DOCKETED

Docket Number:	15-IEPR-05
Project Title:	Energy Efficiency
TN #:	204630
Document Title:	04-07-15 Lead Commissioner Workshop Transcript
Description:	On Existing Buildings Energy Efficiency Draft Action Plan
Filer:	Patty Paul
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	5/15/2015 4:22:09 PM
Docketed Date:	5/15/2015

BEFORE THE

CALIFORNIA ENERGY COMMISSION

In the Matter of:	)	Docket No. 15-IEPR-05
	)	
2015 Integrated Energy	)	
Policy Report	)	

LEAD COMMISSIONER WORKSHOP
ON EXISTING BUILDINGS ENERGY EFFICIENCY
DRAFT ACTION PLAN

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

TUESDAY, April 7, 2014
9:00 A.M.

Reported by:
Peter Petty

APPEARANCES

Commissioners Present

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

Staff Present

Heather Raitt
Martha Brook
David Ismailyan
Erik Jensen
Daniel Johnson
Abhilasha Wadhwa

Guest Speakers

Elliot Hoffman, REV
Joanne O'Neill, Pacific Gas and Electric Company
Billi Romain, City of Berkeley
Gina Goodhill Rosen, Global Green USA
*Sara Neff, Kilroy Realty Corp.
Brad Copithorne, Renewable Funding

Also Present (* by phone)

CPUC

Jeanne Clinton

Public Comment

Jonathan Changus, NCPA Northern California Power Agency
Hanna Grene, Center for Sustainable Energy
Barry Hooper, SF Environment
Gina Goodhill Rosen, Global Green USA
Lara Ettenson, National Resources Defense Council
George Nesbitt, HERS rater
Nancy Skinner, U.C. Davis Energy and Transportation Clusters
Carlos Santamaria, representing Chair, BOMA California Energy and Western HVAC Performance Alliance Group
*Michael Nguyen, So Cal REN
*Marc Costa, The Energy Coalition
*Fran Inman, Majestic Realty
Michael E. Bachand, CalCERTS
Debra Little, AjO

APPEARANCES

*Tom Conlon, GeoPraxis
Uyen Le, IBEW
Janice Berman, Pacific Gas & Electric Company (PG&E)
Lindsey Hawes, Center for Sustainable Energy
Matthew Hargrove, California Business Properties Association
Kevin Messner, Association of Home Appliance Manufacturers
Derek Okada, Southern California Edison
*Eric Emblem
Mark Berman, Davis Energy Group
Jon McHugh, McHugh Energy
Bernie Kotlier, NECA
Charles Cormany, Efficiency First California
Tanya DeRIVI, Southern California Public Power Authority
*Randy Walsh
Barbara Hernesman, CalCERTS
*Carol Zabin, UC Berkeley
Al Gaspari, Pacific Gas & Electric Company (PG&E)

I N D E X

Page

Introduction

Heather Raitt, Integrated Energy Policy Report (IEPR), Program Manager 6

Opening Comments

Commissioner Andrew McAllister, Lead Commissioner for IEPR 8

Commissioner Robert Weisenmiller, Chair 12

Vision and Goals, Existing Buildings Energy Efficiency Draft Action Plan

Martha Brook, California Energy Commission 16
Public comments

Goal 1 – Proactive and Informed Government Leadership in Energy Efficiency

Erik Jensen, California Energy Commission 26
Public comments

Lunch Break

Goal 2 – Data Drives Informed Decisions

Abhilasha Wadhwa, California Energy Commission 183
Public comments

Goal 3 – Building Industry Delivers Innovation and Performance

David Ismailyan, California Energy Commission 232
Public comments

Goal 4 – Californians Recognize and Benefit from the Value of Efficiency Upgrades

Daniel Johnson, California Energy Commission 334
Public comments

I N D E X

	Page
Goal 5 – Solutions Are Accessible and Affordable for All Californians	
Jeanne Clinton, Special Advisor, Energy Efficiency to the Governor's Office at the CPUC	268
Public comments	322
Timeline	
Martha Brook, California Energy Commission	337
Public comments	
Adjournment	341
Reporter's Certificate	342
Transcriber's Certificate	343

P R O C E E D I N G S

APRIL 7, 2015 9:07 a.m.

MS. RAITT: Welcome to today's IEPR Workshop on Existing Buildings Energy Efficiency Draft Action Plan.

I'm Heather Raitt, the Program Manager for the IEPR. I'll begin by going over a few housekeeping items.

The restrooms are in the atrium; a snack room is on the second floor at the top of the atrium stairs under the white awning.

If there is an emergency and we need to evacuate the building, please follow staff to Roosevelt Park which is across the street diagonal to the building.

Today's workshop is being broadcast through our WebEx Conferencing System and parties should be aware that you're being recorded. We'll post the audio recording on the Energy Commission's website in a couple of days and a written transcript in about a month.

Today we'll have presentations by the Energy Commission staff on each segment of the Draft Action Plan and an opportunity for public comment after each portion, and at the end of the day.

We encourage workshop participants to make comments today, but ask folks to be brief. We're asking parties to limit their comments to three minutes to ensure the maximum number of participants have an opportunity to speak. We'll take comments first from those in the room, followed by people participating in WebEx, and finally from those who are phone-in only.

For those in the room who would like to make comments, please fill out one of these blue cards and go ahead and give it to me. When it's your turn to speak, please come to the center podium and speak into the microphone and identify your name and affiliation. It's also helpful if you can give your business card to the Court Reporter.

For WebEx participants, you can use the chat function to tell our WebEx Coordinator that you would like to make comments during the public comment period, and we will either relay your comment or open your line at the appropriate time. For phone—in participants, we will open your lines after hearing from in—person and WebEx commenters.

If you haven't already please sign in at the entrance of the hearing room. Materials for the meeting are available on the website and hard copies are on the table entrance of the hearing room.

We encourage written comments on today's topics and they are due on April 21st. The workshop notice explains the process for submitting written comments.

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

COMMISSIONER MCALLISTER: All right, well thanks everybody for coming. I'm Andrew McAllister, the Lead Commissioner on Energy Efficiency. I know many of you, a few new faces here which is great, hopefully we have a wide range of participation on the Web and over the phone, and I want to exhort everyone, both here and remotely, to participate as much as you are inspired to participate and hopefully everyone will free to give their best thoughts into the process not only today, but going forward.

I want to thank the IEPR staff for putting together this first workshop in the AB 758 Series. This is a multi—part drama, I think.

And I, for one, am really looking forward to getting this discussion started in earnest, it’s been a long time coming, frankly, I mean, we’ve had 758 on the books for quite a while now and have I think been through, you know, a few iterations of where we think it should go.

And at the end of the day, the Action Plan that we’ve put together, the Staff Action Plan that you’ve seen -- and hopefully you have a dog-eared copy today -- it has a lot of great ideas in it, some ideas that are familiar to most of you if you’re practitioners in this area, but some ideas that we really think are foundational to change the discussion of energy efficiency going forward such that it can truly stimulate the market and scale; that is the goal that we have.

So just backing up a little bit, we all know climate change is the number one issue that we have to confront in many many different ways. We also know that our energy systems that we rely on for energy are changing and evolving quickly, you know, both the electric and natural gas systems, but I think the electric system in ways that are just happening at a breakneck pace with technology and innovation. And we need all the preferred resources to come to the fore and participate in the grid of the future. And energy efficiency is in my view still first among equals. But at the same time, energy efficiency has to play nice in the sandbox with all of its colleagues, whatever -- name your preferred resource.

So we have to know how to coordinate energy efficiency in the system that we have today and going forward. And so I think in order to do that, we need some additional tools, we need to all put our thinking caps on how this is going to work and figure out how it's going to work in the real world, and make the right recommendations.

So this is not just about the Energy Commission, it's about the state more broadly, certainly the Utility Portfolio Programs, both IOU and POU, play an important role in making efficiency more viable across the landscape, but the market is much broader than that and so we need to think big and think broad.

So let's see, I want to just thank staff for all the hard work on this and, in particular, they’re sitting in front of you there, Consuelo, Christine is in the back, Dave Ashukian heading up the Division, but David and Eric, Abhi, and Martha. I don’t think I’m leaving anybody out – oh, Daniel, Daniel, Daniel, I didn’t see him, I saw him on the stairs outside, but I’m not sure if he’s back with us. But certainly each in their own way have contributed substantially to this effort and I’m sure will continue to do so, it’s very exciting, and I want to encourage all of you practitioners, their colleagues and other agencies, and industry folks, and local government folks, to get to know your CEC staff on the AB 758 team, and use them as a resource and offer your knowledge as a resource to them.

In this area, almost like no other, we need that kind of team building and collective effort. Yes, we’re a regulatory agency, but we don’t have any white trucks to do out there and install stuff, okay, that’s contractors and folks out there in the world. And so if they don’t want to do it, they’re not going to do it. And they need to have the conditions to build their businesses so that it’s in their best interest to go do it and it’s in the best interest of the customer to adopt. So existing buildings are that way, it's not a matter of Regulation by fiat, it's a matter of encouraging the marketplace to get it done. So there's certainly a role for Code, there's a role for Standards, absolutely, and we take that very seriously, but we're a big state, we're a diverse state, and we have to figure out ways to make it work in the context that each customer user finds themselves in.

I also want to thank Jeanne Clinton from the Governor's Office who sits at the PUC, is a great resource for the state, and I want to thank her for all the work she contributed to this document. I also want to thank Mindy Craig who is sitting back there, our consultant on this who really rolled up her sleeves and interacted with probably many of you in the room along the way, and contributed very substantially to the report, as well.

So with that, I'm very happy to be joined by the Chair of the Energy Commission, Chairman Weisenmiller, and I'll pass the microphone to you.

CHAIRMAN WEISENMILLER: Let me again

thank everyone for your activities in this area. As Commissioner McAllister said, obviously the challenge of our time is climate and the disruption that’s occurring. And as we try to deal with the disruption of our climate, one of the ways to do that is through energy efficiency. And you know frankly the Governor, in the State of the State, really challenged all of us to double down on our energy efficiency activities, pretty comfortable on progress we’re making on the Building and Appliance Standards, generally, still a lot to do, but again we’re making progress.

The real challenge tends to be the Existing Buildings. We’ve been struggling with that since the first Brown Administration, frankly, and still trying to get it to scale, so it’s certainly in terms of the potential there we’re talking about certainly more than half of our structures. We’re talking about if you’re looking for the real opportunities for additional energy efficiency, it’s got to be in that area. And frankly a lot of that is rented space, so there’s all kinds of economic challenges there, but if we’re trying to make sure that all

Californians benefit from the Energy Efficiency Programs, we really have to move the needle in a significant fashion in rented space. And so I think this is certainly an ambitious, doable program to start trying to move to scale, but I don't think any of us should be deluded with the sense that it's going to be easy, or that business as usual, even though I'd have to say we're certainly in one of the more aggressive states in energy efficiency, that I don't think business as usual is going to do that or meet the Governor's challenge. So I think this is a great opportunity to have the kick—off on the challenges in the program and to come up with an Action Plan that we can implement and just move the needle in the next four years. And thanks to Commissioner McAllister for his work, certainly thanks to all the staff for their hard work, and thanks to all the participants in this activity.

COMMISSIONER MCALLISTER: All right, so let me just ask, are there any representatives, well, so if you've read the plan you know that much of the implementation will be led not just by the Energy Commission, but by the Energy Commission in partnership with the CPUC. We each impact the energy efficiency landscape in complementary ways, and we really have to work together and one of the strategies in there, you will have seen, has to do with what that oversight will look like. Other agencies are very important as well in their own ways, so the Water Board obviously, lots of energy and water nexus issues, the ARB obviously on climate change and sort of being the umbrella agency over that issue, and we all kind of operate broadly in that context, and other agencies which many of them enumerated in the plan.

So I want to just give the chance for various public agency representatives -- I see some local governments, I see others here, so maybe everybody who represents a public agency can raise their hand, particularly a state agency. Let's see, actually keep your hands up, I just want to see here. Great. Okay, terrific, so it's a good portion of the audience. And I would encourage all of you to get your comments in and come up to the podium and feel free and open with your ideas, but in particular those stakeholders that are called out in the plan and that we really anticipate partnering with, it would be great for you to be an integral part of the discussion.

So with that, I'll pass off to Martha who is going to kick us off.

MS. BROOK: Good morning. Thank you very much for coming, those of you who are in the room and the participation on the Web, also, is awesome, we're really happy to see that. And just personally, I've been away from Existing Buildings for several years and it's great to see so many people that aren't mad at me, so after working in the Standards for a long time --

COMMISSIONER MCALLISTER: "Yet." You didn't qualify that, actually, *yet* -- yet, right?

MS. BROOK: Right, right. (Laughing) So let's see, we do want your comments, so we're going to try and facilitate hearing from all of you today. This is a Draft Plan, we expect to modify it based on your comments, and that's really what we're here today to accomplish. So we're going to be quickly talking about the framework for the plan and then diving into Chapter 3, which is where all of the meaty strategies are, and we hope to get a lot of feedback from you throughout the day.

So you can't read this slide, maybe those of you on the Web can, but this is on page 22 of your document. So hopefully you've memorized this already, this is our Vision and Goals Framework for the plan. Our vision which you all helped us put together is that a robust and sustainable energy efficiency marketplace delivers multiple benefits to building owners and occupants through improvements, investments, and operation of existing homes, businesses and public buildings. So that's the box in the upper left there.

And we have several Guiding Principles that really we'll be pointing to probably throughout the day. And I'll just spend a couple minutes just providing an overview of those.

The first one is that the strategies are market—centered, and all of our activities are market—centered. And when I was putting my notes together, what I wrote down is "get the industry what they need to deliver energy efficiency and then get out of the way." Right? So that's a real challenge that we have to take on ourselves, we have to make our activities in energy efficiency really centered on the businesses that will be delivering it to building owners and occupants. And that means we have to work on workforce education and training and really get the workforce to deliver the efficiency that we all think is achievable, and that there's financing mechanisms that allow building owners to make investments for efficiency, and lots of different data resources that we've called out in this Action Plan that are needed to really deliver the marketplace the information they need to make decisions. So that's the market—centered principle.

The second principle is that the activities are user—focused. And we really can't get to scale if we don't increase and expand consumer demand for energy efficiency substantially, so we have strategies about marketing, education and outreach and, again, financing, and data, data, and more data, right? So we've been at this for a long time, we've been at this for 30 years, and we still don't have adequate cost and saving information publicly available so people can understand what it will take and what they can accomplish with some even basic energy efficiency improvements. We have to do much much better at providing consumer—focused data for decision making purposes. We also have a role to play in consumer protection, so as people go out there and engage with building owners and occupants, we need to make sure that the efficiency services that they're selling are robust and effective and applicable for the specific building and activity in the building that is taking place. So we do take that role seriously, but we also don't want to get in the way, right? So we have to walk that fine line of police action, we don't want to do that, but we need to have consumer protection. So we are focused on the consumer, but we also need to let the markets do what they do best.

The third guiding principle is that everything we do is performance driven. So accountability and performance is delivered by the market, it's required by financiers, it's demanded by consumers, and the rest of us facilitate that activity and, again, try to not put too many burdens on the marketplace. But we do think, especially with today's data driven economies, that performance driven approaches are really going to allow us to scale.

The next guiding principle is that everything we do is scalable. And both our Commissioners mentioned this fact, that our Governor’s goal is doubling the efficiency savings in existing buildings that we think is achievable today, and we can’t do that, we can’t even meet times one without scaling, sometimes two of in terms of everything that we know is achievable, the innovation that we are seeking is really innovation about how to scale, not innovation about what to do. We largely I think know what we need to do to improve buildings, but we really need to innovate on how to make business practices scale to achieve levels of efficiency that our Governor has asked us to achieve.

Policy coordination is another guiding principle, and this is coordination at all levels, federal, state, regional, local, and we’ll be mentioning a strategy in the State Leadership Goal section in terms of oversight and redirection of our plan based on a collaborative coordinated state agency oversight of the Existing Building Action Plan.

And finally, the last guiding principle

is partnering and leveraging. So we are seeking additional industry partnerships, we want to leverage the ones that already exist and help them succeed, we want to encourage and expand regional networks, and principle to ability to scale is being able to leverage in sharing infrastructure, so data infrastructure and program infrastructure, everything that can share we need to do that, and it kind of drives us to think about public investments and open systems and not proprietary and closed systems.

So those are the guiding principles, and I hope that you'll see as we present the strategies that the strategies do reflect those guiding principles in the Plan framework.

This is the Quantitative Savings Goal Chart. And I just wanted to explain this. There probably will be questions that we'll need to take back and chew on, and we do expect that we'll be revising this in the final version of the plan, but let me explain what we have so that you can make comments that are a little easier to apply to our plan.

So the top line in this chart is the California Energy Demand Forecast, the adopted

2015-2025 Demand Expectations for Residential and Commercial Building Energy Use, it's both electricity and natural gas combined into MBTUs, and so that's like the baseline before we've saved any efficiency in existing buildings, that big yellow wedge is the incremental savings under development, that's otherwise known as all achievable energy efficiency in the Public Utility Commission and Investor—Owned Utility nomenclature. So what we did to demonstrate the magnitude of savings that we'll need to realize to double the efficiency savings in existing buildings is we doubled that basically, that yellow wedge, and that's the blue wedge. So accelerated deployment and new savings efforts is the blue wedge, it's times two the yellow wedge, so we're basically saying everything that we've counted in the Investor—Owned Utility Only paradigm is a yellow wedge. Some of the blue wedge is Public Utility efficiency savings, and some of the bean counting that we want to clean up in the final version, we used all the data that was available to us, and so there is a little bit of confusion because the yellow wedge doesn't include public utilities, so it's not as clean as we would like it to be. But I think at the end of the day what we're really trying to communicate is the magnitude and the scale of what we're trying to accomplish with the Governor's goal, and that's actually why we computed this in per capita, because we wanted to communicate that, even with the expected growth that we expect in the State of California, that by 2030 there will be dramatic reductions in building energy use if we accomplish the Governor's goal here. And that's reductions even with the per capita growth that we expect in the state.

COMMISSIONER MCALLISTER: Yeah, so I want to chime in a little bit, Martha. So that's exactly right, your description. And I just want to put a little bit finer point on this, that many of us in our jobs, we know the curve where basically per capita has been flat for the last however many years, 30 to 40 years since the mid—70's we've been flat per capita. And we're very proud of that fact and there's a whole bunch of reasons why that took place, part of it is indeed our policies, but much of it is external developments. But the fact is California has had level per capita electricity consumption for that period. And that’s fantastic, that’s a real accomplishment. I don’t know any other state that has done that, or that is in that situation.

Here, we’re actually talking about not just having the ship go straight, we’re talking about turning the ship. So we’re going to reduce per capita by 70 percent. So I think that’s a big goal, it’s a very I think ambitious, but doable goal. And so we all need to kind of think about what that looks like in a marketplace, how that impacts every day, you know, you’re going to see more -- many of you see solar trucks running around your neighborhood, well, we need to see that kind of same level of activity and scale-up for the efficiency activities, and that’s kind of where we want to go, commercial, residential, multi—family, in particular, you know, maybe more in some parts of the state than others, but we need to be focused utilizing data to inform those efforts and we need to target the right customers, and that’s the ecosystem we’re trying to build.

So this curve may evolve, it’ll roughly I think look pretty similar, but it will evolve to reflect as we get better information and as we get more experience, it will evolve to have less uncertainty and be more clear.

I wanted to point out two folks who have joined us, Commissioner Douglas, thank you for coming, and I certainly want to give you the opportunity to make some comments if you'd like to --

COMMISSIONER DOUGLAS: I'll pass on the remarks, thanks.

COMMISSIONER MCALLISTER: Right. But Commissioner Douglas was the lead on efficiency before I came to the Commission, and did that very ably and handed it off to me when I got here, but has still maintained quite an interest which is wonderful. And then I also wanted to point out former Assembly Member Nancy Skinner has just joined us, and she is of course the author of this Bill and we're really honored to have her with us and certainly want to give Nancy the opportunity to express your vision and sort of maybe even some of the history around this bill now that it's been with us a few years, it actually has some history which is a little scary for us because we're just now getting to the plan, but in any case, things are moving forward and I'm really gratified to have you here.

So with that, Martha, go ahead.

MS. BROOK: Okay, so I don't think I'll go into any more detail about each of these wedges unless there's specific questions about that, but I would clarify that the 17 percent drop that's noted on the side is building energy use, it's not per capita. Obviously, per capita drops more significantly than the 17 percent. Seventeen percent is a big number. When I did the math last night, it's about 25 power plants by 2030, so it's a huge number. And it's hard for us to realize that sometimes because 17 percent doesn't seem that huge, but the State of California and building energy use is ginormous, right -- so that's a technical term -- so 25 power plants is huge, that will be really changing our paradigm in the state, so that's what we're excited about going forward. And I think that's all I have to open it up with, and we're going to start in Goal 1.

MR. JENSEN: Thank you, Martha. My name is Erik Jensen, I'm going to take us through Goal 1. Let me get my notes all laid out here. So this goal is about proactive and informed leadership in energy efficiency and the objective for this goal is policy initiatives and programs signal a long term commitment to the market and support its activation.

So state and school buildings is an area where the state has an opportunity to lead by example. One thing that we're wanting to do is increase our capacity to make improvements in these buildings and specifically we want to make more money available to do so. There are a couple of exciting things happening in this area already, 1) the Clean Energy Jobs Act which is putting over half a billion dollars per year in school improvements, and will give us a lot of helpful energy project and savings data and analysis for public use. And the Department of State Architect has a program which will perform deep energy retrofits at selected school buildings and then make that information available for other school districts, so create models so those other districts aren't just working from scratch, they've got information already that they can work with.

