use of that information is

16 voluntary and so we're really encouraged by a lot of

17 the innovation discussed today, including and

18 particularly open EE Meter, as mechanisms of

19 improving the ability to put that information into

20 action and encourage improvement.

21   A little bit similar to the statewide issue

22 or probably any geographic area, on the one hand,

23 there happen to be a large number of smallish

24 buildings in San Francisco, and on the other hand,

25 the proportion of total floor area and total energy

consumption is highly concentrated in the largest

buildings. And so there's a balance there between

serving the many and aiming for the actual,

measurable moving the needle in terms of energy

consumption.

So in terms of using data tools, our

objectives in implementing a policy over time have

been to aim for consistency, and that's been

something that's really drummed into us and we try

to take the heart from, particularly a commercial

building industry, that very few owners work only in

San Francisco.

And frequently, they'll work across quite a

few major markets, and so that's one of the reasons

that Portfolio Manager needs to be strongly

reinforced as a value of having one central tool and

interface and reporting mechanism.

We've been interested for years in sharing

development resources with other local governments

and recognizing that while we have this common front

end of Portfolio Manager, all of the 14 communities

that now have benchmarking policies have 14

different ways that they manage that data once they

obtain it, because there wasn't anything in common

between us in the back end.

1   And so where we have typically a exchange

2   with other communities every six-12 months in

3   person, as well as either typically the monthly SEED

4   call or other mechanisms of engaging with our peers,

5   and we're very interested in learning from others

6   and applying their practices in San Francisco;

7   there's no problem in copying one another at all.

8   And last, been very interested in structure

9   data and standard format. So for example, when we

10 rolled out the audit requirement, we really rolled

11 it out concurrently with New York City, and we

12 specifically chose our fields to be -- the data

13 fields for reporting to be aligned with what later

14 became BEDES and what also New York City was going

15 to roll out at the same time.

16   And our data set -- our set of data fields

17 is a subset of New York's. New York really aimed to

18 do a detailed community-wide asset inventory, which

19 is a great endeavor, at the same time as collecting

20 data on the specific energy efficiency upgrade

21 opportunities.

22   And we try to limit our data collection

23 just to the actual actions that can be taken, and

24 the view was that that was what we could actually

25 put to use in the local market. Throughout that

1 time, the US DOE has been a great supporter, has I

2 think exemplified those ideas and there's been a lot

3 of work to get where we are, which is pretty close

4 to being able to live up to those ideas.

5   And they've been, you know, strongly

6 supportive, and they kind of learned some tough

7 lessons along the way. SEED's been in development

8 for sometime and some vendors failed in attempting

9 to meet DOE and the community's needs in developing

10 that software.

11   So in terms of our personal experience,

12 we've been participating in the SEED development

13 process, as well as BEDES, and basically, all the

14 other DOE efforts that we've been -- have been

15 available to participate in, and really remain

16 excited that there will be this flexible and highly

17 inner operable system.

18   But there's also a fair amount of

19 projection that I think goes on among potential

20 users about where it's at today, and how -- but

21 sometimes leads to I think a little under-estimation

22 of how much time or effort may be necessary to get

23 to where -- to get to kind of energy data nirvana,

24 supported by SEED.

25   And so I think mostly that is not a

criticism, just an acknowledgment that some time is

needed, that great number of users are really needed

and developers also need some time to be working on

this for it to mature the ecosystem.

　　　　And then I think this graphic is really

telling at the bottom, that -- or at least valuable,

where what DOE's been working on is essentially the

left-hand blue bubble, the SEED core itself, and

they -- the vision as I understand it is that there

be an ecosystem where you might be able to use just

SEED itself unmodified.

　　　　You might have -- and any number of

products out in the marketplace that build upon SEED

but maintain that core code in a very consistent

manner. And then you also might have derivative

products like your CNC (phonetic), that are not

necessarily qualifying for that trademark, but are

still really fundamentally part of that ecosystem

and may be benefitting from the originally SEED or

derive from it.