On the area of energy use benchmarking,

we've got one program that's already in place, the Non-Residential Building Energy Use Disclosure Program. As a Private Disclosure Program, it requires energy use disclosure at time of sale, lease or finance for buildings over 10,000 square feet. We're proposing a second program which would be a public disclosure, it will be for larger buildings, and would be generally more frequent, so we're not sure at exactly what intervals, it may be annually or biannually, so this is for a smaller group of buildings because the size threshold is higher, but because the disclosure is made much more frequently, it would get us access to data on much more square footage, much sooner. And I'll have a slide in a couple slides that will show that graphically.

COMMISSIONER MCALLISTER: Erik, I want to jump in here real quick. So just to take the first goal on State Buildings, if you look at Goal 5, it's got a lot of financing initiatives, so look at these in that context, as well, because there's some overlap between the two, but State leadership really requires financial instruments for State buildings. So any comments about how we can kind of make that clearer, certainly obviously we're going to be working with the other agencies in DGS and the Governor's Office on that. But certainly ideas welcome there.

And then, let's see, I'm not sure if it's an appropriate time to pause. Are you done with benchmarking? Or are you going to talk a little bit more?

MR. JENSEN: I have a little bit more.

COMMISSIONER MCALLISTER: Okay, great, because I think probably we want to pause and walk through the benchmarking and elicit some comments from people that have them because I would call this one of the signature initiatives of the plan and want to make sure that the context is clear so we can get the right kinds of comments from everybody.

MR. JENSEN: Sure. So I talked a little about the distinctions between these two programs, there are also some similarities, one is that we're wanting to resolve data access problems and specifically a couple of things we're wanting to do is require utilities to map specific meters to specific building addresses, and also establish protocols for reporting whole building energy use data. And prior to implementing this new program, we'll establish metrics for evaluating success in compliance, and once the data starts coming in and we're able to analyze it, we'll consider mandating energy efficiency improvements. So that's what I've got on that one, and so would welcome comments on these programs.

Okay, so the blue box here is showing the square footage that's being accessed with the program that's currently in place, and so as we you can see, because it only comes up at time of sale, lease or finance, it's a very small slice of the sector each year.

The red box all the way at the back represents the -- so that's when disclosure starts for the 50,000 square feet and larger, and that would phase in, so what we're showing here is starting it with buildings over 200,000 square feet and then starting it one year later for the rest of the buildings down to 50,000 square feet. You then see this delay, so it looks like that figure has shifted to the right, so the first round of disclosure would just be at the Energy

Commission, and then building owners would have an opportunity to make improvements on their building, and then the figure that you see shifted to the right is when the energy usage is made public for the second round of disclosures.

COMMISSIONER MCALLISTER: So I want to just chime in, so the 80—1103 Program is the blue, and so it goes down to smaller buildings, but it's a transaction, so that's a small chunk, as Erik said. The idea with this new benchmarking program is that it is not time of sale, it's time certain. We're actually talking benchmarking initially, benchmarking and reporting, I would not call that disclosure necessarily for the first iteration of the first round of this. So it would be benchmarking for all buildings above 50,000 square feet, standardized on portfolio manager, and reported to the Commission. Okay? Down to all buildings down to 50,000 square feet. Then, at the next round, the next cycle of time certain benchmarking, we would require public disclosure of some metric, okay? So part of what we want to talk about is the outlines of that program, for example, what is that metric? You know, what are we going to be require to be reported? Is it the energy consumption at the monthly? Is it annual? Is it just the benchmark score? What is it? What's most useful for the marketplace? And what is sort of the easiest most straightforward thing to do? Those two things might not be the same, but we want your opinion about what that program ought to look like. Now, we believe we have the authority to implement a program like this, and we are working out many of the sort of data infrastructure issues through 1103, through Prop. 39. And this program will take advantage of those infrastructures in order to have a broader impact on the Non-Residential building sectors. So that's kind of just to put a little bit finer point on the high level presentation. And I certainly hope that people have thought about this and have some comments today, but I would also love to hear your written comments about this, suggesting how we might best develop and implement a program for benchmarking in the state.

So is there anybody who has any comments at this point? I imagine there is probably some expertise on benchmarking in the room, so I see

Jonathan Changus. I will also say that there are eight or nine, it seems like there are more every day, cities generally, but jurisdictions in the country that have implemented programs like this, and believe that it is having a significant impact on the marketplace. And I think we're learning from those what the fits and starts are, but this program is intended to build on those experiences, be somewhat similar to them, and help us both understand the building stock better and also give building owners the information they need to implement efficiency. Go ahead.

MR. CHANGUS: Great. Jonathan Changus with the Northern California Power Agency. I think we've made some comments in Prop. 39 and 1103 and we don't need to reiterate on. Some of the concerns it sounds like we're working through on the data collection. I think maybe we could speak a little bit more to the plans of the CEC and how you plan to use the data, I think, would help alieve some of the concerns, as well, as far as it's being collected having perhaps a public database, how to then translate into helping inform decision making at the customer and I think that part is still a little unclear, so whether we discuss that here or later on, I would welcome that conversation.

COMMISSIONER MCALLISTER: Well, absolutely. Your ideas and anybody's ideas about how to best present that information so that it will impact the marketplace is really, I think that would be very very welcome. You know, certainly at a high level, I would say the Commission has a, I would say an obvious interest, an indisputable interest, I would say, in understanding the building stock better. We are the state's primary energy policy and planning agency and therefore we need better, more granular information about the building stock that we intend to impact. We developed Code, I mean, we need to know these things. So from the perspective of developing better and more targeted and more effective and cost-effective policy and programs, we need this kind of information, and we're starting with where we get the most square footage for the buck, basically, which is the largest Non-Res buildings. And then after that we'll see where it goes. I mean, if it's all smashingly implementing, you know, going great, then we'll think about lowering the threshold from 50,000 to something else, to something lower. And then eventually, depending on where we are five or 10 years down the road, you know, as Erik said, figuring out what the best opportunities for mandatory measures are. I mean, I think we have the challenge of climate change, 80 percent below 1990 levels. So we've all got to get on board with that and be as effective as we can.

So if it turns out that there's just a huge amount of cost—effective, but unrealized energy savings down the road, then we're going to have to think about how we mandate. And I think obviously everybody in the room can see that that could be controversial, you know, individual cities have done some of that, but never at the statewide level. But you know, we're in a water emergency and we may well have similar types of urgency in energy down the road in climate, so we need to be prepared for that.

MR. CHANGUS: Yeah, and I think there's absolutely no disagreement on the goals and objectives and what our responsibilities are regarding climate change, I think the challenge is that, with multiple strategies, the time and effort that goes into pursuing some of these, in all honesty with the reporting obligation, it seems very disconcerting to me about how much data we're collecting, when are we collecting it, how are we transmitting it, it's been a challenge through 1103 and Prop. 39 to date, and we're working through that and we continue to work through that, and we'll continue to be active participants in that process and very much appreciate your staff's work in receiving those comments. It's just that is, as we see it, a significant new bit that distracts resources from other strategies that may be more effective. So it's trying to figure out if we implement all of this, how do we do it?

COMMISSIONER MCALLISTER: Your ideas and other' ideas about that are exactly what we're looking for, you know, the idea is not to impose lots of new onerous requirements on people, but this is something that is kind of a no brainer that we think will help the efficiency endeavor.

MS. BROOK: This is Martha. I just wanted to add that we're really not proposing benchmarking for government to collect data, we're really doing it for the market to have access to this data. So in other places around the globe, benchmarking has really opened up the marketplace in terms of transparency and people are making leasing decisions based on benchmark scores, so we really want to see that happen across the State of California.

MS. GRENE: Hi. My name is Hanna Grene and I'm with the Center for Sustainable Energy. I'd like to follow—up on exactly what Martha was just saying and refer to a few best practices for benchmarking that we've seen in other jurisdictions around the country, particularly Washington, D.C. and New York City. In those cities where they now have multiple years of benchmarking and have continued to move down in size to get to their lowest thresholds where all buildings above 50,000 square feet are going to be reporting this year. We've seen a few market transformative effects just from the benchmarking and reporting of that data. So, as Martha said, their just making that data available is having an impact on the market and would have, we expect, similar positive impacts in California. Specifically, D.C. has already seen an increase in Energy Star certified buildings since its benchmarking public disclosure was put into place. It is now advanced beyond Los Angeles for having the city with the most Energy Star certified buildings.

In New York, we've seen the top real estate portfolio owners and managers coming out and using the public data to position themselves as among the top tier and Class A most competitive; either property managers keeping their operational costs low, or as property owners with the top tier real estate in a very competitive market, and using the public information really to their benefit. We've also seen it change the conversation around energy and, in Washington, D.C. where water use is also reported, it has changed who within companies, within either affordable housing, or within property ownership companies, within portfolio management companies, who is paying attention to those energy bills and to the energy consumption. It's no longer a bill that gets paid in Accounting, it's something that the CFO, the COO or CEO, but it's changed where energy bills matter and it has made them a part of a public persona of the building and of the brand that

that building represents. And we would expect that benchmarking as laid out in this AB 758 Action Plan would have similar positive market effects in California, and plan to point to some of the other best practices that those jurisdictions have implemented such as a benchmarking help center and water recording and reporting comments.

COMMISSIONER MCALLISTER: Great. Thanks a lot and look forward to your written comments with all this highly detailed in it. Thanks. Next person? Great, thanks.

MR. HOOPER: Good morning. I'm Barry Hooper, I work for the City and County of San Francisco, Department of the Environment, pleased to join you this morning. I am also active in a Local Government Sustainable Energy Coalition and serving for the CPUC on the Energy Data Access Committee that is looking at the implementation of last year's ruling.

I'm strongly encouraged by the draft proposal in the Action Plan and particularly the approach on benchmarking. San Francisco has been implementing a benchmarking program for four years now and the Commission's action, both on

1103 and its acknowledgement of a need to address data access in this context have been really crucial because I think one of the reasons that we can point to some of those effects in New York and other environments and have more difficulty pointing to that in San Francisco is that we basically invest our effort in compliance and ensuring that people can access information through the current consent—based process, and that is PG&E has been our very close partner in terms of providing education, in terms of providing support and ratepayer incentives, and actually in terms of funding the IT infrastructure to have an incent—based program operate as efficiently as it really possibly could.

All the same, it's quite difficult to administer in that realm because a lot of buildings do have multiple parties that are tenants within them, and that's a really key issue to address is the very ease of access of the data itself and to recognize that the whole building data is fundamentally different, data that's measured at the individual meter level. And that was really bolstered by the research by

Pacific Northwest National Laboratories last year, which didn't take an explicit stand on what number of meters would have what effect on data aggregation, but did really highlight how, in a statistical and rigorous way what one would obviously infer, that multiple users added together really does diminish your ability to draw conclusions about any one party. And so it really, the striking a balance between privacy which certain is important, and energy management is I think the direction you've been going and I really support that and appreciate the effort in the Draft Action Plan.

COMMISSIONER MCALLISTER: Thanks for being here.

MS. GOODHILL ROSEN: Hey there. Gina Goodhill Rosen with Global Green USA. And I really have actually just a couple of questions more than a comment, I'm going to send some written comments in.

So I was a little unclear from reading the plan how exactly the benchmarking is going to be enforced. I'm not sure if it's up to each City, or if there's going to be someone on the statewide level enforcing that. And then if people aren't complying, I'm not sure who is going to be in charge of figuring that out. So if you could just speak to that, that would be great.

COMMISSIONER MCALLISTER: So I'm going to invite staff to treat that one. But I did want to draw kind of a distinction between 1103 and this benchmarking, this broader time certain benchmarking program.

So 1103 is a private transaction, we don't believe that an aggregation threshold is actually necessary for it. So it's whole building data that will be reported to the building owner at transaction. So, period.

This is, you know, we are going to have to work through some of the issues that Barry brought up in this larger program because statute isn't as explicit and so I think we're going to need to have some of these broader discussions probably in a rulemaking to develop this program. So I think they are two different programs, they complement each other, but they are different tracks.

So I'll push to staff here on some of the enforcement questions and I think 1103, I think you might actually ask some of the same questions, just what does enforcement look like? And that can be problematic, but I think we're going to look for solutions to that. But go ahead, Martha.

MS. BROOK: Martha Brook here. Yeah, I was going to say the same thing, that we expect to resolve those types of issues in a rulemaking process for the larger commercial benchmarking program. And so I don't think we know the answers, all of them, about who and how we will enforce, but we want to quickly get to pre-rulemaking activities, so your comments in that regard could be very helpful to us, and we are planning to have a half-day workshop, I think it's May 7th, it hasn't been noticed yet, but very close to being noticed if it hasn't already, about this benchmarking program, which we can go into more detail about our pre-rulemaking activities.

COMMISSIONER MCALLISTER: Also, at the same time, we're going to at the same time try to encourage local governments to get out ahead of it and do what they can do. I know there's really robust conversation going on down in L.A.

and we would love it if they kind of got ahead and helped us work through some of these issues, and there's some talk about that in other areas of the plan.

MS. BROOK: Right, exactly. So if your comments could help us, the very first thing you need to do is this, the second thing, so I mean, we can help us strategize in the order that we take issues and resolve them to help local governments do early implementation before a statewide program would be effective. I think that's where we'll really encourage our collaboration. So we think we know what those are, we think it's data access is the big one, there might be a few others like enforcement that we need to tackle sooner rather than later.

MS. GOODHILL ROSEN: Thank you. And I have one more question if that's okay. So the plan also, and it was mentioned earlier, that within two to five years of benchmarking implementation, the CEC would determine if mandatory retrofits are necessary. And can you expand a little bit on how you, first of all, it says if you're not getting sufficient savings then you will do those mandatory actions. I'm not sure what counts as efficient savings, if that could be defined a little more clearly? And then also, in the two to five—year window, what would make it two years versus five years versus three years, if that process of it could be laid out a little bit more clearly, I think that would be helpful.

COMMISSIONER MCALLISTER: Great, thanks, Gina. And also, kudos to Global Green on working originally on this legislation and, you know, I think it’s going to have a big impact. That was a really great effort.

I think at some point, at this point, you know, some of this is sort of intentionally undefined because I think that when we approach something like mandatory retrofits, we have to be very careful to identify the right kinds of measures, really focus on the battle—ready proven measures and really focus on the cost—effectiveness and that conversation will evolve with technology implementation. And so I don’t know that we’re in really a position to say “here’s exactly the goal and if we don’t get it we’re going to do X, Y and Z.”

But I think it was necessary to get this conversation going so that people could see, “Look, this is real and we need real savings, and if we don’t get them, we’re going to have to sort of go to Plan B.” So your question is great and I think staff might be able to sort of lay out the criteria that we might apply to that, and where we’re limited by statute, you know, to cost—effectiveness and those sorts of things. But we would likely have to work with the Legislature and other agencies to make that happen, as well. So that conversation would have to actually take place.

MS. BROOK: Yeah. So the only thing I would add, this is Martha Brook again, is we don’t have the answers that you might want us to have right now, but I think what we did do is we were recommending a process for identifying the issues and getting the questions answered, and that is what this strategy that you haven’t heard about yet, because we haven’t gotten there, but basically a statewide collaborative that focuses on managing this plan and updating it when it needs to be updated, and calling attention to the fact that we’re not meeting our goals sooner rather than later, so that we’re not looking back in 2030 and saying, “Oh, jeez, we didn’t do it.”

So we do take that seriously and that’s really the process part that we do think we will getting in place and we’ll quickly have to within that process establish the metrics and the criteria for determining how we measure progress on this plan.

MS. ETTENSON: Hi. Lara Ettenson with the Natural Resources Defense Council. I should go last more often, I think, I can just reiterate much of what is said.

I think also, Martha, you spoke to something that was of a more general comment on the entire plan, which is how are we going to measure to make sure that we’re on track for 2030, not just the individual goals, but of the overall. And so I think that’s a very important thing that we’ll have some recommendations on.

And specifically with benchmarking, I think it’s great that we’re having this conversation and I also agree with Ms. Grene that there’s a lot of lessons learned out there already that could probably accelerate what’s on the screen and, in addition to accelerating what’s on the screen, I think that more explicitly saying or providing strategies to help do savings before it becomes mandatory would be helpful.

I understand that there's references throughout about encouraging and there should be strategies to do uptick sooner than later, but really articulating what those are, and I understand there will be action plans that come out of this, but if we don't do that, we'll end up in 2020 with 50 percent of the floor space maybe not doing anything, and then we'll be way behind our goal.

So I would encourage to explicitly articulate that and articulate the longer term goals. And I think other than that, I would just reiterate what everybody else said here before me.

MR. NESBITT: George Nesbitt, HERS Rater. In the 2008 CPUC Strategic Plan, we called for a 40 percent reduction in energy use in existing residential buildings. I believe the Governor said a 50 percent -- or 50 percent improvement in building efficiency, which is to say a 50 percent reduction in energy. Yet you're saying a 17 percent reduction in energy which is a doubling of the energy efficiency goals. So there seems to be a big gap there.

MS. BROOK: This is Martha. I think it's a different interpretation of the Governor's goal. So the way that the Energy Commission interpreted is doubling the current efficiency, or current potential for efficiency, and that's what we charted in that. So we didn't equate efficiency with 1:1 energy reductions. So basically we're saying if you're doubling the efficiency, you're doubling what's achievable today, and that's where we ended up. So we're not interpreting the goal as reducing energy use in buildings by two, that's not our interpretation.

MR. NESBITT: Certainly the CPUC goal, and achievable. On building disclosure, it's certainly one of many tools we need. The big problem we have is secrecy. We've got to tear down the wall of secrecy with energy use data because it holds us back. We're supposed to have been doing energy audit in a lot of affordable multi—family projects, but we can't get the data because it's too hard to go to every single tenant, get them to sign a form. We're so worried about secrecy. Why can we not release data that doesn't tie it to that tenant, to that apartment even? You know, at least if you've got 50 apartments, you get data from 50 accounts. Now, over time to track it you'd want to know, you know, you're getting data for the same apartment even if you don't know what it is. And that should be available without tenant consent. If the data is not available, you can't do anything. I'd say that's the biggest problem we have --

MS. BROOK: Okay.

MR. NESBITT: -- is just the difficulty of getting data.

MS. BROOK: Okay, and I think we agree with you and we have some strategies coming up in Goal 2 that speaks specifically to anonymized data for decision making.

MR. NESBITT: Great.

COMMISSIONER MCALLISTER: Nancy.

MS. SKINNER: Thank you, Commissioner, staff. Nancy Skinner, Senior Policy Fellow at the U.C. Davis Energy and Transportation Clusters. My comments right now will be solely on the benchmarking side. I'll save some overall for later.

On the benchmarking section, as you described, Commissioner McAllister, it's the signature initiative of the plan. And I wondered, is the objective for this primarily to provide the Commission data over time that would inform, say, a potential mandate for retrofitting? Or is it to, as was described, stimulate market response? And independent of which value or what percent you have in mind on this, I wondered if there's an estimate of reduction that is either hoped for or intended, that the benchmarking would achieve just from the stimulation of market. So with no other action, what are you hoping that this benchmarking activity would produce in terms of efficiency improvement?

COMMISSIONER MCALLISTER: So on the priorities, you know, I think they're both -- I think we get a twofer and, as the policy agency, we need that information, but if I had to say one is more important than the other, I'd say that the market stimulation is more important. And as far as reductions, I mean, I think there are, you know, there are a number of examples of different building sectors, you know, multi-family, commercial, that you get five, 10, 20 percent savings, depending on how deep the projects go so that natural market stimulation, I would imagine, would be in the five to 10 percent range, but I don't know what Martha would have to say about that. Obviously we would want to complement this direct sort of program interventions that would leverage it most effectively.

MS. SKINNER: Uh—huh.

COMMISSIONER MCALLISTER: So again, that's an area where stakeholder comment and input is going to be really helpful.

MS. BROOK: I would agree that primarily the purpose is for market activation and I think that when we talk about the State agency and local and regional agency needs for data, it's not siloed data for -- it's really just doing a better job of leveraging all the data that the market needs. And so that's really, I think what we're trying to communicate in many of our strategies is that the data that the market needs, we will take advantage of, and we will use that data.

We want to streamline -- we have to

reduce costs and streamline data collection, right? So let's do our best innovation in terms of getting the marketplace what they need for data, and then leveraging that without any separate complicated expensive data collection for policy purposes. It should work. We just have to be clever about how to organize it and analyze it. But really, market availability of data is our primary purpose.

I would have to look back at Washington, D.C. and New York City to see what kind of benchmarking achievements they've made, I would guess in large commercial buildings two to five percent is easy just in operational without doing any investment, just because people notice things are on when they should be off, so simple things.

But then we are definitely encouraging utilities and other program implementers to take advantage of the fact that there's going to be a statewide mandatory benchmarking program in the future, work with your large commercial customers now and help them, you know, look good. When their scores have to be disclosed, we want them to be proud of those scores, so let's work now to get those where they need to be.

MS. SKINNER: Well, I ask because obviously the different portions of the plan all, you know, all will have a cost to both the marketplace, to the private sector, and to the state in terms of designing, implementing, and ultimately in terms of evaluating the plan, being able to see the cost of different of the activities versus the reductions or the efficiency improvement that we're hoping to get from those would be quite valuable, I think.

COMMISSIONER MCALLISTER: Yeah, so I totally agree with you. I would, though, caution that we do have -- we have a big portfolio of programs already that the utilities fund and implement, you know, both themselves and through third parties, and there's a whole EM&V kind of infrastructure and I am sure there are varied opinions in the room about that super structure.

What we've tried to do with this plan is fill gaps, you know, sort of leverage and expand those where it seemed helpful, but really fill gaps, and so, you know, data and a number of other parts of the plan really are, they're more like fertilizer, and so it's hard to say exactly, you know, there's not necessarily going to be a chain of custody from that intervention to those savings, right?

MS. SKINNER: Uh-huh.

COMMISSIONER MCALLISTER: And so I don't want to have the expectation, necessarily, that every intervention we're going to be able to say, "Oh, it produced X."

MS. SKINNER: Right.

COMMISSIONER SKINNER: Because I think, one, it would be kind of a little bit of a distraction on a tangent, so we'll get to the data goal here I think first thing in the afternoon, but the idea is that we build the resources that are going to tell us, you know, independent of specific programs, but basically through a fairly granular baselining activity, whether we're actually moving the needle overall.

MS. SKINNER: Uh-huh.

COMMISSIONER MCALLISTER: And then, you know, within that hopefully there will be some subtlety of understanding that will say, "Oh, well, this group of initiatives is really what's kind of making it happen, and these two aren't having a big impact," and figuring out, like doing evaluation in a sort of a slightly different way that allows us to see the forest and not necessarily get sort of held up by the trees. And so I think we need both, but I think we want to be fairly strategic with how we assign savings. I'm going to be very happy if we are overall successful, regardless from where the savings came from, right? And I hope you will be, too.

MS. SKINNER: Well, I see a great value in a variety of the, well, let me not say "variety," but rather a great value in our having better data and more information. I think I'm just, in trying to evaluate the entire plan, which I will save until I submit written comments because that's part of why I'm attending, to hear it all, it's that question of, in effect, if we end up requiring, which the plan is right now, disclosure, then in effect that's a command and control measure and will require some level of enforcement and other activity by the state.

COMMISSIONER MCALLISTER: Yeah.

MS. SKINNER: And if as compared to other things that we might pursue as command and control, if the cost -- if we can't see a real quantified benefit to it, then that's my only question.

COMMISSIONER MCALLISTER: Yeah, so I mean I think that's why really we've started with the big buildings, because for a big building that's got a big energy bill and a lot of throughput of resources, that's a relatively small effort. And the state infrastructure needs to be there, but again, it's a relatively small portion of the overall building stock. Then the question is how far down do we push it and where do we strike the balance in terms of coverage versus impact.

MS. SKINNER: Right.

MS. BROOK: And the other that I would say is that, let's be careful not to look at the current costs because the current costs are what we're trying to fix, right? It's complicated and costly now because of data access issues and if we can fix that, then possibly it's very streamlined and very effective. And then the other thing I would finally say is that we're trying to catch up, so Andrew mentioned that we're gap filling, we need to catch up, so Andrew mentioned that we're gap filling, we need to catch up with existing buildings in terms of other things that use a lot of energy. We know a lot about cars, we know nothing about buildings, right? So we're really trying to change that and benchmarking large buildings is one obvious starting place.

MS. CLINTON: This is Jeanne Clinton from the PUC. I just want to offer a perspective. In the commercial building space, a lot of the companies that are doing virtual audits or energy audits claim that as much as 50 percent of the savings that occur in a building can come from operating and behavior changes, not necessarily capital investments. And I think that's something to keep in mind because information alone can drive O&M—type changes fairly quickly, and then, as we'll get to later today, we may need other instruments to motivate more capital investments and if I'm not mistaken, I believe that in Washington or New York where they've had a few years of the Energy Star benchmarking experience, both voluntary and then mandatory, that they were seeing that within about three years the buildings that were participating were getting seven percent savings and I still think a lot of that was operation and management.

So I think that's just a start. And the

whole plan is articulating a number of instruments that will have to come together if we're going to see deep savings.

MR. SANTAMARIA: Hi, Carlos Santamaria representing the BOMA California Energy Chair, and also involved with the Western HVAC Performance Alliance Group.

COMMISSIONER MCALLISTER: Great, thanks for being here.

MR. SANTAMARIA: Yeah, thank you. So I like, Commissioner McAllister, your vision and your comments about big broad strategies and your vision and ideas, so being involved with commercial existing buildings for over 25 years, having portfolios, seeing what has been successful in energy management programs, and you talk about scale, some of the roadblocks that currently exist even with your larger buildings, but with your smaller buildings under 50,000 square feet, is the cost as you mentioned. It's anywhere between $750, $1,000, or $2,000 a benchmark, a building. Your smaller companies are not going to do that, so you just are going to have to wait around and chase them until they do it with the mandate.

The larger companies and portfolios are doing it, they do it for a couple reasons, because of branding, because, as you mention, they can identify the savings in an aggregate manner to see where those opportunities are, but if you truly want to scale and make this a bold strategy, I think for the smaller buildings, as well as some of the larger buildings, there needs to be a partnership incentive. Whatever that dollar amount is, that will truly activate the scaling potential, it will activate market potential for companies to go out there and have these funds available, and then it will leverage the data with the market needs.

So I think when you talk about what can be accomplished in the next two to five years for an incremental amount with that billion dollars of ratepayer dollars that are out there for these programs, a few million dollars can go a long ways as far as gathering that information. So I just wanted to get your thoughts on that. I mean, I would imagine there would be a number of people and groups that will make comments regarding that. So that's a comment and suggestion that I think would be very valuable that would work.

COMMISSIONER MCALLISTER: You're referring to sort of the medium—sized buildings below 50,000, or all buildings? Or --

MR. SANTAMARIA: I think all and above. I mean, if this is a statewide all of the above strategy, you make it available for everyone, but I think you would attract and capture more of the smaller buildings by making some incentives available to them, having the private sector go out and have something to be able to attract those smaller potential benchmarking opportunities.

COMMISSIONER MCALLISTER: Great. Thanks for the comment, that was good.

MR. SANTAMARIA: Sure.

COMMISSIONER MCALLISTER: Okay, anybody else?

MS. RAITT: We do have one person on WebEx.

COMMISSIONER MCALLISTER: Oh, great.

MS. RAITT: Excuse me, three people on WebEx. So first we'll open Michael Nguyen's.

MR. NGUYEN: Yes. Hello, this is Michael Nguyen from the Southern California Regional

Energy Network. I have first question for Martha. You commented about the proposal to manage the progress of this plan, I assume AB 758 Action Plan. Can you share with us a little bit more your thoughts on this proposal, what are you looking for in terms of administration of the plan, the key parties involved, you know, the criteria for evaluation and measurement? Could you share with us more on this?

MS. BROOK: This is Martha. I'm going to wait until Erik introduces this strategy. He's going to get there probably within the next 30 to 40 minutes because it's in his section in Goal 1. And then I would finally say that we haven't worked out all the details in terms of identifying the criteria and the metrics for the evaluation, but that will be the first order of business once the collaborative actually meets. So let's get back to Erik, and then I think you'll learn more what we are thinking about for that collaborative.

MR. NGUYEN: Yeah. I have a second question regarding Commissioner McAllister's comment that he sees great value in the evaluation at the macro level to determine whether policy objectives are met, regardless of attribution to specific intervention activity. So I'd like to ask the Commissioner, this is very interesting, I think it's very helpful because we are asking the exact same question on the rolling portfolio on a CPUC Commission side for that, you know, is there any discussion, dialogue between the CEC and the CPUC regarding this point and how both agencies could help establish some kind of common evaluation methodology to allow us to look at the macro level without getting bogged down to attribution?

COMMISSIONER MCALLISTER: Yeah, so here the collaborative is certainly scoped and intended to be a joint effort across the two Commissions, and so, you know, the Energy Commission certainly is not proposing to, you know, that the PUC immediately radically changed what they're doing in the EM&V, I actually think we need both the kind of program-specific types of evaluation, as well as the macro because that will help overall understanding.

You know, one of the issues we'll have to work through is how we have these conversations while the PUC and the Energy Commission have open proceedings on different issues that are impacted by these conversations. And so particularly, I think, over at the PUC, you know, we need to work around a few sensitivities there, and so I think when we constitute the collaborative we'll have to work through those issues about sort of what that forum looks like, given the suite of proceedings that are open at the PUC, primarily, I would say.

So I'm not proposing to throw out the baby with the bathwater, but just to have a complimentary additional resource to see whether we are overall meeting our macro goals at that level, and I don't really mean macro, you know, one number statewide, I mean, we really need for many many reasons that go beyond this plan, we actually need resources to do much more granular analysis, localized analysis, for our demand forecasts, for a wide variety of reasons that go way beyond energy efficiency.

So I think these resources to -- building resource that's not program or portfolio specific, but is really just looking at baseline building and consumption characteristics across the state is something that we need for many many reasons. And it will help with the EM&V on the efficiency side. So hopefully that answers at least part of your question.

MR. NGUYEN: Thank you.

MS. RAITT: Okay, the next person on WebEx is Marc Costa.

MR. COSTA: Hi, this is Marc from The Energy Coalition. Just a couple of specific questions. You know, when we get into Strategy 1.3 and 1.4 about standard and uniform tools, you know, I would just suggest that we prioritize the commercial tools since they would be in line with this benchmarking when we talk about benchmarking for nonresidential. So if those tools for not only benchmarking but for audits and assessments were set up so that it would align with the policy, I think it would put us in good shape. And then beyond that, just also advise to not get stuck in, you know, the current paradigm of what benchmarking is, I mean, folks have been benchmarking since there have been hanging chads on bills, and I'm glad to see that there is modernization of these tools; but along with that, getting back to Mike's point, it would be nice to see an element of a performance-driven benchmarking and measuring results out of this be infused into those policies and the rulemakings that come ahead. So maybe those can be spoken to as we move forward into 1.3 and 1.4?

And then lastly, I was just curious if you can clarify the rulemaking associated with the new benchmarking and the rulemaking that will happen to maybe increase the authority to fill that gap and the doubling of efficiency that isn't currently met by the ratepayer investment.

MS. BROOK: Hi, Marc. This is Martha. I'm struggling with the very last thing you said, so were you asking about additional funding sources? I'm sorry, if you could repeat that last part?

MR. COSTA: So that last part in the Action Plan, it points to a new rulemaking, and it's really in Goal 2 on Data. And I was curious, you know, what the scope of that rulemaking would be, if it's just creating a new type of benchmarking program, or if it would increase the Commission's authority to do things as far as how data is collected, or how programs are created.

MS. BROOK: I see. So I'm just going to

chime in and Commissioner McAllister can clarify anything that he needs to.

I would say that we definitely think that we need to do a rulemaking for the large commercial benchmarking program. We'll talk more about our plans and schedule for that at a future workshop, I think it's tentatively scheduled for May 7th. If there is data, if there is a rulemaking either specifically or implicitly mentioned in the data strategies of Goal 2, then I think what we meant there is that the Energy Commission already has data collection authority in the Warren—Alquist Act, and those are the Title 20 Regulations, and we are going through a process now where we're working with our Demand Forecasting staff to leverage that data collection authority to make sure that it works not just for long term demand forecasting, but to help us implement this plan and manage the results of this plan. Did I answer your question?

MR. COSTA: It did, yeah. I was just curious, I mean, under AB 1103 the rulemaking for that, you know, and I think it can get into the data part, but you know, if you could just maybe clarify it and when we get into Goal 2 later in the afternoon, if the current rules in place are sufficient to really deal with this.

MS. BROOK: I see, okay. Sure, thanks.

MS. RAITT: Okay, the next person on WebEx is Fran Inman.

MS. INMAN: Hi. Fran Inman, Majestic Realty. I have a question for you and it really relates to some of the best practices that were mentioned earlier in New York and Washington. I'm guessing that those relate primarily to the office sector?

MS. BROOK: I think that's mostly true, but I think that at least New York, and maybe both of those, also include large multi-family properties.

MS. INMAN: Okay. Because, as you know, or you may not know, but our portfolio, and we're large large landowners, is dominated by the triple-net lease sector, so the big warehouse distribution sector is all a triple-net lease, and so when we talk about 50 percent of the potential early savings come from operations and behavior changes, that's really tied to the tenant. And we have struggled under 1103 to get the releases, we're in full compliance, not that we aren't, but it hasn't been easy, there's been disagreement between our utility partners who have to obtain what release -- we've worked, we've managed to be in compliance.

But I struggle with this in terms of encouraging change and for us to all achieve our mutual goal, we've got to get the right information to the right decision maker at the right time, and so the benchmarking on the sector that's the triple—net lease is really primarily related to the operations that are occurring at that time, a lot more than the actual building. Because our buildings, especially under the Title 24, the concrete tilt—up are pretty basic buildings. So that's something and I don't have the answer, we've been trying to figure out how do you have an effective tool that really gets relevant information to the folks that can make the decisions at the right time.

And in this case, for most of the energy use it's not the landlord, so we have to figure out how that would be a useful tool. And then, as I said in one of your earlier hearings, from our 1103 experience, our worse score is actually our tenant as a public agency and their energy usage relates to their Union requirements. And that happens to be an office building. But we have from our perspective, we think they have way too many microwaves and refrigerators in there.

COMMISSIONER MCALLISTER: (Laughs)

MS. INMAN: So that's one just little heads up of what we have learned from all of this. We don't have the power, we're not party to those agreements so we can't change that. But that's one thing we've learned from this.

And then my last question really relates to our move to zero emission equipment in the transportation sector, and how does that integrate into this because, if we do encourage alternative fuel sources, some of the benchmarking might not be apples to apples.

COMMISSIONER MCALLISTER: So thanks, Fran, for those comments. You know, I guess from my program design and implementation and evaluation experience, just those are kind of exactly the issues that are going to come up, you know, in your case in, say, warehouses and, you know, specific sectors. And you know, to some extent it's helpful to know, like you've learned

I think valuable lessons about what the barriers actually are in that particular context. And I think when we go about benchmarking a large swath of buildings across the state, we're going to actually elicit a lot of analogous lessons. And I think that is essential to know, then, or to think about -- to identify the ones that are most common, and then think about how to bust those barriers. And so I think knowing, say, that particular contractual arrangement generates greater consumption and if that's actually the case, then we could start to think about, okay, well, what might be done about that?

MS. INMAN: Uh—huh.

COMMISSIONER MCALLISTER: So you know, I'm not answering your question directly, but I think the benchmarking is going to be valuable both to the building owner and to policy makers in ways that we don't necessarily -- we're not necessarily able to anticipate fully. But I'll see what staff has to say about this, too.

MS. BROOK: This is Martha Brook. I would just say that I think the issue that you raised at the end is important and we need everyone's help deciding what to do about it, and that is are we talking about energy efficiency or are we talking about greenhouse gas reductions? So right now the plan is focused on Energy Efficiency, but we call out the fact that we're doing it to address climate change. That said, you're absolutely right, there's going to be metrics and potentially benchmarking metrics that don't work if you're only looking at energy efficiency and you really want to value and focus on greenhouse gas emission reductions. We're going to have to keep talking about that and decide what to do about it. And I thank you for that comment, I think that was very relevant.

MS. INMAN: Okay, and I think the renewable and energy storage and all of that could just really be integrated in a really good discussion.

MS. BROOK: Yes, I agree. Thank you.

MS. RAITT: Okay, we should probably open up the phone lines. So if you're on the phone and you don't want to make a comment, please mute your lines now. And if you do want to make a comment, this is your opportunity. So we're opening up the lines.

COMMISSIONER MCALLISTER: There's a lot

of multi—tasking going on out there.

MS. RAITT: Yeah, there’s a lot of people on the line. But I guess we don’t have any.

COMMISSIONER MCALLISTER: All right, well let’s move on -- we’re only on 1.3, so we better get moving here.

MR. JENSEN: All right, so strategies 1.3 and 1.4 have to do with improving assessment and asset rating tools. In terms of assessment tools, what we’d like to do is move away from only allowing Energy Commission approved tools and let contractors have a lot more discretion in what tools they select and use, perhaps with the Energy Commission establishing a minimum threshold for those tools. And so I’m going to talk a little bit more about assessment tools.

Assessment tools serve a variety of uses. A pretty important couple of examples: they can inform either improvements that have to be made to a building, or behavioral or operational changes. Asset rating tools, the primary purpose is with building valuation and, so, particularly with asset rating tools, it’s very important that we have consistency. If appraisers are using these tools to help to inform property valuation, they need to be giving consistent scores to the building owners, and so there's consistency in the real estate market.

An example -- I'm starting to back up a little -- so an example of what we're looking for in assessment tools, there are new opportunities with Smart Meter data analytics for providing assessments with sort of minimal person time required, low no touch tools. And so we certainly encourage that.

So because of this distinction that we feel is important between assessment tools and asset rating tools, we're planning to address these distinctly in the upcoming HERS rulemaking. So are there any comments on either of these strategies?

MS. BROOK: So I'm just going to reflect Marc Costa's comment, which is that we can't ignore the commercial building sector and need to also discuss audit and assessment tools that link nicely with benchmarking approaches for the commercial sector. And then I would also add, on the Smart Meter data analytics, obviously those tools and approaches apply equally to both residential and commercial buildings and we love to see the different offerings that are out in the marketplace today. So one of the things we do think is important, though, is that that industry, that Smart Meter analytic tool industry, work with the Commission and the Public Utility Commission, any other local governments that are interested to perform some type of a collaborative where we can all agree on the right sort of minimum threshold for tool acceptability, so that the utilities that offer these tools for free or at cost to their customers don't have to pick which tools that they offer, we would want them to offer all tools and make all tools available, as long as they've passed some industry test standard. So we would be looking for those types of approaches and working with the industry to make that happen in short order.

COMMISSIONER MCALLISTER: We're seeing small penetration of those kinds of tools. You know, there are engineering—based tools out there that tend to be more costly and tend to be more involved. All of those can provide value to homeowners, and I think we've seen limited penetration traditionally because of high cost and sort of inaccessibility. In many ways, you know, there’s this heady kind of environment where you’ve got a lot of potential. And certainly, you know, a state agency like the Commission and any others is not going to pick winners there in terms of, “Oh, gosh, these are the analytical methodologies that ought to be used,” no, there’s a lot of innovation and a lot of smart people working on that. And with the goal being, get beyond the one or two or five percent participation with these tools that we currently have, and make them extremely accessible and utilized by the majority of customers. And so to do that is going to require some active incubation and, you know, at the same time, as we’ve been saying over and over, we’ve got to worry about customer protection and we’ve got to worry about some kind of minimum performance. And so that’s a place where -- so those minimum standards is a place where the state may be the entity to establish, that might be a proper role for the state. So we don’t want to control this soup to nuts, we just want to protect consumers and make sure that there’s some minimum performance. And so that’s the idea behind 1.3, we’re talking about assessments, we’re talking about occupants of existing buildings who want to do something and they don’t know what it is.

So that is very very different from an asset—type tool that’s all about the building itself, you know, the assessment is about the actual behaviors and usages of the building by the people who live and work in it. So we’ve worked really hard to separate -- to distinguish between assessments and asset rated tools, and they are two different strategies and they are very different. So I just want to be very clear about that.

MR. NESBITT: George Nesbitt, HERS Rater. I don’t know exactly when it was, but the Energy Commission was directed to create a rating system. I don’t know exactly when the HERS Phase I was adopted, but it started about with the 2001 Energy Code, we had what I will call HERS Verification, not HERS Rating. Unfortunately, the energy crisis pushed the further expansion to actually create HERS Rating to about 2008, we were in this room seven years ago, we created a rating system, an auditing system, yet we have pretty much failed to implement it. Yet the HERS

Rating System is really the only system that, a) will give you consistency nationally as well as internally, and not dilute the message we send to customers. Nationally, RESNET, there are over 100,000 homes rated nationally last year. How many in California? Less than 1,000. And that's probably counting only the ones that were rated through the RESNET System, which in theory does not exist in California.

We're seeing builder after builder committing to rating 100 percent of their homes. We're seeing jurisdiction after jurisdiction adopting the HERS Rating System. I believe it was the State of Vermont, I think, basically just adopted the HERS Rating System for Energy Code compliance. It's been written into the 2015 IECC, the International Energy Conservation Code.

So there certainly is a difference between an asset rating and an audit based on actual use, but I also have to warn you, if you want to use actual use on my house, you'll get the wrong answer. My energy inefficient house is already below the low user, according to when I go into my PG&E account and compare it to like houses in my neighborhood, yet I can still drop my energy use by half. So, you know, we need asset rating but you've got to be careful when you go trying to purely go off of people's actual energy use, and I've had to do this for programs.

COMMISSIONER MCALLISTER: So I want to just point out on this point, though, that's exactly the point is that different people living in the same house will have vastly different consumptions. And so the most -- for a person who is not selling their house and who lives in it, the performance assessment is what will provide them with the most relevant information about how they can reduce and change their bill. An asset rating is about the structure itself and is sort of a, you know, the idea at least is to have an objective comparison of building to building to building based on that asset and its physical characteristics. So both of them will be relevant at some point in the life of a building, but they are different tools. So if you already have low consumption, then there may not be cost—effective upgrades to be done to your building. If another person lived in your building with a bunch of teenagers and stuff, then they would want to upgrade their AC system and their hot water heater because they would have a vastly different consumption with actually vastly greater savings potential. So that's the point we're trying to make here, is that the performance and asset are two different things.

MR. NESBITT: But both of those can, and according to the Regulations do exist within the HERS Rating System. So we're supposed to have the ability to tune models to people's actual use. But I have to warn you about that because I've done this with TREAT, I've done this part of DOE weatherization, if you don't tune it right you're still going to get the wrong answer. But the point is we have a system, we have to use it, we have to implement it. We can do all those things with it, but it's the structure that allows us to collect data, share data, you know, gather data. And it's not just about the existing house because that system also is for new construction. So we have net zero energy goals. Well, it's the HERS Rating System is how you define that. And we defined that seven years ago.