　　　　And actually, we ended up in that place a

little faster than we expected. So we've been

participating as a SEED beta tester and we remain a

SEED beta tester, along with operating our Legacy

system.

1   And as SEED moved to its first -- the SEED

2   1.1 moved to completion last October, several things

3   happened concurrently, and one was we engaged the

4   primary developer of SEED under contract so that

5   they could do work for us so that we could make sure

6   the system we were going to operate would meet our

7   needs.

8   And as an organization, strong preference

9   is for Cloud-based solutions where we don't develop

10   a lot of in-house IT care and feeding expertise, and

11   we focus on the subject matter itself and the

12   content. And so we were successful in engaging that

13   contract.

14   And around the same time, Department of

15   Energy determined how the -- began to determine the

16   rules for when the term "SEED" could be used, and it

17   turned out that the developer at that time and the

18   DOE didn't agree with one another, and so they're --

19   what we use is not technically SEED.

20   It's more the Product C category at the

21   moment, that it is derived from the same code base,

22   but substantially modified because we needed a

23   different set of functionality that augments what

24   was already there.

25   But what's important is are those really

1 core values of inner operability? So in my opinion

2 the value of the broader endeavor is most embodied

3 in BEDES or most strongly embodied in BEDES, that

4 its inner operability of systems and exchange of

5 data, and that really addresses the last commenter,

6 I'm sorry, I don't remember his last name, but

7 Kevin.

8   That point about this panoply of databases,

9 panoply of data standards and you have a lot of

10 manipulation to move from one to another, even if

11 you're using substantially similar information, that

12 is really fundamentally addressed by having this

13 Data Dictionary, and then building out some data

14 products around it.

15   And really been excited for DOE's

16 leadership on that, but are satisfied with working

17 with the vendor that we happened to choose, Building

18 Energy, and their improvements that they've been

19 applying to our system.

20   COMMISSIONER McALLISTER: So hey, Barry,

21 what's your view of sort of, is there -- so that IP

22 now rests with the developer or is there some

23 opportunity for the city to help others kind of move

24 down that same -- get similar functionality to what

25 you guys needed.

1   MR. HOOPER: It's a little convoluted. So

2   they have Open Source, the software, but it's not a

3   open or free license.

4   COMMISSIONER McALLISTER: Right.

5   MR. HOOPER: To my knowledge. I do have to

6   -- I have to defer for that with them. I know what

7   --

8   COMMISSIONER McALLISTER: Okay. No, I

9   mean, you don't have me the details, but kind of, in

10   idea what's your kind of optimal approach here?

11   MR. HOOPER: But your other point, right,

12   so if another city uses their system, then they

13   would have the advantages of SEED and they would

14   also have the advantage of being able to use things

15   that we've had them build into the system to meet

16   our needs.

17   So there is a kind of open, intellectual

18   property among their user set, and we're also open

19   about how it functions. So it's not like we can't

20   show anyone else. They just aren't directly

21   committed to every bit of code they write going back

22   into the Open Source project.

23   COMMISSIONER McALLISTER: Got it; got it.

24   Thanks.

25   MR. HOOPER: But again, more importantly, I

1 think, the commitment that is really core for us is

2 maintaining commitment to BEDES and to utilizing the

3 CAPI, and beginning to put our data out there in a

4 much more transparent way.

5   Right now, we're -- regularly do exports

6 from our current system. Sorry, we're right now in

7 the last stage of this transition is why I'm a

8 little confusing about how I'm referring to future

9 and present tense.

10   But anyway, our old system is kind of a

11 manual export, really aiming for using API and

12 making information from it as transparently

13 available as possible. And so mostly that is not a

14 criticism of anybody.

15   It's just recognizing that there's a

16 difference in terms of these things being developed,

17 and what we're looking at today is mostly 1.1 and

18 it's something like a notch or two before, you now,

19 your original iPod, and a lot of our discussion of

20 where SEED could go, it is really where it can go,

21 but it's a few generations to go to get to the

22 current iPod NANO.