MS. BROOK: Okay, let me just -- I think there's other people that want to speak. But, George, I think maybe to reassure you a little bit, we are not planning to start from scratch in terms of an asset rating approach, in fact, we are working more with the National RESNET organization than we have in the past and both organizations are very committed to harmonizing our asset rating approaches so that national and California buildings, you know, get an equal treatment under a rating scheme. And certainly we're going to address this in detail from the residential perspective in the HERS Rulemaking activities that are coming up, and that's where most of our discussions need to be because it's too detailed, I think, to carry on today and get to the rest of our planned strategies.

MR. NESBITT: I agree, but, I mean, what -- if we want to have consistency with RESNET, then we have to adopt fully the RESNET protocol.

MS. BROOK: No, we don't. We're working with --

MR. NESBITT: I mean, and just basically in 2003 I decided it made no sense to use software other than Title 24 software. I mean, already I have to use software to design mechanical systems, then I reenter it, you know, do Code compliance or a rating, and whatnot. We have the ability. There is software out there that with the press of a button can give you the answer for Energy Star Program, for DOE Challenge Home, for RESNET, for different Code baselines, so if a HERS score is going to mean the same thing in California as anywhere else, it has to be calculated exactly the way the RESNET is.

COMMISSIONER MCALLISTER: So I want to point out Strategy 1.4, adopt uniform asset ratings to compare building properties specified by 2016, and our partners on that are, you know, acceding the lead, DOE, RESNET, and other stakeholders. So I mean, this is a strategy within this plan to harmonize.

MS. BROOK: So let's work out the details, George, but, yeah, this is just the beginning of that discussion.

MR. BACHAND: Hi, I'm Mike Bachand, President of CalCERTS, HERS Provider. Good morning, Commissioners and thanks for an opportunity to have this wonderful meeting. We've been waiting a long time for this and the OII is an even bigger train for us, so we're looking forward to both these actions.

I just wanted to make a couple of comments. The term HERS 2 is quite unfortunate because it really doesn't say anything, it's just like the next HERS, but it's whole building and that's a good thing, it's still a continuing market, it got its start in 2010 and it was developed to answer program needs for the American Recovery and Reinvestment Act. And there were different stakeholders involved, there were some who weren't there that should have been and maybe vice versa, so I wanted to make the comment that I look forward to the OII process to not, as you quote -- yay, I get to quote you -- "throw out the baby with the bathwater." And you've mentioned that that's your intentions. We appreciate that. There is actually a sustained market using the whole house, whole energy rating system right now, that's the energy efficient market, mortgage market, it's not huge, but there's still over 200 registered whole house, whole energy raters out there. The OII would probably include quite a bit of retraining and refocusing of what the purpose of the program might be, but it's quite viable in terms of practitioners and not all that small in terms of the states. Since it is market sustainable right now, that's a good indicator that there's people out there that want to do it, and that market could be bigger except that we don't have any interest rates right now, so saving a quarter point on a three percent mortgage is like, you know, a giant "so what?"

So I just wanted to mention that that's where we are right not. There's many 100 or a few more energy efficient mortgages being done monthly right now, so not all 200 practitioners are practitioning, but they're out there. So I wanted to thank the Commission for keeping that in mind.

I also would like to say one more thing about the multiplicity of evaluation tools and software and things. CBECC has been an uphill battle and we all are aware of that, there's headwinds. But it's a good concept that has a -- there's three components to software, there's the input part, there's the engine that makes some calculations, and then there's the output part. I'm not a middle guy, but I'm a front end and a back end guy. So I would encourage making sure as best you can that outputs are uniform enough to represent a low hurdle to get over. Too many output styles, sizes, components, you know, can conflate the issues needlessly, so I would recommend watching for that. And CBECC did a pretty good job of that initially, and I appreciate that, so time's up, see ya later. Thank you.

COMMISSIONER MCALLISTER: Thanks, Mike. So you'll notice -- thanks for being here, Commissioner Douglas and feel free to come back at any moment. So you'll notice we're putting up the clock, and I didn't hear, maybe I just missed it, but we're putting up the clock. We want to get through the agenda today, but we're not going to be super dogmatic about the three minutes if the conversation is robust. So the goal is not just to be cursory about it, but to actually listen to folks' ideas. But I would just ask that everybody, not that the speakers until now haven't, but just try to be economical and say something once and we'll get the point. But the discussion I'm finding very helpful and I hope you are too. So, thanks. Go ahead.

MS. LITTLE: Hi. I'm Debra Little. I'm a Certified Appraiser here in California focusing on residential with home performance experience, or depending on the audience I'm talking to, I'm a Home Performance Consultant with appraising experience. I have more just to talk about the use of HERS with appraising and valuation this afternoon, but right now I just wanted to bring up a point.

In my experience with HERS, first I really really appreciate the concept that an asset rating is looking at the structure and addressing the concerns of occupancy behavior, I totally understand that. It makes a lot of sense. However, in my personal experience and any studies I've been looking, really looking for proof of this, I have not seen many studies that have really proven or shown the consistency in the reliability of HERS Ratings. I have seen many studies and examples of inconsistency and unreliability. So my concern is, if we move forward on this, we need to really work out these problems with reliability.

Two things that I want to address, I have seen a good example in Vermont actually, the Vermont Energy Investment Corp. has a system where HERS Raters are actually decoupled from those that pay their checks, and I think that's a really great -- as a GreenPoint Rater and other things I've done here, I've seen some problems with that here in California and I think it's a relatively simple concept that we can address. It might not be that simple to implement, but the Rater should be decoupled from those that are paying their checks.

And then the whole reliability thing. We have an example of the Stockton, and we have the instructor here who was overseeing that, the Stockton Energy Training Center, as a test house where they were training HERS Raters and over multiple times in one day, using the same equipment, the same setup, we have a huge variety of test results, and there's other studies that you guys are aware of. I'm just concerned about the reliability.

COMMISSIONER MCALLISTER: Yes. I really appreciate those comments and I think Martha can talk about the technical, but I just want to sort of give you the 50,000—foot view, sort of as, okay, we're the State, we're a Regulator, I am going to be reticent to force into the marketplace a tool that has those issues, or a system that has those issues and is relatively expensive. And so my goal is I need everybody to put on their thinking caps and say, you know, let's help the Commission develop, improve the system that we have, make changes, to both make it more consistent and less expensive because if we really want scale, you do the numbers and it's a lot of money real quick. So I don't believe the State is going to be subsidizing this. And if the Commission says, okay, well, everybody must do this, then that's essentially a forced additional cost at every transaction or whatever, so that also will get lots of pushback and probably isn't even the best policy.

So I think you know, this is an area where we have I think for decades have gone at it with good intentions, but you raise some really good points, you know, what's it going to take to really make it work in the real world? And so I think I'll pass the mic to staff here.

MS. BROOK: I agree with everything you just said and I'd say that, you know, I'm conflicted personally because I'm an engineer and I absolutely adore energy modeling, it's one of my passions, but I think we have to challenge ourselves to think differently about it, especially for existing buildings, I think we have to have simpler, more reliable approaches, and potentially you have an approach where you maybe do both, you have a default system for 90 percent of the buildings, or 80 percent of the buildings, or maybe even 50 because people see value in the more detailed approach, but that detailed approach has to be reliable. And if there are fundamental issues that keep it from being that, then that's what we need to address in the HERS proceedings.

MS. RAITT: Can folks on the line please mute your phones?

COMMISSIONER MCALLISTER: Do we have any comments online? We kind of need to move on.

MS. RAITT: Yeah, we can either hold them before lunch break, or if you wanted to take, there are a couple of WebEx comments.

COMMISSIONER MCALLISTER: Well, if they're about these, too, I'd say let's go ahead and do them, and then kind of blast through the next couple here.

MS. RAITT: Is it Marc Costa?

MR. COSTA: Yeah, I think these

strategies of opening it up to the market is a really good idea and, you know, I would definitely commend the Commission for doing this. And also related to this is commending the Commission to moving towards EnergyPlus and list some of the goals calling out for interagency collaboration. You know, we would hope that the CEC leads the way with sister agencies.

Also along with that is not to ignore the administrative side of how these tools would be used. The plan calls for simplicity and access to information and processes, and this is only relevant if these tools and the practitioners that are using them can do something with them and can submit it somewhere. So we would hope that the administrative side would also be a priority.

And then lastly, there's opportunity for research and later in the document, Figure 3.2 has a nice work flow on how some of these new tools could be integrated into, say, an IEPR or a potential Goals Study. So we hope that all those would be taken into account.

COMMISSIONER MCALLISTER: Thanks.

MS. RAITT: Okay, next is Michael Nguyen.

MR. WREN: Yes, this is Michael from the Southern California Regional Energy Network. A question for Erik. You mentioned using AMI data to support access rating. Can you explain how AMI data fits into access rating since AMI data is attributing label?

MR. JENSEN: So I didn't -- if I said that, I misspoke. So usage data would be to inform operational assessments and asset rates would be based on just the building and equipment, yeah. So does that answer your question?

MS. BROOK: Mike?

MR. NGUYEN: No, so you -- go ahead.

MS. BROOK: Michael, this is Martha. So to clarify, I think the way that we've laid it out in the plan, we're presenting Smart Meter data analytics more as an assessment approach than an asset reading approach. But that said, we have talked to stakeholders who believe that kind of a best practice asset rating approach would actually consider building energy use data just because it could actually help you do a better job of your estimates of the property relative energy performance if you actually trued it up to energy use. But that's sort of a detail.

For the plan, we are focusing data analytics as assessment opportunities, not property valuation approaches.

MR. NGUYEN: Okay. So at So Cal REN, we strongly support AMI data in whatever we can to lower the cost and to collect information on a more real time basis. So I'm glad to hear that you mention Data Analytics because if the CEC has an initiative on that, it would be very interesting, especially a low disaggregation from whole building data.

MS. BROOK: Okay. Thank you.

COMMISSIONER MCALLISTER: Thanks.

MS. RAITT: Okay, I think the last person on the line is Tom Conlon.

MR. CONLON: Thank you. Tom Conlon with GeoPraxis here in Sonoma. On the same topic we've been discussing here, assessments versus asset ratings and the use of data, I'm encouraged by the conversation this morning because framing the rating discussion within a context of benchmarking and the availability of data is exactly what's necessary to move us forward.

When we worked on the HERS 2 standards, the technical standards, it was always a concept that the asset rating should be simultaneously informed by actual billing data. Whether it was integrated into the analysis by the rater, by the analyst, and used to calibrate the model and provide an operational assessment of the billing performance at that period of time, that was one track. But it's also important to keep the two separate, to have the asset rating of the building separate from the performance information. That can be a diagnostic indicator to the analyst, to the rater, to the customers, to the owners because those discrepancies can be very important. And so as long as we can keep that clear as we move forward with this new system, or improved upon system, that would be helpful to all. So that's my only comment at this stage. I look forward to getting in the details of this as we move forward. Thank you.

MS. RAITT: We can go back to the presentation. Thank you.

MR. JENSEN: Okay. Strategy 1.5 is Building Efficiency Standards Development and Compliance. An area of development we'd like to focus more attention on is existing buildings, specifically. So while the Standards do cover both newly constructed buildings and existing buildings, a lot of the press that you see about, for example, how much energy a new set of Standards will save, well, we'll just speak to newly constructed buildings and a lot of our outreach also focuses on the measures for newly constructed buildings. And so where we'd like to focus on more on existing buildings, specifically, we'd like to look at how we're analyzing cost—effectiveness for existing buildings, we'd like to look at improving water efficiency in existing buildings and, as I already mentioned, we'd like to provide more focus to outreach and education on existing buildings. So that's Standards Development.

In the area of Compliance, I really want to rethink the compliance and enforcement process. We'd like to build a mechanism that encourages Contractors to always meet code as part of their business practice and not have to put customers in the position of having to choose between permitted and unpermitted work. So that's 1.5

Do we have comments on that strategy? It looks like we do.

MS. ETTENSON: Hi, Lara Ettenson, NRDC. I just wanted to highlight that some of the language in this on page 50 that references simplifying is a little concerning to NRDC simply because it leaves the door open for potentially weakening the Code for retrofits. I don't think that is the intention, but I think that we should be very explicit that our goal is really to do whatever we can to touch a building at the time we get there, to ensure that the customers are empowered to demand quality for good, up to Code installations, and that the industry itself is also motivated to comply with this, with both a combination of incentives and penalties. And so I think that we'll provide some specific language adjustments to make sure that that is non-disputable if that's what the Commission is indeed intending.

MS. BROOK: That sounds great. And I think our intent was to simply, was really on the compliance part of it, that there are some fundamental issues with how complicated it is, and that's why.

MS. ETTENSON: We support that.

MS. BROOK: Contractors are offering two different options, so….

COMMISSIONER MCALLISTER: Yeah, I mean, we've heard over and -- we had a pre—draft draft a while ago of this thing, we did a road show around the state, and we got an earful about this issue from people that are trying to do the right thing, they're trying to comply with Code and they're trying to do a project that -- and they're also trying to give the client what they want and come in at budget, right? Or like a reasonable budget, and they pointed out in a number of places where the Code was just, they didn't really know what they were supposed to do with an existing building. Does it trigger this or that? And so partly it's just making it more plain language in a way. But we do, I think, need to acknowledge, you know, as Erik said, the Code Updates are driven by new construction for the most part. And so existing buildings are different. And applying that Code to an existing building does present some complications. So certainly, you know, I understand your concern. Certainly streamlining or simplifying is not Code for weakening. But I think we need to make a good go at doing what we can to be explicit about the existing building case versus the new construction case, and sort of try to make it easier to do compliance because, in actuality, we're probably getting a lot of noncompliance and a lot of underperforming buildings in alterations because of the fact that folks are like, "Oh, my Building Department doesn't even understand it, so they're not going to enforce it, so big deal."

MS. ETTENSON: Uh-huh.

COMMISSIONER MCALLISTER: So there's probably an alternative path that we need to talk about that says, "Okay, how do we get people to comply and what does that look like in the language of the Code that people actually have to work with?"

MS. ETTENSON: Sure, and I think on that note I know there is effort already going on with the Demand Analysis Working Group, but what you actually getting up to Code in retrofits is a big sticking point, one that is inhibiting a lot from happening with investor-owned utility programs. So I think wherever there are links -- I know Martha and I spoke about this at length quite a bit ago, and I think that should be something that's woven into this, and something of a priority, as well.

COMMISSIONER MCALLISTER: Yeah, so I would -- so for every shorthand slide up here with the strategies listed, there's actually a larger table in the plan, and so Strategy 1.5 has a table on page 51, and it's got a number of points in it that are more specific actions that we would take. And so comments on those, are those the right ones, and how we would update those and, you know, are we on or off mark, I think would be really the kind of most relevant comments. So if you could sort of start with the document and raise flags and comments that would be perfect.

MS. ETTENSON: Thank you.

MS. LE: Hi. Uyen Le. I am representing the International Brotherhood of Electrical Workers, Local Union 11. We're based out of LA County. I'm the Compliance Representative.

COMMISSIONER MCALLISTER: Thanks for coming.

MS. LE: Thank you very much. And I wanted to talk just a little bit about enforcement capacity locally in different municipalities you've mentioned. I think there needs to be attention on how this capacity can be increased both by training, as well as maybe even staffing to handle the increased scale of this work that we expect because there is going to be more work. And then also, you know, for some of this permitting, it might help to think through from the local government perspective, are there folks who have this expertise who can shepherd a project through because a lot of times it's just a matter of having a person aware of, you know, the new Codes to shepherd some of these projects through that might help on the local government side with implementation.

The next piece is related to the CPUC and the need to coordinate, is for existing buildings, a lot of them were built up to Code at the time, but are now currently not up to Code, and so the issue with what's called attribution is, you know, you only fund things that are built beyond Code because you don't want to fund free riders, you know, people who would only do work to get their own buildings up to where it should be anyways. But that's going to be a problem for existing buildings because they were built up to Code at the time, and so when they need to improve, or you want them to even improve up to the Code now, they're going to need that financing and the source of financing is rarely available for that. So just to keep in mind that that attribution is going to be a coordination issue, I think, with the CPUC. Thank you.

COMMISSIONER MCALLISTER: Yeah, I think we've mentioned that in the plan and there's an ongoing discussion between the agencies about that issue. And there are some strategies in Part B there of the compliance improvement where it would be good to have your comments on. Are those the right things, you know, understand the compliance shortfall is the first: what are these free riders and quantifying them is a big deal. I think Jeanne has a comment here, too.

MS. CLINTON: Martha was suggesting that this would be a good opportunity to tell folks that the PUC heard this issue loud and clear last year, and it is teed up as an issue in the current efficiency proceeding, in fact, it directed the staff with the two agencies to work together on this and to better understand how everything fits together, not only how attribution occurs in terms of PUC world for attributing savings credits to utilities, but also how this works with the analysis here at the Energy Commission on the cost-effectiveness basis for adopting standards to begin with, and then how information flows into load forecasts. So long story short, there is going to be a public workshop that the PUC holds with the Energy Commission staff on April 28th to try to dig down into this issue and figure out how we make everything sync up better.

COMMISSIONER MCALLISTER: And if you'll look at the bottom of that table on page 51 where we talk about the various sub-strategies here in 1.5, you know, on the HVAC front, you know, there's a fairly robust discussion about whether the Commission or somebody, but probably the Commission, we should put together an HVAC Serial Number tracking system that actually tracks what equipment comes into the state and where it gets installed. And that will quantify the -- then we get this sort of permitting information from the local building departments and we match them up. And we see that only five percent are getting where those are. So that's something that would take resources, it would be a fair amount of effort for the Commission and would need budget and all that kind of stuff. But if that is what the marketplace needs to sort of get its act together in terms of permitting, you know, I want to make it easier to comply on the positive side, but if that's the stick we need to sort of expose what's going on in the marketplace, then we're willing to do that. And if there are significant savings left on the table, we may have to. But that we didn't put that first, we put it last because we want to help the marketplace work out its issues so that we get compliance. If we don't, we might have to be more kind of aggressive with understanding and going after the non-compliance. So that's why this series is like it is. So, Jan.

MS. BERMAN: Hi. Thank you, Commissioner McAllister. I'm Jan Berman representing PG&E. And I'm going to set aside the very tricky issue of compliance for the moment, which I think you've just spoken really well to, and consider the question of a building owner who faces a choice of deciding to do a project that would trigger a retrofit Code, or do nothing at all, which is a completely legal action, but leaves the building in a less efficient state.

And I wanted to just ask a question. What are your thoughts about addressing that market space of people who may not be motivated, or financially able to take up the project that would trigger the Code and do the full Code compliance?

COMMISSIONER MCALLISTER: So probably best to defer to staff on this, and part of that is what Jeanne was just talking about with figuring out what's going on with those, you know, hopefully unpacking that issue to see what's being left on the table, or unpermitted projects is another path, it's not legal, but that we know lots of people do, right? So maybe Martha or other staff.

MS. BROOK: Yeah, I mean, that's almost like a "when did you stop beating your husband" kind of question, right?

COMMISSIONER MCALLISTER: Laughing.

MS. BROOK: That's, you know, it's huge. If we could fix that, we'd be a long way in reaching our goals. And one of the things that we're going to talk about at the April 28th workshop is our assumptions about equipment turnover and lifetimes. And I think that's sort of buried in the question, is that we're assuming that every ten to 15 years people replace old equipment and install new equipment that by law has to meet a certain efficiency level, right, I mean they don't even get a choice because no products can be sold in California that are less efficient, right? Well, the problem is that there's other Code requirements that make that action expensive. And people aren't doing the replacements at the rate that we are assuming in our long term forecast, in the investor-owned utility cost-effectiveness calculations, all of that is assuming that things break and people replace them. And what we're finding out is that there are 50 and 100-year-old boilers that aren't getting replaced. And so that's what we really need to address in that Code baseline discussion is how do we help people see that there's value in those equipment replacements and help them actually find financing opportunities to help them accomplish it.

I heard an anecdote that was very

discouraging, that it was actually cheaper for a building in San Francisco to put renewable technologies on than to replace a boiler. Part of it was because of the available financing in both camps. And so those are the issues that we really have to acknowledge first, and then figure out ways to address.

MS. BERMAN: Thanks. I think that was very helpful perspective and I concede that, while we have some limited data that helps us understand the noncompliance issue, this issue of understanding the population of people who simply aren't adopting, or aren't making Changeouts is even a more challenging data question.

COMMISSIONER MCALLISTER: Well, maybe there's a way to draw a line, sort of what -- I guess a question -- what criteria would we use for an existing building? How bad would it have to be in terms of its existing efficiency currently for us to sort of throw caution to the wind in terms of the program, you know, the cost-effectiveness thresholds or whatever for that project and say, "You know what? We're just going to help that project be get done." Right? So, you know, what line would we draw in terms of

-- and those least efficient situations, you know, current conditions would be the most cost-effective projects in some ways. I mean, you've got asbestos or something, that's maybe different. But how can we compartmentalize the existing building marketplace to then go to focus on the buildings that most of us can agree on we ought to put the sort of net to gross free rider question aside and just get it done? Right? Can we just get some subset of existing building projects just done? And so I think that's a different conversation in the PUC and in the Energy Commission, we look at it from different perspectives, but hopefully we can come to some mutual understanding of like what the public policy imperative would have us do.

MS. BERMAN: And there was some helpful discussion earlier of the new tools that we're starting to see on the market for remote auditing that may help us begin to understand where at least do we think the least efficient buildings are. Are they older? Are they in the areas that geographically they might be more economically depressed where people don't have the access to financing or capital to do the upgrades? So I think that will be a very interesting dialogue to have. Thank you.

MS. HAWES: Hi, Lindsey Hawes from the Center for Sustainable Energy. I thank the Commission first off for an opportunity for having what feels like a very thorough conversation, and I'm really encouraged by the Plan and especially some of the focus on local government leadership.

I want to talk a little bit about local government Building Departments today. Commissioner McAllister, you said it, you know, while Code updates are driven by the new construction sector, existing buildings are different and the way local Building Departments implement the Code with regard to existing buildings and alterations is also different.

And in working with Building Departments over the last year or so to look at and sort of assess strategies for streamlining the residential HVAC alteration permit process, the number one lesson that we've learned is that building departments do not have the resources necessary to implement and enforce the Code. And for the most part, Building Departments don't see themselves as enforcers of the Code, they simply implement. And to the extent that they can find noncompliant actors in the marketplace, they feel very limited and do not have the political leadership necessary to do that.

And so anything that the Commission can do to take that sort of strain and even maybe that responsibility off of the local governments is going to go a long way. And really these Building Departments need tools and resources that can facilitate consistency and simplification, so not only simplifying the Code, but actually helping them simplify the process to implement and enforce and achieve compliance.

So whether or not some of those solutions include things like incentives to bring existing buildings up to Code, serial number tracking, development of a statewide permitting portal that allows for that consistent process in a really simple to access, web-based, Internet-based way, I think those are going to go a long way.

I’m encouraged by some of the reports that have come out recently, the BayREN just released their PROP Report and a lot of really great practices identified there that the

Commission can support in implementing at the local Building Department. But I just want to stress, and I know we're going to talk about the local government challenge in a few slides, but any opportunity that the Commission has to funnel resources funding whatever it takes into those local Building Departments is going to have a big impact, and it's absolutely necessary if we want to achieve some of these goals around compliance attribution, etc. I think that's it for me, thank you.

COMMISSIONER MCALLISTER: Thanks.

MS. SKINNER: Nancy Skinner. On the Compliance issues, I wanted to reiterate support for the simplifying aspect and maybe we need to break it down in terms of building categories. I don't know if we have data on what is the relative time of -- what percent time do our local government building inspectors spend on the Code enforcement in terms of single family homes, retrofits, or rather remodels of single family homes versus new construction versus large commercial buildings.

And my guess is that the individual actions on single family homes is probably the largest percent of the Building Inspector’s time. And so it would appear to me that, if that was the case, that simplifying that part of the Code within the single family home might get us greater compliance. And it’s certainly, we know anecdotally, that a lot of contractors say, “Well, I carry this around in my truck because I just stick it in so when the Inspector comes by, then I tear it out again, so you don’t have to worry about it.” Right? So issues like that.

Or we also know of the large percent of not even taking out a permit. So since we want to increase the taking out of a permit because, of course, you don’t get any -- well, not that you don’t get any, but you’re likelihood of compliance is that much lower if no permit is taken out, that activities that we can do to help whatever, make the permit process simpler, and then the local government’s Code Enforcer process simpler, I think, is beneficial.

Finally, I wanted to say that we may not want to do that for certain categories of commercial buildings because the savings is so great that it may not be in our interest to simplify it, but it may be within the single family structures. So I just think those are worthwhile.

And finally, if we look at roofing alone, and I don’t have the date before me, but there’s been some speculation as to what percentage of, for example, single family homes never pulled a permit for a roof, so thus we’re missing out on the cool roofs. Cool roofs, as we know, just in and of themselves would have a very significant reduction in the HVAC needs within those homes. So if we can increase just the pulling of the permit for roofs, we’re going to get --

COMMISSIONER MCALLISTER: That’s a great point. And at that roof pulling moment, there’s actually an opportunity to really go farther and get some additional insulation, or educate them about solar, or whatever, so I think there’s a lot of ways that the marketplace could really integrate much much more effectively.

I guess one question I have is, you know, there was this effort a few years ago, a couple years ago, it concluded I think to look at best practices at Permitting on the solar side, and it was driven originally by the Governor’s Office and OPR, and you know, had a broad set of stakeholders and they ended up with a nice document, you know, that this is the official document streamlining in permitting. So there were also other efforts legislatively and things, but I guess one question I would have for everyone is, is an equivalent activity or effort on the energy efficiency side warranted, you know, to drive a discussion at a high level and work with a variety of jurisdictions and convene them and sort of work some of these issues? Because I think it might or might not be helpful, I'm not clear, but it would be great to see if people thought that was a good idea.

MS. SKINNER: Well, getting more granular, it may not be helpful -- well, I don't want to say it may or may not -- but taking on trying to do it for all categories of buildings is a big chunk.

COMMISSIONER MCALLISTER: Yeah.

MS. SKINNER: But perhaps when we look at the data, 37 percent of your use is within single-family homes, you know, total building energy use, at least in terms of the data I saw, and if that area alone could be improved in ways that are low labor, low administrative time, either on the Commission, or on the local government itself, we may get some big return. So I would look at it granularly.

COMMISSIONER MCALLISTER: Great. Thanks.

MR. CHANGUS: Jonathan Changus with the Northern California Power Agency. And I wanted to make sure I was on the record saying something positive and supportive because I don’t feel like that’s always my MO.

COMMISSIONER MCALLISTER: We appreciate that.

MR. CHANGUS: Certainly. This is one of the areas and I think, so far in reading the Plan, you guys have really just framed the issues incredibly and there’s a lot of support from our members on a lot of the comment challenges about the difference between Code for new buildings versus existing buildings, I think that’s very well framed out. I think focusing on simplifying if you are going to do Code for retrofits, making that as simple and straight forward a compliance pathway for the customer to pursue.

As you heard, there have been challenges in the past and I think trying to correct the record on that is really important. And along the lines of that is making sure that there's clear direction for utilities as far as best practices for the two Code savings. While public power obviously is not governed by CPUC decisions, there was policy to kind of set the tone for the best practices in the state were regarding what utilities should be providing incentives for. So in addition to making the process simple, making sure that there's clear direction and encouragement for utilities to play an appropriate role where we can in encouraging and rebating and incentivizing those two Code savings. And that's accurately captured, but we obviously need to flush out some more of those details, but I think this is an area where the Plan is very much headed in the right direction. And it's one of those I think critical areas to get it right because if we focus on the benchmarking and the assets rating and the assessments, but then make it really really challenging to actually pursue the savings, outside of some of the operational behavior changes you get from being just more cognizant of what's going on, then we haven't quite hit it there, so I'm really pleased with this portion and comments will reflect that, in written, as well.

MR. NESBITT: George Nesbitt, General Contractor. I'm going to speak from the other hat I wear. In 27 and a half years, I have literally never had to comply with the Energy Code. You laugh, but it's literally true. And on occasion when it has, it's been misapplied. So even when you pull permits, I've installed furnaces, new duct systems in the City of Berkeley, I'm going to point at Billi and make fun of her today, that required HERS verification, all new duct system, new furnace. There was not, nope no HERS verification, even with a permit.

I've installed commercial water heaters in residences that prescriptively don't comply with the Code because they're not rated with an Energy factor. I've worked on $2 million remodels, you know. Now, when I do the work, I'm trained, I know how to do it right, I was taught right, and I have that ethic. But I can tell you, 99 percent of the industry doesn't. So if there's not a permit, you're not getting Code compliance; even if there is a permit, you're not getting Code compliance. So you know, we have all this work going on, yeah, we're saving some energy, but we're not saving what we should. And, see, I did M&V for the Northern California Power Authority 13 years ago, massive rebates on air-conditioners and furnaces, not a single duct system below six percent, 75 percent of air-conditioners charged wrong, low air flow, we know all this. Sadly, we Codify and even incentivize not doing a job right, so it seems under Energy Upgrade California you can still install a furnace and not necessarily tighten the ducts or get the charge right, yet we'll throw money at you.

And yes, the Code is complex. If you take all of Title 24, all the Building Codes, the Fire Codes, Electrical Plumbing and Mechanical, Calgreen, there's like almost 6,000 pages. If we unravel the Energy Code, between the Standards, the Appendices, the ACMs, the technical manuals, the Residential/Nonresidential Manual, there's something like 3,500 or 3,700 pages, okay? It must be hard.

I've been working on trying to actually simplify that and definitely, and I've brought it up, existing buildings and new buildings, the time is for them to diverge more in the Code than they have in the past because we've ratcheted up new construction.

Just a couple other things I want to hit on real quick. Cost-effectiveness. We sell ourselves short in this industry by selling purely on cost-effectiveness. Comfort gains, health gains, there's a lot of other benefits. Existing Buildings? It's incremental costs, so if you're going to replace a furnace, it's not the whole cost, so I think often we've applied whole cost. And then we also need to start capturing water within new construction, as well as the rating system, and the efficiency of your fixtures and the whole distribution system related to your water budget.

MR. HARGROVE: Matthew Hargrove with the California Business Properties Association. Thanks for having us here today. This point of the cost avoidance that we're seeing in our industry right now because applying new Code on TIs, that's a decision that's being made by tenants, not building owners, and that's something that we do think that the Commission staff really need to take a look at more on the commercial side.

Even in San Francisco, who has prided itself on being so far out above and beyond California in many of these Building Codes, we're seeing cost avoidance now coming in from tenants who, when they want to do a six-year re-do of their office area, and they're coming back with the costs not coming from the building owners who want to do this with the managers, but from the General Contractors who are saying just meet minimum code for the lighting controls, this is what it's going to cost to recondition your space. We're seeing tenants saying, "Well, it's not worth it for us, throw up some fresh paint, we'll buy some new furniture, and we're not going to do the TIs." And that's a direct correlation with applying the new very very strict Energy Code to reconditioning of office space and other types of spaces. That 28 percent jump last time in Title 24 was great, theoretically and was great, you know, for a lot of groups put out press releases on, but we are now seeing cost avoidance out in the marketplace with sophisticated companies that don't normally seek to avoid those costs because they're seen as cost of doing business in California, but you may have hit a tipping point on some of this.

We would say on the energy on existing buildings, spend a few years just applying current Code, don't create a whole new program. Educate and enforce, and you're going to meet a lot of the goals that you're talking about today. Thank you.

COMMISSIONER MCALLISTER: All right. Anybody want to comment on the phone or Web?

MS. RAITT: Yes, we have Marc Costa.

MR. COSTA: Yeah, I think a lot was already said. I think in the Action Plan, the below Code issue is very well articulated and cost-effectiveness definitely needs to be addressed, especially for existing buildings. One of the gaps that maybe is not so well addressed is the administrative side of permitting. You know, the tracking system sounds great, but getting that information from the Building Departments, especially historical data, may not be as easy. And I'd love to see some kind of uniform specification or protocol for the administrative side of Title 24 compliance. You know, statewide portal sounds great, but pulling a permit has so many more complexities than just the Energy Code. And so if these were baked in to standard industry practices, I think that would definitely go a long way.

And you know, lastly, harmonizing the incentive process with the enforcement process could yield a lot of benefits.

COMMISSIONER MCALLISTER: Thanks.

MS. RAITT: That’s it for the phone.

MR. JENSEN: Okay, Strategy 1.6 is Efficiency of Plug-In Loads. Here at the Energy Commission, we’d like to increase our resources in the appliance area so that we can increase the scope of appliance types that we can include in our regulations. We’d also like to partner with R&D and Emerging Technology Programs, as well as other states to incorporate new technologies into the types of appliances that we already regulate.

Recently we’ve had SB 454, which granted the Energy Commission the authority to issue fines for noncompliance, and so we have the potential there to get full compliance, which would be great.

We would like to, for appliance types for which the Federal Government has regulations in place already, so for which we can't have our own Regulations, we'd like to work with the DOE to improve the efficiency of those appliance types, and again for these types where we have Federal preemption, we do have opportunities to require higher efficiencies or high qualities through specification of, for example, for utility rebate programs, so we can, even if we can't require higher efficiency for the sale or offer for sale of these appliances, we can suggest that utilities have higher requirements for their programs. Are there any comments on this section?

COMMISSIONER MCALLISTER: I would characterize Plug-Loads as just one of the places where we just have to -- it's the remaining sort of the new frontier after we get the building shell, etc., and mechanical addressed through Code. These are discretionary load for the most part, and there are lots of them and they're growing. And so we have to figure out how to address them, and that's the intent of this strategy and would love to hear comments starting with Lara.

MS. ETTENSON: Surprised to see me here?

COMMISSIONER MCALLISTER: Not surprised at all, first in line.

MS. ETTENSON: Lara Ettenson, NRDC. And this is great. As you know, NRDC has been a big advocate of increasing savings from plug load, and I would just suggest that we add more explicit strategy, I'm looking at page 53, and will of course put these in comments, that the Commission, or maybe through the collaborative that you set a statewide target for plug load so that we're actually guiding the efforts towards an end goal to make sure that we get as much as we can from there.

And in a similar vein of leveraging this collaborative that we're also supportive of, and we'll be back up at 1.9, any market trans-formation effort should be highly coordinated with what's going on at the CPUC, and you have Gene and Mindy here, so I'm sure that will happen. And I just wanted to make sure to note it for the record. Thanks.

MR. MESSNER: Hi. This is Kevin Messner.

COMMISSIONER MCALLISTER: Hey, Kevin.

MR. MESSNER: Political Logic --

COMMISSIONER MCALLISTER: Not surprised to see you either, man.

MR. MESSNER: Yeah, I know it's a shock. I represent the Association of Home Appliance Manufacturers. What I actually wanted to talk about is supportive of an area in the area of Appliance Efficiencies on the early replacement of equipment that you guys have.

We have a large analysis that we did to look at the potential energy savings in greenhouse gas emissions of an efficient early replacement program. DOE has actually scheduled a webinar, we'll go through the technical analysis, it's very technical and it's an hour and a half webinar that hopefully will lead to other stakeholder groups. We actually wrote a letter with NRDC to the EPA Administrator on this, and on a related note, with the Governor's Drought, with the Efficient Appliances, we'd love to meet with you and with NRDC to talk about the rebate program before we get too far along for efficiency rebates. We worked together on a bill last year on clothes washers and there's also dishwashers, so would love to meet with you as soon as you're ready on that.

COMMISSIONER MCALLISTER: Yeah, great. That will be happening, just fyi, on the appliances, we've been tasked by the Governor through his Executive Order on Water to put together an Appliance Rebate Program focused on Water Appliances, and there's some urgency, obviously, and looking at shaking loose some funding for it through the middle of the year, in the meantime we need to get the program design underway. So that's going to be happening in some earnest in the coming weeks and months, but it won't be long.

MR. MESSNER: And we'd like to sit down with you immediately to just -- so you could listen to our thoughts as you're going through that so it's not too late, and to help guide you because we have a lot of good data on this, so I think it could help you.

So related to this on early replacement, one example I wanted to throw out we did on refrigerators, which will be part of this webinar, this is a California estimate, we did it on national savings, but based it on population of households, if you do a rebate program and an early replacement, you're looking at about 44,600 gigawatt hours of savings just in California, a carbon impact of 2.8 million metric tons, and it's only at a cost -- we did a cost for looking at the utilities' perspective to see what the cost benefit would be, you're at about 2.3 cents per kilowatt hour.

And what the concept is, is you need to link the purchase and disposal rebates together, so when you do these rebates, also this would be part of the Drought initiative as well, you need to make sure that these old units get off the grid. And so if you link the two together, purchase and disposal, you reduce a lot of the free ridership, you increase the synergies at the savings, you can mark it from the appliance manufacturers, and the rebates have a larger -- one rebate instead of having a $35.00 disposal rebate and a $75.00 purchase rebate, and then you have to pay for an empty truck going to the home for a disposal rebate, which that goes not to the consumer, but someone else. You can take all that money and now you're talking $100.00 plus, which will really change a consumer's behavior. So we really need to link those two together. The current rebates are great, but this will add to it, modernize it, and really enhance it, and this could be a lead area to do this.

One other last thing since the PUC folks are here, as well, the PUC, though, to be frank, has got a lot of barriers that prevent and really reduce the effectiveness of efficiency rebate programs, and we really need to address those, and so I would hope that you guys work together on that, as well. One example is the DR Database, it’s 11 years or something for refrigerators for useful life, which is just so far off the mark. We have data that’s at 20, 25 years. DOE uses 17 years, and that really is creating -- utilities can’t make the cost benefit work if there’s all these crazy evaluations of 11 years useful life, or you have to have a disposal of a certain age of a unit. We have numbers and they’ll be part of this, showing that having a set age for disposal unit really reduces the energy savings. So there’s a lot of issues here, would love to work with them. I think the Building is a great spot to work it, and one last thought, sorry, on the buildings, too, one suggestion you could look at the Federal GSA San Francisco Regional Office, and also HUD Public

Housing Buildings, is a good opportunity. It's hard to get at the rental units for all the various cross purposes and incentives and things like that, but don't forget about possibly working collaboratively with GSA and HUD.

COMMISSIONER MCALLISTER: So are you talking about bulk procurement?

MR. MESSNER: Yeah, you could do that through bulk, or just replacements. So, for example, HUD Public Housing, they may have older refrigerators in there and HUD is not paying the electricity, and there's low income people, so it's hard to get at. And you could get a really large block if it gets cooperation with them.

COMMISSIONER MCALLISTER: Thanks.

MR. MESSNER: Thank you.

MS. CLINTON: This is Jeanne Clinton at the PUC. Mr. Messner, if you don't mind coming back to the mic, I have a question for you. An issue that hasn't come up today, but does relate specifically to plug loads and appliances is one of the Governor's goals is to reduce the climate or greenhouse gas footprint of appliances, including a cleaner footprint for what are now gas using appliances. Do you have any thoughts to share on going after getting higher efficiency gas appliances as opposed to changing out from gas to electric appliances?

MR. MESSNER: Right. So clothes washers is another good example, so clothes washers you get at the water and the electricity or gas -- or, I’m sorry, dryers, with gas or electric dryers. The dryer savings right now for the old or the new, and we’re kind of looking through that data now, and DOE is looking, and there was looking at an Energy Star for the first time for dryers. But gas and electricity generally, and I don’t have the numbers off the top of my head, but to give some impact on how appliance efficiencies have gone, for clothes washers, there’s 70 percent more efficient, and for refrigerators, they’re half more efficient, or, yeah, half the efficiency -- twice the efficiency of what they were about 20 years ago. Now, gas, we have dryer and we have ranges, and those two have generally been, there’s a DOE non-Standard for ranges because just the physics, it takes so much energy to boil water, and it’s hard to change the law of physics. But with that said, DOE is looking at that area right now and there’s induction and things like that they're looking at.

But for those two areas of gas, it's a longwinded answer, but dryers and ranges, I'm not sure right now on what the thing is, unless there's talk out there of other technologies, but those are areas where really, laws of thermodynamics are in there and you're drying clothes, or you're boiling water, so we're looking at it but I don't have any big numbers to wow you with on where those would be right now.

MS. CLINTON: So just so I have a correct understanding of what AHAM represents, do you represent water heater manufacturers and HVAC manufacturers?

MR. MESSNER: So, no. So in the Association world, we represent all the appliances, not water heaters and not HVACs, and not Consumer Electronics.

MS. BERMAN: Hi. Jan Berman with PG&E. This area of plug loads is a vexing one because it's one area where we're continuing to see growth in consumption, rather than a de-acceleration or slowing in consumption. And the market has changed a lot from a time we could focus on a small number of big ticket purchase items to now we're talking about loads of very small purchases that are adding up to big plug loads. So this is one reason that we're starting to think about shifting the focus to give customers the full surround, whether they're online or in the retail environment, or working with trade professionals doing their purchasing decision. It needs to be very easy to obtain the most efficient appliances that are in the market, which means they need to be manufactured, stocked and available for sale either in the retail environment, or in the wholesale distribution environment for those appliances typically purchased through a trained professional. It's a very different way of considering the energy efficiency decision, and one which I think will benefit from even a nationwide perspective on how utilities and Energy Star, and retailers can work together on making sure that the efficient equipment is stocked, properly displayed, it's obvious to the consumer that that equipment is more efficient, and they're guided online and in the store environment to purchase it. It will definitely require some changes in the way we think about what transformational energy efficiency is. Thanks.

MR. OKADA: Hi. Derek Okada from Southern California Edison. I want to commend the CEC for supporting CalPlug and some of the research that has been going down south, which has been gathering some of the industry partners to work on trying to solve some of these issues such as the set top box has been always on, yet I wanted to clarify that the IOUs are also pursuing some innovative opportunities to look at the install base, which the voluntary agreements don’t necessarily address because the turnover rate is only maybe at most 20 percent of the industry. So some of the challenges that the utilities face are some of the installed base two Code and aggressive Code actions that eventually then limit the incentive programs being able to catch up in time because it takes roughly two to three years sometimes to get through the hoops to get an incentive program from a pilot to an implementation phase. And as market coordinators working with industry and others that are really looking to move quickly in the marketplace, it’s sometimes often challenging to get those programs in operation and then later to be removed because of dispositions which then dismantle programs that have been effective. So essentially the IOUs really have a limited opportunity when you look at the Consumer Electronics base offering, previously measures in electronics, TVs, etc., which no longer are available.

So quite honestly, trying to address these has been left to the Code side of the house to address this, and yet there's also Federal preemption that also limits the opportunities for the Codes and Standards teams to actually work timely to get Code Action.

COMMISSIONER MCALLISTER: Yeah, thanks for your comments. I mean, I appreciate all those constraints. And we've tried in the Plan to kind of talk about, well, where we have authority to do things where we're not preempted, and then try to have more of an influence where we are preempted at DOE proceedings. You know, the dynamic with any individual device is going to be contextual and specific to that device, but I think one thread of comment that I would like to see is folks talking about where we can best use our authority to harvest savings in the most straightforward way. You know, we've seen there's quite a bit of discussion and some action on voluntary agreements and, you know, my own view of that is that they often happen because there is a threat of regulation, and that's what they're trying to avoid. But that dynamic, I think, is important to leverage to get results. And so how can the Commission best help push the efficiency envelope for any given device or group of devices? I think folks informed opinions about that would be helpful.