23   And I think even that trademark process and

24 how much editing you can make to the core code

25 before something SEED or not, frankly, I just view

1   that as a little bit messy and an issue in and of

2   itself that needs a little bit of time to mature,

3   rather than something to take as rigid at the

4   moment.

5   And so just as a user, some suggestions to

6   the Commission in dealing with some really analogous

7   problems of what we've been working with. You know,

8   I really recommend prioritizing inner operability,

9   to clearly articularly your values before you pick a

10 particular software solution and then talking

11 through with stakeholders about how those values are

12 being met.

13   And then you know, in terms of SEED it's

14 not at all a deviation from what was said in the

15 last hour or so, but I'd really start with where

16 SEED already has a maturing use case, and use that

17 to inform where you go on other aspects of using it.

18   COMMISSIONER McALLISTER: Okay. Thank you.

19   MS. BROOK: So quickly, I have an

20 introductory question. Inner operability and BEDES,

21 I think that -- so let me just ask instead of just

22 asserting my opinion. Is BEDES sufficient to allow

23 inner operability, because it is a dictionary and

24 not a schema?

25   MR. HOOPER: Maintaining BEDES compliance

1 would go a long way to making it a lot more

2 efficient to maintain inner operability, but I think

3 it's also a necessary one, where the boundary of me

4 is that I don't pretend to be a software developer.

5   MS. BROOK: Um-hum.

6   MR. HOOPER: But the way I view it is if

7 you have a clear definition of how two terms

8 connect, then you don't necessarily always have to

9 change from your Legacy database to the new one.

10 You can define how they can exchange information

11 more clearly.

12   MS. BROOK: You can build the map, yeah.

13   MR. HOOPER: Yeah. So the mapping --

14   MS. BROOK: I guess what I think what the

15 next step is, is to clearly define use cases and

16 build schemas for those use cases, but I absolutely

17 think for inner operability and the software

18 development world to thrive you have to get to a

19 point where you can validate the data exchange, and

20 I don't think you can do that without a fully

21 articulated schema. And so --

22   MR. HOOPER: Yeah, do the --

23   MS. BROOK: -- but like Robin said, they're

24 trying to address all use cases in that dictionary,

25 and you can't build a schema for all use cases

1 because the hierarchy's going to change, depending

2 on the use case, potentially.

3   So I think the next step is potentially to

4 get some working groups to talk about schema

5 development for specific use cases.

6   MS. WADHWA: And I'm just going to segue

7 right here into what Martha said. Barry, thanks for

8 bringing SEED back into the discussion. I want to

9 just invite folks on the WebEx on the call here, and

10 I think CEC's really interested, is you know, really

11 stomp on the ground and see where SEED stands, how

12 we could develop collectively that core, how much of

13 that needs to come from, you know, larger stake

14 level versus how much will be local governments

15 picking up.

16   So I invite you to join our local state

17 specific working group, and Barry, your feedback,

18 since you guys are the earlier doctors, in fact,

19 would be really helpful to that. So on the call,

20 whoever's on there, please connect with us if you're

21 interested in joining the California SEED Working

22 Group. We will be getting that out shortly.

23   MR. HOOPER: Thank you. Ron, too, since we

24 definitely bring very different perspectives --

25   MS. WADHWA: Absolutely, Ron, absolutely.

1   MR. MOHR: What happens on the BEDES, and

 2 there's something --

 3   COMMISSIONER McALLISTER: Could you speak

 4 in a microphone.

 5   MR. MOHR: What's that?

 6   MS. WADHWA: Pull up to a mic.

 7   COMMISSIONER McALLISTER: Microphone.

 8 There you go.

 9   MR. MOHR: Sorry, guys. I was just going

10 to say on the BEDES, so it's not a full-on

11 hierarchy, there are some terms that are defined

12 like site and facility and how they relate to each

13 other, but once you bring in the Building SYNC,

14 which they're calling their auditing kind of schema,

15 it gets really detailed.

16   MS. BROOK: Right. Right.

17   MR. MOHR: And based on the type of

18 facility and all, I was kind of impressed. I wasn't

19 expecting much, but I was kind of impressed with the

20 layout, especially for so many different types of

21 occupancies.