MR. NESBITT: George Nesbitt, HERS Rater. Plug loads have certainly been a growing problem and I think actually California has done pretty good in regulating what it can. Obviously maybe there is more we can do. The HERS Rating System allows us to account for plug loads, although we do have limited ability, we have a little more flexibility with certain appliances and lighting to model it and to do savings and I think we need more, I mean, I think that's one of the improvements we need.

And then also we've always regulated, or long regulated, lighting use in nonresidential, a certain amount of energy per square foot. But we have not in residential. So we've got kitchen remodels with more lights than in my whole house. I've seen kitchens with 1,000 watts of high efficacy light to justify their low efficacy lighting. We've regulated, yes, you need high efficacy in the kitchen, or the bathroom, oh, yeah, you need a manual on occupancy sensor, but you can put in a ballpark stadium lighting system in your house. So we have to make lighting part of the budget. I'd say in the nonres, to solve some of the problems in the existing buildings, we need to make it trade-off able in the budget for existing buildings, and the point being that you do a lighting upgrade and you generate savings as opposed to what's happening now, is we're getting to the point where people aren't upgrading, so we aren't getting savings because they can't meet the Code. What we care about is savings.

MS. BROOK: Are you saying that we move mandatory requirements to prescriptive requirements? Is that what you're saying for nonres lighting? So that you can trade them off?

MR. NESBITT: That may well be, yes.

MS. BROOK: Okay, thanks for that

clarification.

COMMISSIONER MCALLISTER: All right, anybody on the Web or phone?

MS. RAITT: We have Eric Emblem. We've had some trouble getting him through, but let me try to unmute the lines. So if you're on the phone, please mute your line unless you're Eric.

MR. EMBLEM: Hello, this is Eric.

COMMISSIONER MCALLISTER: We can just barely hear you.

MR. EMBLEM: Can you hear me better now?

COMMISSIONER MCALLISTER: Perfect.

MR. EMBLEM: Okay. I'm sorry, I was having some technical problems, but I wanted to go back a little bit and talk about the Building Codes real quick, something that is very near and dear to my heart. I, too, question the idea of simplifying. I think the Commission has done a great job at making the crucial changes needed to put the right people to assess the systems such as the HERS Rater and the Acceptance Testers for Building Departments to pick them up. But one thing I'd like to maybe suggest as far as your partnerships, and I know you're partnering with the PUC on this implementation process, that you might include the Building Departments and see if we can get a critical mass of Building Departments to work with you on implementation.

I also agree with the Commissioner on serial number tracking. I think that's the only way that we're going to be able to kind of clean up this mess and HVAC enforcement is to do serial number tracking.

The other thing is, you know, when you start looking at the market today, particularly in HVAC and residential and light commercial, more goes unpermitted than permitted. So when you talk about the market, you're talking about people that are doing unpermitted work and, of course, they're going to squeal the loudest when you try to get them to go down and comply. So I don't know how you separate their comments from the people that really care, but I think that's something that needs to be thought of because right in the HVAC market, the unpermitted is the majority.

And the other thing I'd like to mention just real quick because ASHRAE is working on the new Standard SB C215 to do HVAC systems analysis in existing buildings, I know Martha is aware of it, but I just think that it’s something to put in the back of your mind that should be out later this year. I think they’re going to put out public comment in June. That’s all I got. Thank you.

COMMISSIONER MCALLISTER: Thanks, Eric.

MS. RAITT: Thank you. And we have one on WebEx, Michael Nguyen.

MR. NGUYEN: Hello, this is Michael from So Cal REN. I just have a comment, a recommendation on the CEC’s effort to support the statewide intervention in the Plug Load space. First, we suggest that CEC support products for connected plug load that provide non-energy benefits such as ongoing monitoring for conditional maintenance. The connected function also supports our effort on assets rating, operational maintenance, user behavior, intervention, and also this approach leverages advanced metering infrastructure and possibly supports the Strategic Plan goals on ZNE homes and buildings.

Secondly, I think we strongly recommend the Codes and Standards effort should move toward a voluntary basis where Standards creates products and services that provide significant non-energy benefits for customer and industry, which also embeds energy function. So this is basically to refocus our effort, you know, not just on energy alone but to really focus on customer needs and market needs, and as we embed, adopt, market this technology, then the energy benefit will certainly come with this advanced plug load.

COMMISSIONER MCALLISTER: Thanks.

MR. JENSEN: Okay, so Strategy 1.7 is Local Government Leadership, and I'm not going to talk too much about this one because, for two reasons, one is we've going to have a workshop specifically on this topic on May 7th, and the other is we've got a couple people here who are going to talk about this topic. So, very generally, what we're looking for here is sharing of data and best practices between local governments, but I'm going to hand it over now, and I think we'll start with Billi. Billi, if you're ready to go?

So Billi Romain is from the City of Berkeley and she is responsible for implementing Berkeley's Climate Action Plan by reducing energy use in buildings, and has been focusing on existing buildings for the past 10 years. So, Billi, take it away.

MS. ROMAIN: Hi. I feel like I'm getting in between the people and lunch, so it's kind of a dangerous time to talk, but I'll try and go quickly.

I wanted to just tell you a little bit about an ordinance we just passed, the Building Energy Saving Ordinance, it was replacing the residential and commercial energy conservation ordinances that were originally written by Nancy Skinner, we have to thank for those. And those were proscriptive ordinances, and now we've moved on to more of a performance ordinance using building information with a series of onramps and off-ramps. That said, the goal of the ordinance isn't to get you out of your house and into your car, onramps are to energy efficiency incentive programs, and then the off-ramps are to get people exempted from being regulated because they've done upgrades on their home. So if we can to the first slide?

The goal behind the ordinance was to accelerate our savings to meet our Climate Action

Plan Goals. We also have an 80 percent target by 2050, 30 percent by 2020. So we really need to engage every existing building in the City. The red chunk, the red piece there up top represents the savings that's achieved by virtue of state regulations such as the Pavley Bill and the RPS; the next 20 percent below that in green, the wedge, is what based on targeted reductions from programs we're already doing in the City and we still have that remaining gap, which is why we sought to update the ordinance.

The concept of the ordinance is that by providing building energy information, providing owners with an action plan for efficiency, and connecting them with incentives and resources and assistance, that we'll get the buildings to do energy upgrades and reduce their emissions. And as people said, that's been proven out in other states, other cities that have energy benchmarking requirements. Next slide.

Now our requirement goes into the residential market also, so the ordinance covers single family homes, one to four units, the most important thing is anybody who has done an energy upgrade is exempt as a high performance building, so that's really the off-ramp we want to encourage everybody to not have to do these assessments anymore, but the assessments for single family homes are required prior to sale. Buyers are allowed to defer so that they can do the assessment themselves. And really, we want to focus people on what the opportunities are for their specific home and what rebates and financing opportunities are available for them. And we're hoping to do more incentive programs, we've got a little program we're hoping to announce for some small rebates for early compliance, a little pot of money we have.

And then for the commercial and multi-family buildings, I want to thank San Francisco, we copied their benchmarking ordinance, especially for the large commercial buildings, but once again, being Berkeley, we extended it a little to smaller buildings and multi-family buildings where buildings are required to do an assessment every five to 10 years based on their size, and larger buildings are required to report their energy score annually, once again with high performance buildings being exempt from the ordinance. So there is a picture of the Ed

Roberts campus which is a building that houses a lot of nonprofits that has an Energy Star certified score of 96, so they don't have to do anything except report their Energy Star score annually to us, but they don't have to do any assessments. And that's ultimately where we want to get all the buildings. And once again, this is to steer people towards free and low cost services and rebates and financing.

So we feel that there are a lot of benefits from this energy information reporting in terms of educating building owners, helping them make informed investment decisions, benefiting the occupants by having a healthier, safer, and more comfortable environment, and really motivating owners in the marketplace so that they can get some recognition both as high efficiency and motivating them to improve their scores.

So that's in a nutshell what our ordinance is. We're very grateful to the CEC for their assistance along the way, staff has always been very available to us, to answer our questions, and we're also very excited to participate in both the statewide collaboration and the Energy City Leadership Program because we've found from working with other cities through something like Green Cities California and the Urban Sustainability Directors Network, both have been organizations that have brought cities together to learn from each other, and we've been able to really access resources and best practices when we work together that we can't access on our own. So thank you.

COMMISSIONER MCALLISTER: Great. Thanks a lot, Billi. How do you identify the covered stock for each program? How do you know when as building should be complying and then whether it does?

MS. ROMAIN: When the buildings are sold, we work really closely with the realty community, we worked with them for our original Energy Conservation Ordinances, and our outreach is mostly done through them, where they track the buildings that are sold and let their customers know that if something is sold and we find out from the County later when we receive a monthly report from the County, then we're able to go back. But the realtors have really been helpful to not have us have to go back to too many people.

COMMISSIONER MCALLISTER: Okay, that's helpful. So just a message to the world here, we're not saying we want to replicate Berkeley across the state. By highlighting Berkeley, that's not the intent, I was a resident of Berkeley, a homeowner in Berkeley, and actually had to comply with RECO, and paid the person to come over and inspect the measures once I did them, etc. But this is great and, you know, kudos to you guys for really working it through. I know it wasn't easy even in Berkeley to get this done, and work through the stakeholders', you know, discussions to get to a place where Council was comfortable adopting.

I guess for the rest of us, you know, again this is the theme throughout the 758 sort of discussions is, you know, what I would like to hear, what we need from comments is, folks' views of what the components of a potential statewide effort might look like. You know, it might not be all the bells and whistles here, it might be more of a minimalist white bread kind of version, maybe, maybe not, I don't know. But sort of what pieces really need to be there for it to be coherent and worthwhile. And so thanks for laying that out.

MR. JENSEN: Okay. Thank you, Billi. Next we have Gina Goodhill Rosen. Gina is the Senior Policy and Legislative Affairs Associate with Global Green USA. Global Green works on clean energy, energy efficiency, and green urbanism, and is working with the City of LA to lead the stakeholder and policy process for the City’s Energy and Water Efficiency and Existing Buildings Program. So, Gina, go ahead.

MS. GOODHILL ROSEN: Thank you. And thank you again to Commissioner McAllister and all the CEC staff for having us here.

So as was just said, we are an environmental nonprofit organization, but the reason we’re here is that we are working directly with the City of Los Angeles to help them through their own Energy and Water Efficiency in Existing Buildings Program. The City did really want to be here today, they’re actually releasing their Sustainability Plan tomorrow, so they weren’t able to, but they should be on the phone, so when we get to questions, if there are any, they can help answer those, as well.

So we're actually at a very different place in Berkeley in that we're right in the middle of our process of developing this program. I will show a timeline after this. A lot of what I'm going to show you today is really just the process we've been using to get to what our eventual program is going to look like and where we currently are, but this is not finalized yet, so I just want to make sure that's clear.

So to take a step back about how Los Angeles actually got to this place, there were a lot of different activities that sort of happened simultaneously to really jumpstart this process. So about seven months ago, the Los Angeles Department of Water and Power adopted their most aggressive energy efficiency target ever, a 15 percent target for energy efficiency by 2020, which is 50 percent more aggressive than past targets.

About three months later, spurred by the drought, Mayor Garcetti signed an Executive Directive to reduce our water 20 percent by 2017. And then with both of those goals, they are going to be buttressed by the soon to be released, as in tomorrow, Sustainability Plan. This is the

City's first ever Sustainability Plan, so it's pretty exciting. Most of the goals will be announced tomorrow, but we can say that there's going to be a long term outcome of 30 percent energy reduction and then 25 percent water reduction by 2025, so also very ambitious goals.

And then finally, the City has been really excited actually about the 758 process and the opportunity to be a leader among cities for what the potential could be for an energy efficiency program. So that also spurred them to really take action quickly.

So with all of these goals in mind, Council Members Huizar and Blumenfield introduced a motion to really say, "Okay, we have all these goals, how are we going to meet them?" And so this motion came out and said that we had to convene the stakeholder process to develop this energy and water efficiency program, and at that point Global Green came on. Next slide.

So here is our stakeholder process really briefly. The motion was passed in December. We had a big kick-off meeting in January to really kick this program off, I mean, over 200 people attended that. And then from that we've held a series of dialogue meetings with various stakeholders to really delve into the issues of what is this program going to look like. We have one more left on April 16th, everyone is invited, and then once we finish those we'll put a draft program out and discuss that in a final workshop in the summer, and from that we'll put a final proposed program out which will go to City Council. They will vote on that in the fall, and we're looking at actual implementation as early as 2016.

So a big important piece to both the City and Global Green was really making sure that everyone who would be affected by this program is at this table. And so we have a really robust internal and external stakeholder group that's been very engaged in every one of these stakeholder meetings to make sure that the program that we are developing has input from everyone and really works for everyone, so here's just a quick list of some of the stakeholders that are engaged, everyone from building owners to tenants to sustainability consultants, internally DWP, Building and Safety, and obviously a lot of others.

And so the good news is that, while we're proud to be one of the first cities, we're obviously not the very first city, and so we are able to look at a lot of best practices that other cities have used and really evaluate them for what's going to work for Los Angeles. So here's sort of the suite of policies that we are considering: so benchmarking, a lot of the things we're discussing here, reporting and disclosure, audits, retro-commissioning, retrofits, and making sure that everything we do aligns with current utility programs, or will align with future utility programs.

So in evaluating those potential options for energy actions, we are looking at the following questions, and these are the questions that we've really used as sort of a topic for every one of our stakeholder meetings: so what building size and what type of building should be included, are we going to use Portfolio Manager for the benchmark system, should we create our own system, how are we going to report our energy usage, and who is going to verify it, do you need some sort of certification to do the benchmarking and reporting, and what would that certification be?

At the end of all of this, our goal once again is to achieve those really robust energy and water efficiency goals, so we need to make sure that whatever we do is actually achieving those. You know, what changes to the Admin process will be needed, etc. So these are really all the things that we're going through in each of the stakeholder meetings.

And then another big piece that we've looked at is, you know, if our goal is to save energy and water, we need to know what buildings are using the most energy and water. So when you look at the type of parcels in Los Angeles, overwhelmingly we have -- I'm trying to see if the colors show up -- so overwhelmingly, we have single-family homes. About 70 percent of our buildings are single-family, and the rest is a mixture of multi-family, commercial, and then other industrial, healthcare, schools. However, if you look at the energy type by building, it really is flipped. So single-family homes, even though they're about 70 percent, only use about 25 percent of the energy. And the rest come from those other types of non-residential buildings.

If you break it down further, and I left this chart out just to not put too many slides in, but if you actually look at the square footage of those non-residential buildings, we found that if you look at buildings 25,000 square feet and larger, you're getting at 40 percent of the energy use in Los Angeles. So that size cutoff is only two percent of the parcels, but it's 40 percent of the energy use.

COMMISSIONER MCALLISTER: Can I ask a quick question? Can you go back to the previous slide? So I want to just look at the little asterisks down at the bottom and point out that this is based on analysis by the California Center for Sustainable Communities at UCLA, and this is they've worked with the LAWP and the County and the Assessor's Offices and everything and they've pulled together a lot of data and they're now using it for purposes of informing policy work like this. So you know, that's one thing we'll probably be talking about a little bit later today, but more in the workshop on data on May 7th, I think it is, right? Oh, I'm sorry, it's a week from today, actually, I'm sorry, it's April 14th. So I wanted to just highlight that fact.

MS. GOODHILL ROSEN: Thank you, and I mean U.C.L.A. has been incredibly helpful on a lot of the data they've been able to provide. I think we're very lucky to have several large research institutions right in Los Angeles.

So this was all the information that we really went through in the Stakeholder process, and so this is the last slide, and this is what -- and, oh, I'm sorry, that actually should just say "Process Flow" because it's more than just Audit and Retro-Commissioning. But this is what we discussed in the last stakeholder meeting and this is a potential process that we looked at for how this would roll out. And so the feedback that we got through the various stakeholder meetings was that the best approach was to do some sort of size cutoff for what buildings would be included. Based off of the analysis I said earlier, something over about 20,000 square feet seemed like a good cutoff for what buildings would be included. For those buildings, there was a lot of feedback that we should gather as much information as possible, so the idea is that all of those buildings we'll have to benchmark.

Now, when they have to benchmark, there will probably be some sort of tiered system, some buildings will have to do it sooner than others, but eventually all buildings that are able to will have to benchmark.

It was also discussed that it made most sense to use Energy Star portfolio rather than recreating the wheel, so that seemed to be something that was pretty consistent feedback.

So we talked about a couple of different ways about how the building data would be disclosed. It seems like for sure people want some sort of publicly shared database. We threw around the idea of maybe like a public score in the lobby of a building, which was deemed interesting, but at this point maybe a little premature and confusing. But at this point, some sort of publicly shared database.

So all of these buildings we have to benchmark, once you benchmark there’s sort of two different pathways you could go down, there’s a high performance pathway and then a low performance pathway. So a high performance building and we’re defining that as either, you know, LEED certified, Energy Star certification, those buildings should still benchmark every year, but after that, that's sort of all they have to do. They would submit their information to show that they're high performing to the Department of Building and Safety, and then they would continue to benchmark, but the idea was to reward these high performing buildings. So if you are high performing, benchmarking is all you have to do.

If you're a lower performing building, those buildings will be responsible for some additional energy action. So we heard a lot that it should not be overly prescriptive and there should be flexibility, so there's some variation here of what those buildings might be required to do. So one option would just be simply to install retrofits, so the City would potentially have an option where they would create sort of preferred retrofits based off of building types, for example, and this is something that New York did, say you're a shopping center, you decide you don't want to do an audit, you just want to go to the retrofits, you'd have a sheet of, you know, here are the five most commonly needed retrofits for your building type, choose four of them, prove that you did them, submit that to DBS, and then you're good for benchmarking every year.

The other option would do some version or some combination of auditing and retro-commissioning, either/or, either both of them or one or the other, do that, submit that to DBS, and then continue to benchmark. For these additional energy actions, we heard a lot of feedback that they should not be done every year, for example, an audit would probably be every five years, and that they should align with some sort of capital funding cycle so that they really do match up for when buildings have the funding to do this.

So this is proposed right now and this is, once again, recently discussed, it's not finalized, but it does take in a lot of the factors that we've discussed over the past six meetings. So if you want to just go to the last slide?

So this is our website. We have all of the meetings on the website, the PowerPoints, the recordings, any background information. I really do encourage anyone who is interested in Los Angeles's process to check it out. But we're really excited about potentially being a leader for the 758 program and for other cities and we look forward to working with the CEC if this goes forward.

COMMISSIONER MCALLISTER: Thanks, Gina. I’m going to bite my tongue rather than ask questions because we’re fairly behind schedule here, but in the interest of getting folks to lunch, let’s move on. But thanks very much, that’s great.

MR. JENSEN: Thanks a lot, Gina. I have one clarification on something I said earlier. So I said that on May 7th, the workshop was on local government leadership, specifically it’s on the Local Government Challenge Program which we see here involves creating a repository of best practices and lessons learned and encouraging data driven policy and actions. And so, again, that’s on the 7th.

MS. BROOK: So I would just add to that -- this is Martha -- that we’re intending that there will be a statewide grant program for local governments to participate, and that is what we are calling the Challenge Program, and we’d be glad to talk to you more about that in the May

7th workshop.

MR. JENSEN: So let's move on. So Strategy 1.8 is Energy Efficiency as a Clean Distributed Energy Resource, there are five things I want to mention about this. One is, as has been touched upon many times already today, and will continue to be today, we're looking for a free exchange of information. That's very important here, specifically we'd like to see a database of energy efficiency improvement projects and results, and be able to have a distribution for savings that contractors and providers can look at and so they can be confident in savings that they can predict when they bid into projects.

With Smart Meter analytics that we now have available, we can look at actual savings and not just assumed or expected savings, and so we can really measure performance and determine whether a program is successful based on that, rather than expected savings that can't be verified.

We'd like to relax cost-effectiveness criteria for programs to allow innovative, but not yet proven ideas to be tried out and be part of the procurement process in the hopes that they will be successful and ultimately be proven cost-effective. We'd like to consider a range of administrative structures for programs to see which is the most cost-effective. And lastly, we'd like to make the long term forecasts more localized to incorporate peak demand, and this is increasingly important with increased implementation of energy efficiency and renewables. So are there comments on this strategy?

COMMISSIONER MCALLISTER: I want to just jump in a little bit here, too. Thanks, Erik. So these are things that by and large are already being discussed in both commissions. If you look at the table here on page 56, the PUC is a core partner here and actually is proposed as leading a couple of these efforts and they already are, in fact, because the utility procurement is actually in their jurisdiction and not ours. But there are some interesting things going on in the procurement arena, so that would be in a different proceeding over there than the energy efficiency proceeding, and Edison is sort of first out of the gate on it, but the other utilities are looking at it, and it's basically the idea is to procure efficiency as a resource alongside other preferred resources, and even traditional generation in a portfolio process, and sort of gauge efficiency for the particular services that it provides and the costs that it's proposed at in a competitive environment.

So, you know, we think that has potential and want to keep a good close eye on it, and also it could produce some sectors that generate savings for cost-effectively and at some scale. So I think that's the first one.

The Market Transformation Program Portfolios, I think Lara will probably have some comments about that, but things are migrating that way, you know, the PUC is looking directly in their context and their proceedings looking at market transformation, and we are trying to mirror that here.

And then the Long Term Energy Supply Planning is where the Energy Commission is actually the lead. Now, I'm obviously lead on the IEPR this year, this is a joint workshop today between IEPR and the AB 758, and that is completely intentional that IEPR and 758 have a lot of overlap this year. And we wanted to merge this discussion on at least the key points of the 758 Action Plan. In particular, one of the core activities of the IEPR is the Electricity Forecast and the Natural Gas Forecast, the main analytical I think lift is, is probably the electricity forecast and, in particular, we are moving towards more localized analysis, we're moving towards more just granular methodologies that allow us to look locally, and working through that with our partner agencies in the forecasting. So we lead it, but we work very closely with the PUC and the ISO.

So it's really important that we can better quantify the impacts of what's going on in the marketplace in the portfolios, in procurement, and build that into the Demand Forecast. So that's why these three initiatives are grouped together in this more -- basically it's sort of a resource planning kind of idea. So that's a little bit of context of why these things are the way they are. So the stakeholders for this particular thing are a little bit different maybe from some of the market stakeholders out there because this is kind of more of an agency driven sort of shift. So go ahead. Thanks.

MS. ETTENSON: Lara Ettenson with NRDC. So we definitely support doing the procurement approach supplementing -- and I think this is what you indicated, I just want to make it clear, instead of supplanting programs, very supportive of that, although we should make sure that we understand that those are operating under different rules than the energy efficiency programs at the CPUC, and to take that into consideration when comparing where the best options are.

Also, I want to strongly encourage us not to use terms like “relaxed cost-effectiveness.” I think what we mean is we want to make sure that the choice of our cost-effectiveness assumptions are matched with the policy goals we’re trying to achieve, so I don’t think I saw any of that language in here?

COMMISSIONER MCALLISTER: Yeah, I don’t think “relaxed” is actually in the plan.

MS. ETTENSON: Yeah, okay, because I would probably strike -- no, I would definitely strike that. So I think that’s a broader position of NRDC's for a long time across all agencies, to make sure that we're looking at what we're trying to achieve, we look at our rules, we make sure they're aligned, and if they're not aligned, then we need to fix them and I'll make more comments on that when we get to the collaborative.

I also think that market transformation programs are definitely something we need to focus on and would be right for this Collaborative. I think that a lot of entities are able to design and implement such programs, and I think what will be key is making sure that we have some statewide consistency on guidance and potentially there could be a subcommittee, a subgroup of the Collaborative that really acts as an advisory group to ensure that any program that is intended to be market transformation would go through these certain criteria to be chosen. And as you know, and Mindy is help leading the how-to manual, the draft that just came out of Navigant, so I think that's something that we should definitely leverage and could be an option. And I also think if we're intending to do market transformation and push new technologies that we also have to relook at the potential study both a the CPUC and get more clarity of what's going on at the Public Utilities because, if we're not forecasting for new and emerging technologies, we're limiting what we're able to do, and therefore our market transformation programs could potentially be limited, as well. So more to come on the 21st.

COMMISSIONER MCALLISTER: Thanks.

MR. BERMAN: Hello, I'm Mark Berman with Davis Energy Group and I'm proud to announce that Davis Energy Group is now a subsidiary of GTI International and the Gas Technology Institute, as of last Thursday.

COMMISSIONER MCALLISTER: Congratulations.

MR. BERMAN: Thank you. We have done lots of work in the deployment of residential energy efficiency over the years in existing homes. And one of the biggest impediments is a lack of a financial incentive. People look at the payback and say, "Gosh, I'm going to save $200.00 a year on my gas bill and maybe $700.00 a year on the electric bill for $900.00 a year, and this is going to cost $12,000. It's too long of a payback, I'm not going to live in the house that long." One of the quickest ways to fix that has been proposed by Congress, and I know none of us here can control Congress, neither can Congress for that matter, but it's called the Save Act, and it does have bipartisan support, and it would require looking at energy consumption along with PITI. And a house that has a lower HERS rating and a lower energy consumption could therefore quality for a higher mortgage. And I think this would reverberate through the market very quickly and immediately enable people to say, "Yes, you put $12,000 into this energy efficient retrofit and the value of your house will go up by $12,000, plus you're save $900.00 a year." That will change things very substantially, very quickly.

The other thing I'd like to talk about is the market transformation that's discussed here. Right now energy efficiency is very much siloed, including in this building. People look at energy efficiency or they look at microgrids, or they look at renewables, and they don't look at the overarching picture.

Solar is sexy, energy efficiency isn't.

We have proposed some novel ways to marry solar with energy efficiency twice to the Energy Commission and, unfortunately, we actually lost points the last time because we were thinking out of the box, we weren't just doing a Microgrid, we were also doing energy efficiency and tying the two together.

I would encourage the Energy Commission to find a way to break down the silos and use the horsepower of "solar is sexy" to drag along energy efficiency retrofits in housing, in multi-family, and other building types, as well. And I would look forward to talking with you more about that. I think there's tremendous potential there and it also ties in with water efficiency. Thank you.

COMMISSIONER MCALLISTER: Thanks, Mark.

MS. BERMAN: Hi, Jan Berman with PG&E. And I wanted to ask a question about the term "Utility Procurement Model." It seems to me that the term is carrying with it three major rather massive policy changes and one somewhat minor change. The three massive policy changes are, first of all, elimination of Code Baselines and their replacement with Existing Conditions

Baselines since about 30 to 70 percent of the savings in utility programs or projects are eliminated by the use of Code baselines, that's a pretty significant change in what would be available and considered efficient.

The second major change is the elimination of the free ridership, or net to gross adjustment. Since we lose about 30 to 50 percent of savings in the net to gross adjustment, again, you'd find much more significant energy efficiency savings available if you make that change. And then, thirdly, a change in the cost-effectiveness test from the TRC to the PAC test, and since our PAC test results are something like two to five times better than our TRC results, again, you get way more cost-effective savings making that policy change.

And then I'll say the somewhat minor one is a bit of a difference in contract structure. Since we already procure a lot of our portfolio using pay for performance contracts, there's some modest changes in this form of pay for performance contract. I don't see that as significant as the other three policy changes.

So I wanted to check if the term “Utility Procurement Model” carries along with it all those policy changes? I think we should just go all in for it.

COMMISSIONER MCALLISTER: Great. We had this conversation, I think, not too long ago, so, you know, we don’t make policy for the PUC and I’m not going to purport to do that, but what I think we’re suggesting here is we go back to first principles somewhat to the extent that we can, and we’re not constrained by statute and other overly difficult things to change, but, yes, I think we do have, well, so the model I think that’s out there and it’s being discussed and is driving much of this conversation is not anything that we invented, but it’s the preferred resources pilot that Edison has been doing, and it’s having that approach to go get preferred resources, not just energy efficiency or even primarily energy efficiency, but across the Board. And so there certainly has to be some discussion about what resources are good for what services, you know, is it reliability, is it Volt/VAR support, is it Demand Response, is it power, what is it? You know, capacity? But that is a solvable problem and so to the extent that it is, you know, say over in the LTPP or somewhere else, not in the efficiency discussion, you know, I probably am not the best person to talk about, well, what parts of the efficiency world would bleed over into that discussion in terms of what we're getting with energy efficiency and how we're measuring it. So, I mean, I would like to get folks' comments about this. I see this as something that is already happening, you know, there already is a -- there has been at least one procurement and there are others, not just in Edison, but in other parts of the state, to procure preferred resources in sort of an all-source way. And so that's the idea here. So, you know, the intent is not to implicitly make these big policy changes over in the efficiency portfolio like at the PUC, like that's not our job and that's not -- but if that discussion leads to some appreciation of how we best harvest available efficiency, say, potential in the near term, then, you know, certainly the conversation ought to go there. So that is not part of our proposal and we have not gone to the PUC to say this is what we want to do, but I think there’s a lot of interest in seeing what the results of those pilots are. And, like you referred to, the contractual mechanisms and what he aggregation kind of models look like, and who is actually active in this space, and are they actually getting results? I mean, there are some legitimate out there in terms of, you know, I don’t think this is an assumption that this is going to be a better mousetrap necessarily, but if it is, we want to leverage it, right? So that’s, you know, maybe I haven’t gotten into the granular detail you’d like, but that’s my answer.

MS. BERMAN: Thank you, Commissioner McAllister.

MR. MESSNER: Kevin Messner again. I represent the Association of Home Appliance Manufacturers. I just want to throw another concept as we’re talking about renewables and solar and talk about Smart Appliances. So Smart Appliances are just getting going. Energy Star has recognized the Smart Appliances they have for refrigerators, there’s a connected portion. And when you look at the intermittent or ancillary services that are out there, and for 10 minutes or less that need to be there, you can have the demand side respond to that.

So one quick example, a Smart Dryer: the dryer could be running and that dryer heater element could turn off for 10 minutes or less, the dryer cycle would continue to run, there's still latent heat in there, and no one would probably notice. So you don't get the consumer complaints or anything like that, they're okay, and that could be used as ancillary reserves. So there's other examples with other appliances, as well, so that's something that you could do when you tag -- if you look at the global renewable ancillary services and demand for that, it's something that's they're not prevalent out there, but Energy Star is providing an incentive for manufacturers to pursue that.

COMMISSIONER MCALLISTER: Right, thanks. Let's try to be brief because we've got to wrap up here. We have one more strategy I'd like to get in before lunch.

MR. NESBITT: George Nesbitt, HERS Rater. I want to go back to the Rating Systems. The European Union adopted mandatory ratings for all buildings, residential, nonres, modeled it after RESNET, yeah, they have different periods of time you have to do it every so many years. The downside is they made every country, I think, develop their own system. The results vary. But the idea is that the building owner, the tenant, operators, have a sense of where they can go with their building, which is very important. I wonder how many building performance contractors would have recommended that I put five inches of foam on my roof when I re-roofed. Probably not many. They would have looked at the attic. And so Berkeley has taken this approach, although it’s not required for single family other than sale.

One of the difficulties we have, though, is many of these programs, Energy Upgrade California, I think San Francisco has some auditing requirements as part of their benchmarking, too, is that we allow contractors and auditors to worksite, you let anyone do it. The problem is a contractor can go in, discount their services, recommend what they sell; if they’re a lighting contractor, that’s what they’re going to sell, as opposed to independent third-party auditors who shouldn’t have a vested interest, should be looking at the building, should be giving those kinds of recommendations as to what your opportunities are. Some of the, I think, cost estimates I've seen that I think Berkeley has put out, I won't do it as an independent auditor, can't.

We also have to be careful of what we call "High Performance Building." I think we all know that LEED got slapped in the face. An example from Berkeley, major addition rebuild of a house, Green Point rated on the home tour, $1,000 a month heating bills. Yes, it's a high performance house on paper, in reality no. So we have to be careful, and this is where benchmarking actually comes back. Are you a high performing house? Gosh, no, you're way above, you know, the efficient user for your neighborhood, or way above average. You may have the plaque, but you're not high performance.

MR. MCHUGH: Hi, this is Jon McHugh with McHugh Energy. I just wanted to talk briefly about, you know, the issues associated with streamlining the standards, or making them potentially less stringent for retrofits. We heard earlier from NRDC the concern about that. I think there are different economic issues for new construction versus existing, but I think the main thing in this discussion, there's been, you know, something like 40 letters that have been submitted to the docket from people who have indicated that the lighting retrofit industry is being decimated by the Codes. But in terms of information, I have not found any information in terms of what are the quarterly retrofit permits that are being compiled across the state and I think this is directly in line with the Energy Commission's forecasting role and tracking what is going on with the existing buildings stock. So, you know, potentially policy decisions are made inside of an information vacuum.

So I think it's really critical as part of this that the Energy Commission, as part of their load forecasting, and as part of their existing building program, look at what's actually happening with existing buildings. How many permits are being submitted for retrofits? You know, some of the -- this has to do with a lot of different things when we're talking about commercial buildings, is that everyone thinks that a commercial building is essentially a big house, and it's not the case, there's a lot of different economic issues, a lot of different energy issues, and so I think it's critical to kind of look at the data in terms of what's going on, and especially if you're looking at modifying the Codes to actually have some relatively granular and relatively short time span feedback. So what has occurred since July in terms of Permits? You know, there's anecdotes about cost. What has actually occurred in terms of how many retrofits are pursued? What happens over time? And then if we're looking at things other than relaxing the Standards in terms of streamlining, you know, there was the Energy Code ACE worked on retrofit forms and that sort of thing; what has actually been the direct feedback from the market from those kind of activities? So I thank you very much for your time.

COMMISSIONER MCALLISTER: Thanks, Jon. Let's try to keep it to Strategy 1.8 and wrap that up.

MR. OKADA: Just a point of clarification. This is Derek Okada from Southern California Edison. The reference to this SE preferred resources pilot actually should be referencing the local capacity requirements or requests for offer, which is --

COMMISSIONER MCALLISTER: Oh, I'm sorry, yeah.

MR. OKADA: -- a solicitation under the LTPP. The SE Preferred Resources Pilot is a heightened targeting of DSM and other preferred resources within the system-wide area of Johanna Santiago to address system reliability, so I just wanted to point that out.

COMMISSIONER MCALLISTER: Okay, that's maybe where some of the confusion was, is that we've used the wrong term.

MR. OKADA: Yeah, and I think both approaches are consistent with the current policy, but we just want to appreciate the effort to highlight that, and also, you know, just I'd encourage that coordination between the Inter-agencies on market transformation policies because, as we've heard, there's three different activities in market transformation. So, thanks.

COMMISSIONER MCALLISTER: Great, thanks.

MR. OKADA: Thank you.

COMMISSIONER MCALLISTER: All right, let's, you know, I'm going to ask that we sit tight just a little bit more, we want to talk briefly about 1.9, the Oversight Structure, so we can sort of break after fully talking about Goal 1. Hopefully this won't take very long and maybe written comments can come in on this.

We've talked a little bit about the oversight structure, but, Erik, why don't you go ahead?

MR. JENSEN: Yeah, so Strategy 1.9 is the Existing Building Efficiency Collaborative. This is a body that will be staffed by Energy Commission and Public Utilities Commission staff and report to Lead Commissioners, coordinate progress in areas that we're discussing today, maintain communication with the Governor's Office, and serve as a sounding board for the industry and be able to respond to industry concerns. So, let's hear comments on this strategy.

MS. ETTENSON: All right, I'll cut these by a third. Number one, there are a lot of efforts going on in the state to do statewide collaborative forums, the California Technical Forum and the effort at the CPUC look for best practices on how to make sure that these efforts are done well and are effective, and 2) more substantively, I think that the number one goal of this Collaborative should be to look at all of the rules that are in play for energy efficiency across the state, and as a collaborative across all of the agencies determined if those rules are in line to ensure that we're going to be able to do any of the goals that are in here at the CPUC or the Governor's goal, and I think that should be a high priority and we'll put more in on April 21st.

COMMISSIONER MCALLISTER: Thanks.

MS. LE: UYEN LE representing IBEW, Local 11. And the Collaborative looks like it's composed of just government agency representatives and I really recommend you include building professionals and building professional association representatives in order to really understand how these rules impact the implementation, and not just debate how to coordinate different agencies because, really, it's about getting the actual retrofits implemented. And so I really encourage the inclusion of that, not just in stakeholder engagement, but really in the participation in the Collaborative itself on a more continual basis.

COMMISSIONER MCALLISTER: Yeah, thanks. So there's a balance that we would like to strike between level of sort of administrative effort and overhead and sort of formality, you know, broadly across all the stakeholders, and sort of keeping our eye on the ball in terms of results. So, you know, the idea is that we would together across the agencies sort of figure out what a given task needed and then convene a high level stakeholder group there. So it's a little premature to be talking what even that structure looks like because I think it's going to have to kind of be determined on the merits. We have some thoughts about that. But you know, one model that I work from is, say, the public forum that the California Solar Initiative had periodically, and that was a place where all the folks involved in the actual industry on the ground trying to do work get permits and install systems, etc. etc., local governments got together periodically, and threw tomatoes at the PUC, basically, and the Program Administrators, and it was fantastic, okay? I was on the receiving end of those tomatoes, okay, because I was administering one of the programs. But what it did was provide clarity on what the marketplace needed and a task list for the program administrators and the PUC to go solve, you know, to go work on. And you know, I am absolutely -- and I felt it was very helpful, it made the program better, it made the information that came out of the program better, and it made it much much more useful. So the idea here is to open the Commission, this Commission, to that kind of, together for this purpose, for that kind of feedback from the marketplace like, you know, relatively unvarnished compared to a formal forum, say, even like this one. So I'd love to hear what people think about that.

Obviously we don't have infinite resources and we can't maybe do everything that people might like, right, so we've got to kind of have the right balance, and so I'm trying to look for what that balance might look like.

MR. MESSNER: Kevin Messner on behalf of AHAM. Real quick, I think this is in support, the last view of expanding this to private stakeholders, but even I would see a benefit to just having the PUC and the CEC have some kind of forum which would be open to hear views from the private sector. I remember an experience, it was a couple years ago, I called the CEC and they said, “Oh, it’s the PUC,” and called the PUC, and they said, “That’s the CEC.” And I’m sitting there saying, well, it’s one of y’all.

And so I think having you together in one room where you’re both on the panel, or both in the thing, roll up your sleeves, just kind of get this going, it would be a great idea and it would be something worth pursuing, however you can manage it. Thank you.

COMMISSIONER MCALLISTER: Thanks. Go ahead.

MR. KOTLIER: Bernie Kotlier, Executive Director of the California Labor Management Cooperation Committee, representing thousands of contractors and tens of thousands of electricians in California. First of all, I want to thank you for this forum, it’s been excellent, Commissioner.

COMMISSIONER MCALLISTER: Thanks.

MR. KOTLIER: I know you said it was a little premature, but I would also like to speak to the composition of this committee. First of all, I think the Collaborative is a great idea and I support it strongly, and I'd also like to add the voice of those contractors and electricians all over the state to say that we would definitely like to be a part of that collaborative. Thank you.

COMMISSIONER MCALLISTER: Thanks. All right, so I know I have one public comment and I think it's probably best to get it out of the way before lunch quickly. But is anybody else on the phone or Web?

MS. RAITT: We don't have any on WebEx.

COMMISSIONER MCALLISTER: Okay, great. So is it Charles Cormany from Efficiency First? Oh, I'm sorry, he's here. I thought that came in on the Web, sorry.

MR. CORMANY: Hi. I'm Charles Cormany, I'm the Executive Director of Efficiency First. And what I'd like to recommend is, when you go down the Collaboratives, it's already been said a couple times here, but I'd encourage you to involve industry early and often into these processes so that we are not subject to the end result, we are part of the decision making process. I think that's a really key component in all this. We have a lot to offer. We are the net end users of what comes out of these situations, and we'd like to be involved on the forefront of the decision making process, as well.

COMMISSIONER MCALLISTER: Yeah, thanks. And I'll say it again, I think this is different from what this Commission traditionally does. You know, it's not a Regulation that we're producing and sort of hocking it out to the world, and people have to comply with it by law; it's a combination of various things that altogether hopefully is going to move the market. And you know, if you and your members don't want to move, you're not going to move. And so that sort of puts the onus on the process to figure out what is going to move you or get you to feel like it's in your best interest, you know, your members'. You can make money doing it, or whatever the motivation is. So you know, loud and clear, I think we've heard that.

Great, well, thanks.

It's a quarter to one. Do you have some housekeeping stuff, Heather?

MS. RAITT: No, I think we can go ahead

and --

COMMISSIONER MCALLISTER: Okay, great. So one hour for lunch. A quarter to two, let's be back here. Yeah, let's just give it an hour.

(Break at 12:47 p.m.)

(Reconvene at 1:50 p.m.)

MS. RAITT: So we're going to start again on the workshop and in the interest of time we're going to ask everybody to hold their comments until the end of each Goals presentation. So we'll just take comments at the end of Goal 2, Goal 3, and so forth. And with that, we'll go ahead and get started.

COMMISSIONER MCALLISTER: I think that should be workable because there are fewer strategies in Goals 2, 3 and 4, so we ought to be able to bin them together like that. And I definitely want to leave time for Goal 5, which has more strategies and is arguably fairly meaty, so we want to make sure that we take advantage of the time to talk through financing and related issues. So go ahead, Abhi.

MS. WADHWA: Good afternoon, everyone. My name is Abhilasha Wadhwa. I am with the Existing Buildings Unit in the Efficiency

Division at the Energy Commission. And I'm going to quickly go through Goal 2 and, as Commissioner McAllister said, let's hold back our comments, I'm going to kind of fly through this really quickly.

And really, you know, this goal is very seminal to the Existing Buildings Action Plan. It is key, it is essential to many of the strategies and we see data to be driving a lot of the decisions, not just from the consumer side, but also to inform the market, as well as the policy makers. We cannot manage what we don't measure, so it's very important that we keep data as our big picture item, which is feeding into all the strategies.

The first part of that is to establish an infrastructure into which data can be fed in and used by everybody meaningfully. And the first strategy talks about setting up these data exchange protocols and to adopt statewide consistent protocols, which are also in line with national efforts. We don't want to reinvent the wheel, there are a lot of good national efforts going on like the Standards Energy Efficiency Data Exchange Platform, again, another DOE effort is standardizing the terms for data exchange, which is the Building Energy Efficiency Data Exchange Specification. The Energy Commission is working closely with DOE, we are pushing the envelope with them, and we are all set to align these efforts with our long term goals.

Green Button is another exchange format that NIST puts out and a lot of utilities, a lot of IOUs are currently already working with them, so we want to definitely leverage that, but make that a statewide protocol so that we are all on the same page, and we talk about that in the Action Plan.

This also mapping our benchmarking data infrastructure because it lays the groundwork for that. And one of the key components we would be looking for is to require utilities to map meters to physical buildings, to the locational address of buildings so that this infrastructure can be developed. Again, from a consumer perspective, as well as from the market perspective, the idea is that we leverage AMI data, you know, the timing is perfect, Smart Meters are here, they’re here to stay, and it’s time that we tap into that data analytics and really let the marketplace take off from it, so just improving access to that kind of data.