22   MS. BROOK: Yeah. So I think that's an

23 example of what I was trying to say where Building

24 SYNC is the audit use case, and so you can fully

25 articulate the hierarchy you need to support that

1 use case. So that's helpful. Thank you.

2   COMMISSIONER McALLISTER: Let's see. Where

3 are we?

4   MS. BROOK: I think that's the end of

5 actual, formal Agenda. Do you, staff, agree with

6 me? So I think we're ready to wrap up with final

7 comments.

8   COMMISSIONER McALLISTER: So are there any

9 comments from attendees, either here in the room or

10 on the phone, on the web? I think there are --

11 there's a lot of food for thought here and a whole

12 bunch of topics that we need to dig into, sort of in

13 due time, you know.

14   But I'm really gratified at all the high

15 quality participation today and I really thank

16 everybody. George.

17   MR. NESBITT: George Nesbitt. Back on the

18 utility data access, especially in multi-family when

19 you've got owners of buildings, they have tenants as

20 opposed to having to get authorization from every

21 tenant, which is difficult, and although ideally,

22 that gets built into the lease and it gets signed

23 right away, at least aggregating data, because we're

24 talking about projects that don't necessarily have

25 100 people.

1   And I also agree with what's been said, is

 2   that while aggregate data is nice, but a lot of

 3   times we need to track specific. So it would be,

 4   you know, you'd like to track an apartment over time

 5   if you're making retrofits.

 6   I mean, if it's aggregated you're still

 7   going to see some things, but you may want to see

 8   change in occupancies with different tenants and

 9   that kind of stuff. Then I guess one of the

10   overriding, we talk a lot about consistency, and yet

11   we have a lot of inconsistency.

12   We just talked about SEED. We've got HR's

13   Registry. CPUC is doing whatever it's doing. We've

14   got rules that say we need to do one thing, we do

15   another. You know, sadly, it looks like software is

16   being opened up for Energy Upgrade California, yet

17   four out of the five software products have no

18   ability to do code compliance.

19   And I can tell you, a lot of these

20   projects, actually all, should be showing code

21   compliance through a computer performance method,

22   because they probably, despite being performance-

23   based, may not actually meet all those standards.

24   So you know, we have a lot of duplicate

25   processes and money being spent. Yes, we need

1 choices, and I think actually in the HRs Title 24 we

 2 have built in abilities to have software choice, but

 3 still, if you put in the same inputs you get the

 4 same answer, because a lot of us in the room have

 5 been -- we know that if you took two pieces of

 6 software, put in the same inputs we got totally

 7 different answers, and that kind of thing is not

 8 acceptable.

 9   MS. RAITT: Anyone else in the room? We do

10 have one person on WebEx, Steve Uhler.

11   MR. UHLER: Am I on?

12   COMMISSIONER McALLISTER: Yes, we can hear

13 you.

14   MS. RAITT: Yes.

15   MR. UHLER: Steve Uhler, U-h-l-e-r. A

16 question on data ownership. I'm a POU customer and

17 they have data on the site that is actually

18 incorrect. It's almost $2,000 off on my billing, as

19 well as my Smart Meter, when I read my Smart Meter,

20 its face, the data that they show me accumulated

21 doesn't match.

22   So is there going to be some mechanism to

23 get these kind of things corrected? I've reported

24 it to them, but they've done nothing in that area.

25 The other area is the Appliance Database. I agree

1 with the gentleman about all the databases on

2 appliances, they don't match.

3   The Energy Commission's database doesn't

4 even match the regulation data structure that shows

5 in, what, 1608 or something like that, Table X.

6 There's missing fields. There seems to be fields

7 that don't really apply, like an electric water

8 heater that talks about how much BTU input it takes

9 and stuff like that.

10   I requested a Data Dictionary, but they

11 said that there was none available. It would be

12 really helpful for me as an energy user to be able

13 to use this data, if you folks would have things

14 like a Data Dictionary.

15   An example, a dishwasher, there's supposed

16 to be something about soil control or whatever.

17 It's not displayed on your site. When I go to look

18 at refrigerators and I try to add filters, it

19 doesn't allow me to add filters.

20   You have data in like refrigerator type

21 that is not allowed, even by your data input form.

22 And I'm kind of wondering will that kind of stuff be

23 cleaned up? When I look at all of the stuff talking

24 about BEDES and so on and so forth and all these

25 data translation things, you know, I've worked in

manufacturing, engineering for a long time, and I've

seen people try to put stuff together and nobody can

agree, and then it finally falls off the edge

because nobody uses it.

　　　　Some of the stuff falls into a realm of

what I call write-only memory. Nobody ever looks at

it. Is there anything going to be done to improve

interfaces for a customer like me? Your Appliance

Database is basically unusable on a mobile device.

　　　　Now, I see there's some sort of

modernization, but what kind of improvements do you

have in those areas before we get into all of this

data? The anonymization of the data, somewhere

there's going to be some foreign key table sitting

someplace that has to stay static, if from each time

there's a data dump that this anonymization works.

　　　　How is that all going to be handled and

what if somebody gets a hold of that foreign key

table? They're certainly not going to let anybody

know they have it as they then process this data

outside. Thanks.

　　　　COMMISSIONER McALLISTER: Go ahead.

　　　　MS. WADHWA: Thank you, Steve. This is

Abhi Wadhwa from Energy Commission. The appliances

in existing buildings office is indeed working on

1 the Appliances Database Modernization Project, and

2 we have one Appliance Database in place right now

3 which we now consider our Legacy Database as we are

4 going into phase two of it and looking to resolve

5 some of these problems.

6   While I've noted your comments and they're

7 also on record, we would highly encourage you to

8 submit them as part of that docket, as well. And if

9 you want to get in touch with me and note my name, I

10 can connect you to the people who will take your

11 comments.

12   COMMISSIONER McALLISTER: Great. Thanks.

13 Oh, go ahead, Matt, yeah.

14   MR. GOLDEN: I'll keep this mercifully very

15 short. But since we were talking about BEDES and I

16 was talking about Investor Confidence Project, I

17 just wanted to put it on the table that there's an

18 effort that's just spooling up where we're going to

19 take the data, the documentation actually, which is

20 not data currently, and there's going to be an

21 effort to map that to BEDES.

22   So there'll probably be a gap analysis

23 along with that. And so we'll have like an Initial

24 ICP Compliant BEDES Data Spec. That's what they

25 want us to call it. Got to go come up with a better

1   name --

 2   COMMISSIONER McALLISTER: So it would go,

 3   be kind of another line in that table that Robin

 4   presented where it's got, okay, we're mapping

 5   Portfolio Manager; we're mapping the Standardized

 6   Data Dictionary.

 7   MR. GOLDEN: Yeah. And I'm not sure where

 8   it'll go in their table, but yeah, it'll be that --

 9   COMMISSIONER McALLISTER: Like that.

10   MR. GOLDEN: Yeah. There'll be an output.

11   Instead of just a bunch of PDFs, there'll be a data

12   that can be transferred.

13   COMMISSIONER McALLISTER: Yeah, great.

14   Great. So I guess -- so this has actually helped me

15   crystallize a little bit about these different

16   tools, and kind of, you know, be good if people

17   could help us in their comments sort of in a more

18   rigorous kind of figure out the path forward.

19   It sounds like BEDES is a resource that

20   everybody agrees is pretty foundational, and then

21   kind of beyond that, individual needs might dictate

22   individual pathways. And hopefully, we can figure

23   out how all those, at least from city and state, can

24   work together, and then other complementary

25   databases that might be helpful to integrate.

1   MS. BROOK: Yeah. I think we really need

2   to talk with the Energy Data Access Committee.

3   COMMISSIONER McALLISTER: Committee, yeah.

4   MS. BROOK: And make sure that they are

5   trying to incorporate BEDES in their work.

6   COMMISSIONER McALLISTER: Yeah. And we

7   have a person on, there is a Commission

8   representative on that, and I know a couple of our

9   offices at the Commissioner level are also tuning

10 into those discussions. But we should definitely

11 formalize that if it's not already.

12   And I want to thank the PUC for putting

13 that together and pushing it forward. Let's see. I

14 guess there were a couple thing that really we

15 didn't touch on all day, and I just want to make

16 sure people in their comments don't leave them out.

17   Well, Ethan mentioned at the beginning this

18 Rates Information Database, and I want to -- really,

19 I'm interested in knowing kind of what the utilities

20 think that would entail more than anything, but a

21 standardized web enabled, you know, "machine

22 readable," but essentially, a standardized format

23 that can be read automatically to do analysis.

24   You know, anybody who knows their tariff

25 can use it, but also, just to do bulk analysis,

maybe on schools or on, you know, some type of

building or even just having access to all the

updated rates. I mean, that's just huge for the

marketplace.

          And it has value. We've seen a couple of

times where private entities have put that together

and they've gotten bought. So they're actually

public, so we need to keep them in the public

domain, and we heard a lot of public comments over

the last year and a half to that effect. So that's

2.1.5.

          Then, let's see. There's also 2.1.7, which

is the sort of making the -- I know the PUC's done

some of this, but essentially integrating or making

highly compatible with the various low income

program databases.

          So that's the WAP and the Low Income Energy

Efficiency, that's the strategy in here and it'd be

good to know from the utility's perspective, and

potentially, from the Agency's perspective over at

CSD what that might look like.

          And you know, not the first time this has

been brought up, but you know, again, we're trying

to reduce friction and transaction costs and

duplication of effort. So that seems like an

1 obvious one. Okay. I guess that's -- I just wanted

2 to highlight those two that seemed like they were a

3 little bit under-baked today.

4   But if anybody else has any comments, speak

5 now or forever hold your peace.

6   MS. RAITT: Let me just give the folks on

7 the line an opportunity real quick. So we'll need -

8 -

9   COMMISSIONER McALLISTER: Not forever, but

10 just for now.

11   MALE SPEAKER: The public comment just

12 ended.

13   COMMISSIONER McALLISTER: Yeah, exactly.

14   MS. RAITT: So mute your phones unless you

15 wanted to make a comment. We'll open up the lines.

16 Okay. I think we're done here.

17   COMMISSIONER McALLISTER: All right. Well,

18 great. Say, hey, right on time, 5:00 o'clock. We

19 caught up. So I want to thank staff, Eric, David

20 and Abhi and Martha and Daniel, also, who's not

21 here, but just the whole AB 758 team, Consuelo, as

22 well, on the 758 team.

23   So please feel free, those of you who are

24 interested in this and are thinking -- who are

25 developing your comments, I mean, we are very

1 interactive and try to be available, certainly, to

2 help figure out what's most helpful so you don't

3 spin your wheels unnecessarily, but really focus on

4 the things that are going to have an impact.

5   I want to also thank my advisers, Hazel

6 Miranda and Pat Saxon, for just doing a lot of

7 lifting on the 758 Action Plan. Also want to point

8 out Charles Smith, who's new to my office. That'll

9 be a resource for us, as well.

10   So any of us, please communicate with on

11 any of the topics in 758, including data. And then

12 finally, and not least, I want to thank Heather and

13 Raquel and the IEPR team for all of their, Stephanie

14 and the others in the IEPR team for keeping the

15 trains running more or less on time, and at least

16 trying.

17   I know it's hard, but happy with today, and

18 certainly looking forward to everybody's comments.

19 And did we have a date? You've got it right there,

20 April 28th.

21   MS. RAITT: April 28th, please, for written

22 comments.

23   COMMISSIONER McALLISTER: All right. So is

24 there anything else? There are the instructions,

25 April 28th, looking forward to your written

1 comments. Thanks, everybody.

2   (Whereupon at 5:00 p.m., the workshop was

3   adjourned.)

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