And finally, data for local governments. We have heard from Billi today and Barry Hooper is here, there are a lot of great initiatives going on, but there's this thirst for data to drive policy, and we believe local government should have access for this and standardizing the process for them, again leveraging something like seed where everybody is connected, interconnected through these platforms, would be key to implementing the strategy.

Finally, in the data segment, standardize utility rate information, is one of the hosts we have identified. We are looking at the low income programs, the calculators that are out there, and how there's been an inconsistency of information available, the formats in which utility tariffs are available, that needs to be standardized so that there are not multiple versions of software tools that people are downloading and then the investment decisions are not reliable; that needs to be consolidated.

Project specific measured savings. This is really about getting program participant data back to the ratepayer so that the value of those dollars can be realized in terms of data use, as well, not just for the savings because there is a lot to be learned from how did a program participant benefit, what were the savings, and what resulted into a long term picture there?

Data access for policy planning and research. As you see, we put ourselves in the end, but once again we need to know how to of course correct ourselves, how to of course correct policies, how to look at it from a larger picture. And in order to do that, data access for policy makers is just as important. Within that is establishing energy use baselines, more granular data about building square footage, building vintage, climate zone specific, location specific, is important for us to nail down what should be the target areas, how you would prioritize sector types, building types.

So with that, I'm going to move into Strategy 2.2. This is about consumer focused energy efficiency. Broadly speaking, we are talking about programs, energy efficiency programs here.

COMMISSIONER MCALLISTER: Can I just jump in real quick, Abhi? So I'm sure lots of flags are going up for you in different ways on the data issue, and certainly, you know, there is a lot to talk about there, and this is very broad brush, and definitely we're looking forward to putting a finer point on what each of these strategies might entail. And that's for next Tuesday. And we're going to have a lot of time to begin to dig into these issues, or a fair amount of time. You know, certainly not trying to minimize them here today, but they are complex enough and sort of detailed enough that taking a little bit of time today to get into them isn't going to help us that much. We really need to put it -- so that's why we're putting together a data workshop, a workshop on specifically this strategy for next week. So not meaning to minimize it here, but want to use our time optimally today.

MS. WADHWA: Thank you, Commissioner. So this strategy, the chief idea is to encourage performance-based efficiency solutions and, again, we believe that pervasive availability of data and analytics is key to driving that. So we envision a model where efficiency is procured as an investment and the savings are reliably monetized. And this ties closely to Strategy 3.2, which we'll talk about later today, which is about performance-based industry.

And Strategy 2.1 is about recognizing, this is Enhanced Program Design and ME&O, but we recognize that most owners are not able to make whole building upgrades all at once. And how do you address that in a long term plan? And at the same time, to really reap the deeper savings, we need to find program models that do that. So really two things need to happen fundamentally: we need to have incremental programs that cross pollenate seamlessly, and we need to make it easier for consumers to participate and access program information, it needs to not be siloed, it needs to not be so area-specific and at the same time retain local flavor wherever it's needed.

Strategy 2.2.2 is about expanding behavior programs. Again, this ties into availability of AMI data and Smart Meters. And when consumers have access to this data, which is already on the rise, there's no reason not to amp up these programs and tap into the behavioral psyche, and make it as part of the intrinsic program design.

2.2.3 is about targeted programs and, again, ties closely to data access to the industry folks, and this is not so much about the low hanging fruit, aka the high consumer alone, but really understanding at a more granular level which programs or approaches will be more suitable to a certain segment. And we can only do that when the industry has the data to recognize it.

2.2.4 is looking at some good pilots that IOUs had come up with recently where there are building cohorts and, you know, the coordinate and bring together property owners who are able to engage with each other effectively on behavior, giving each other tips on behavior mechanisms, implementation mechanisms, and one part of this could possibly be evaluating the effectiveness of outreaching to large corporations that have a portfolio of buildings across the state. And so, again, a streamlined program delivery mechanism would be crucial.

2.2.5 is Strategic Energy Planning. This goal, the strategy here is to develop sector specific plans that then get integrated into programs and to build technical support centers in targeted regions and provide ongoing technical assistance through them.

Now I will open it up for comments and discussion. Elliot, who is our guest speaker today, Elliot Hoffman, he is the CEO of REV. I would like to invite you --

MR. MESSNER: Are you taking comments still or --

MS. WADHWA: I’m sorry, I --

MR. MESSNER: I thought you said you were inviting comments.

MS. WADHWA: I misspoke. We should let Elliot speak and then open for comments.

MR. HOFFMAN: So how do we forward these slides? Just ask you to forward them? Okay.

Hi, and thanks for inviting me here. I think the only thing worse than being before lunch is coming after lunch, try to stay awake, I know what that’s like.

So I’m here to talk about what we do at REV. And I designed REV out of two passions of mine, I’ve been an entrepreneur since I’ve been 26-years-old, started a bakery in San Francisco, grew that, scaled that, and was Chairman of the Board of the Presidio School of Management, an MBA Program focused on sustainability, put those two together to design a program specifically to bring the benefits of sustainability, energy efficiency and so on to small and mid-sized companies and organizations around the country. So REV is about revving up or accelerating our journey towards a more sustainable society.

Our overall purpose is to actually accelerate and achieve the marketplace transformation to a new mindset of sustainability, energy efficiency, and resource productivity in California and the U.S., drive a mindset of efficiency and sustainability into organizational cultures, meet the needs of business, community and society, and drive major reductions in GHGs. Next.

Our mission, very briefly, is to deeply and profitably engage business, communities, schools, and other public organizations on the accelerated journey towards a sustainable and ideally flourishing future. We're out to destroy the myth that sustainability is a cost center and clearly demonstrate the compelling business case

-- and I underscore the business case -- for sustainability, energy efficiency, resource productivity as the driver of business and community strategy and innovation, and we're out to fully participate in the transition to the clean, safe, renewable energy economy in the future.

What we do, REV integrates the best of technology and behavior change to accelerate positive business, social and environmental impact and, as I said, our doorway is the business case. Next.

How do we do it? We designed a very unique program called Sustainability Circles that empowers businesses, institutions, municipalities in California to embed sustainable practices throughout our organizations and communities. Next.

And this is the very basics of what these circles are and what they do. What we do is we bring together 10 to 12 local business, municipal, other organizations into a peer learning community, and we have each organization have at least two, and they can bring up to four or five of their staff into these circles. We have a dedicated coach and an assistant coach for each of these circles, we bring them together a full day a month for six months and take them through a very specific and comprehensive curriculum that really drives things like efficiency and sustainability into the culture. We bring in outside subject matter experts, local, we do one-on-one coaching with each organization in between some of these sessions, we do a lot of employee and stakeholder engagement work, and the core result, the core outcome of the six months is a very detailed and implementable sustainability action plan.

This is very results and very action oriented. It is essentially a five year strategic plan for sustainability in the organizations. It is focused on collaboration, action, results, accountability, impact, and scalability; these are the things that were designed into this from the very beginning, we're not about having a nice little consulting gig, this is really about scale and impact. All of our people are very passionate about this.

This gives you -- you can't read it, so I'm not going to read it to you, but this is a very broad brush look at the full six-month curriculum and, if you could see it, you would see that there was a lot around energy, water, waste, the first day we take a very deep dive with everybody into what we call Sustainable Value and get into a deep exercise before noon on the first day where people are really working deeply in their organization on some of these issues. In the afternoon we bring in experts, like we had a three star Brigadier General who teaches environmental science and climate change at West Point to do a climate change segment at one of the circles that we just launched, and then we go through the next six months and, through all of this, we guide these folks -- we don't do it for them -- we guide them to create their own action plan, very specific initiatives with lots of metrics around it, so at the very last session every company gets up and presents their full sustainability action plan. And one of the great things about this is that nobody wants to get up there and just be silent, so there's a high level of peer pressure, friendly peer pressure, a lot of collaboration and accountability. So we've never been in a situation out of 200 companies where somebody got up there and just didn't do anything. Next.

Here is again a very broad brush of some of the results we've achieved. This goes back six months to a year. What these numbers are, these are the average expected five-year annual savings per organization. So if you have an organization, you've done your sustainability action plan, these are the kinds of savings that you are creating in your organization. So the average savings after they implement their plans is almost $300,000 a year per company, about a million and a half kilowatt hours of electricity, about 2.3 million gallons of water, about a thousand tons of CO_2, ROI is huge. We were asked by Southern California Gas to do a school district circle in the LA County, they blew it out of the water, it was amazing. Nine school districts dropped 35,000 tons of GHGs, they hit like five million gallons of water, and a couple million dollars a year in savings *per* school district.

MS. WADHWA: Elliot, quick question on this slide. What is the average size of the organization?

MR. HOFFMAN: You know, it varies, actually a great question. This was built to address companies of generally 50 to 3,000 employees. Most of them are between 100 and 1,000. We've done a lot larger, we've done some smaller. We're actually going to do a Beta test of sustainability circles for small companies under 50 where we're going to launch that with SMUD. We're actually launching with SMUD next week, and they asked us if we would design circles for small businesses of under 50. And that cohort will be about 20 businesses at a time. Okay?

So this is looking out to five years what our aspirations are, you can see this year we'll do 49 circles or so with 490 companies. I won't go through all the details, but you see we're looking to have a real impact on GHGs, kilowatt hours of savings. This year the aggregate of our folks that we work with will save $127 million, they'll come up with about 14,000 initiatives, so we're creating a database of initiatives that, looking out over five years, they'll be close to a million initiatives through these cohorts.

You know, I'll just focus on one of

these, Mi Rancho, some of you might have seen this one before. The VP of Operations is Joe Santana, who was a skeptic, and after three months he was the poster child for this. They were able to save $160,000 a year within the first six months with no capital expenditure whatsoever. PG&E had been trying to sell them a lighting retrofit a couple years prior, they didn't want to hear of it, they took some of those savings and did a lighting retrofit, and just these three initiatives alone dropped $210,000 a year at the bottom line, their total investment including our fee was $17,000, that's a 29-day payback, not bad. The others are really good.

The City of Pleasanton, they are currently in their fifth circle, they believe deeply in this, they've had 12 of their people go through these circles. Next.

This is another great example, but I'll pass it, let's just go to the next one. This is just a small sampling of some of the organizations we work with, you can see there are cities from Hayward, Chula Vista, Pleasanton, and so on. We love beer, so there's a few breweries in there, Columbus does a great salami, and so on. So we work with Siemens, not a little company, but a division of Siemens, this was in Iowa, they built all large wind turbine blades for all their North America wind turbines out of this factory. They were a knock-out. I'll stop there and answer any questions you might have.

MS. WADHWA: Thank you, Elliot.

MR. HOFFMAN: Okay.

COMMISSIONER MCALLISTER: So I just want to make a point. I think we said it at the beginning, but we've really chosen the speakers, you know, Billi in the morning and Elliot now, and I think we have one other, just to give examples, you know, not as sort of the gold standard for any particular strategy, or the only thing we're contemplating doing or anything, but just to talk about -- basically they're the highlighted text boxes in the plan, so sort of something worth highlighting part of the overall portfolio of strategies, and we wanted to kind of give a for example along the way. And so I want folks to just understand and take it as such. So thanks a lot, Elliot, I really appreciate it.

MR. HOFFMAN: Okay.

MS. RAITT: I'm sorry, could you come up to the podium so that folks on the WebEx can hear?

MS. SKINNER: I wondered if the school district example you gave, that you showed a year of 2014, did you utilize the Prop. 39 monies --?

MR. HOFFMAN: Yes, they did. The utility -- Southern California Gas, I think in partnership with SCE, actually funded their participant fee, which is very reasonable, actually. But the implementation, they used the Prop. 39 funds, yeah. Okay? Thank you.

MS. WADHWA: With that, we'll open this Goal up for public comments and discussion.

MS. BERMAN: Hi, this is Jan Berman from PG&E and I wanted to note that we've had a number of customers participating in the REV Program that was just discussed, very positive feedback from the customers, and an indication that they feel they have reduced their consumption, so that part has been great. It is however treated as not a savings program, so the costs that we incur considered overhead costs, and I think Mr. Hoffman presented some great ideas for scaling, but it is a challenge to scale a program that is treated as an overhead. Thanks.

COMMISSIONER MCALLISTER: Do you feel like there's a possibility of linking specific savings to that program within the sort of existing format for M&V, and moving it from a non-resource over to the resource?

MS. BERMAN: Right. In the existing framework, the only savings that would be attributed would be the above Code baseline portion of our retrofit that gets incented.

COMMISSIONER MCALLISTER: Gets an incentive, yeah.

MS. BERMAN: Yeah. So the majority of the savings which might be behavioral, operational, or having triggered a Code and done all the work to get to Code, that part wouldn't be.

COMMISSIONER MCALLISTER: Yeah, thanks.

MS. LE: I apologize for being a little late to the afternoon, so if I could speak about 2.1 and 2.2, as well, that would be great.

COMMISSIONER MCALLISTER: Please, perfect, yeah, that's the structure we're operating with, so go ahead.

MS. LE: Okay. I see a lot of the energy

performance and baseline data tracking and I agree that that should be tracked, but if we're concerned about performance, I think we also need to track workforce information data, as well, so that might be contractor qualifications that may be classifications of workers, especially for public buildings where, you know, this is already mandated, but certified payrolls are submitted that this is the type of data that could be really useful to determine, okay, what are the qualifications of the contractors and the workers, and how does that correlate with the energy performance outcomes, the quality outcomes of the actual retrofits themselves. And the next section, I know, Goal 3 talks a lot about workforce, but data tracking really should include these workforce components, we're really going to integrate the quality side to the inputs, you know, so you want to know what the inputs are, what the outputs are, and one of the inputs is labor and the quality of the installation itself.

COMMISSIONER MCALLISTER: Interesting, thanks.

MR. NESBITT: George Nesbitt, HERS Rater.

Access to data. We have a certain amount of data with HERS Registries, various utility programs, NSHP, but do we have access to that data? Most of it is locked up. So for data to be useful, well, you've got to collect it, it's got to be decent data, garbage in, garbage out. And you have to do something with it. It would be nice if more of that data was available. Obviously I don't need addresses and who the HERS Rater was, but information, say, okay, how many duct tests are there by region, or by city, new construction, existing, that kind of stuff. Otherwise we're collecting it and it has not much use or value.

MS. BROOK: Thanks, George.

MR. CHANGUS: Jonathan Changus with the Northern California Power Agency, and recognizing that we're going to have a much deeper dive on this later on, just want to make kind of high level comments today and will follow-up later on about.

When we talk about gathering data, and one can make it more accessible and available, I think there's who you're making it available to raises different levels of concerns for our members. I think equipping customers with better data about their usage, part of what we've heard previously about benchmarking and some of the operational changes that occurred without any real investment is just because folks are more sensitive to how they were using energy, that's one thing. I think where we get nervous, and as we will discuss later some of the concerns about making customer data anonymized in some form, more publicly available to folks that aren't the customer, sometimes with and sometimes without their consent, creates some challenges, challenges for the utility in providing that data as we've learned through 1103 and Prop. 39, the format, how much do you want to receive?

Smart meters are not ubiquitous in all small publicly-owned utilities to date. And so we can't provide some of the interval data that's being requested. And then you have over 40 utilities that don't necessarily have the same systems, so how do we put that data out in a common format? So all things we'll talk about further, and it takes a huge effort on our part, so how can we work closer with third-party vendors? OPower is in the room, somebody that we're looking forward to help customers change is one area, but the larger broader goals I think we want to explore a lot further because I think that can take a lot of time and resources away from actually focusing on the customers and that can be counterproductive. But I realize we've got a lot more to work on in that issue and we'll have more thorough comments on that coming forward.

COMMISSIONER MCALLISTER: Absolutely. So thanks for that. And, you know, I think we're aware, certainly I'm aware of many of these challenges you're referring to. You know, so we've got to work through the logistics and this sort of lift and, to the extent that there are publicly-owned utilities that are large and sophisticated, and there are others that are less so, so maybe the challenge there is figuring out who is in which bin and how they can leverage entities like yours to help get that kind of consistency. But we have, I think, a high and increasing level of urgency on the side of the public good that we are trying to create with energy efficiency. And so I think we need to find a balance between the sort of -- you know, we need to value this investment to put in place the right kinds of infrastructure and consider that a task that we really have to get through, figure out the best way to do it, but not whether we're going to do it, is what we want to be talking about. And so creativity as to the how, you know, it may be exactly the what, but definitely the how, is I think what we want to be talking about next Tuesday. And it may not be the same for every service provider. So, thanks.

MS. DeRIVI: Thank you. I'm Tanya DeRivi from the Southern California Public Power Authority and just wanted to emphasize that it would be very helpful next Thursday for the Energy Commission staff to come prepared to talk to us about how we address these privacy concerns, which has been a huge problem with us in implementing both AB 1103 and Prop. 39 programs, specifically with sharing information with third-party providers that customers may not wish us to share. So getting clarification and if there needs to be a statutory fix working with you all on that, as well, would be very important and helpful. Thanks.

MR. KOTLIER: Bernie Kotlier with the

Electrical Contracting Industry. As far as data, the comments I'd like to make pertain to what we see as a gap between policy and actual savings on the ground, if you will. And that is I think we do a great job in many areas in policy, but we rely to a great extent on calculated savings in a lot of programs, and what we see, and I think there's a lot of anecdotal evidence, as well as statistical evidence, is we don't always achieve those savings. And so we understand that M&V is expensive and it's not necessarily a solution for all applications, but we strongly support the concept of actual M&V measurements in larger commercial buildings, much sector areas where we have significant investments because, as great as our policy is, we're not actually achieving what we project and what we calculate.

COMMISSIONER MCALLISTER: You know, I think you'll see, if you looked around, instead of up here, you'd see some people nodding their heads.

MR. KOTLIER: Right.

COMMISSIONER MCALLISTER: Myself among them. I guess it would be great to hear your perspective in your written comments about what that might look like, but I think the time is ripe to talk through what those almost real time kind of monitoring systems might look like and figuring out how we can do performance-based in a way that has a readable cost, right, without relying on engineering calculations, fully really focusing on the result.

MR. KOTLIER: And I think this is a result of a real systemic problem we have and that is that, for the last 30 to 40 years we've been asking industry to create more and better and more capable devices, equipment to save energy, produce energy, whatever it is, particularly in energy efficiency. And they've responded very effectively. And those devices are more complicated, they're more networked, they're more sophisticated, and at the same time we have public policy and private practice which says always hire the lowest cost contractors and workers. And it is impossible to do both because the lowest cost contractors and workers cannot be trained to do that sophisticated and expert work that's required for those sophisticated devices, and so what we have is a gap, and that gap is increasing as our technology is more effective, it’s getting greater and greater because those people don’t have the training. You can’t afford to do the training if you have a policy of the lowest cost all the time. So the answer is the lowest cost qualified people who can do that. And unless we fix that, we’re going to continue to see a larger and larger gap between the sophistication of the devices and the energy they can save, and what they actually save on the ground because they’re not being installed right, they’re not being maintained correctly, they’re not being operated correctly.

COMMISSIONER MCALLISTER: Right. Thanks very much.

MS. BROOK: This is Martha Brook for those of you who are on the phone. I would just like to encourage everyone to think about commenting on this type of data need for the marketplace because our limited understanding is that performance, actually measured meter savings, is what is needed to get to scale in terms of private investments in energy efficiency, that they need to know that their investments are going to deliver in terms of metered savings. And so if you can consider, you know, helping us, you know, is what I just said the truth, the way you know it? Is that how you think that markets are working and what's needed for financial investments to scale up for energy efficiency? And if so, then help us challenge ourselves to provide that data to the marketplace. And then, as I said earlier, if we're providing that data for the marketplace, we should use it for our own M&V purposes, we shouldn't have to do something different and expensive that is separate from what the market needs for measured performance data.

MS. CLINTON: So, Commissioner McAllister, this is Jeanne Clinton, PUC. I wanted to focus on 2.2, the consumer focused efficiency, and pose an observation that I have, and then two questions for the audience to contemplate in comments that hopefully you'll be submitting.

So in 2.2.1, the second bullet is target consumers at key transaction points. And to me that implies a highly varied access or outreach strategy with multiple touches to the same building owner or occupants, but at different times, according to however one defines the trigger points, and presumably with different market actors being relevant at those different trigger points, whether it's a real estate salesperson or an HVAC Contractor, or a roofing contractor, or whoever else is sort of the market actor who is going to be engaged with a trigger point. So that's an observation, it's not a question.

My question goes, then, to 2.2.5 which is on the next slide where it says "establish sector-specific support centers for plan development." And this, I would observe, is I think also consistent with what the PUC has heard recently from a stakeholder group on how to approach 10-year rolling portfolios for efficiency programs, which is to have sector business plans. And what I want to do is pose two questions that connect the dots between figuring out how through either the owner or the end user or the market actor at different trigger points, how we're going to connect that with this process of sector-specific plan development and, by extension, program design. So the questions that I would pose for the audience to think about are, first, how well do utility programs now do sector-specific and transaction point savvy design and targeting? And secondly, how would sector-specific support centers looking ahead navigate between what was discussed at the end of the morning on statewide collaboration, and then now perhaps more program or market transformation specific designs for strategies?

So, you know, we have a long list here of wishes and wants, and I want us to think about how we would bring together these ideas of doing sector-specific, sort of smart savvy programs that are also, you know, aware of trigger points and somehow differentiating what to talk about, when, with whom, and through what communication channel because obviously this is the crux of the challenge if we want to get real stuff done.

COMMISSIONER MCALLISTER: Thanks, Jeanne.

MS. CLINTON: Question one? The way I wrote it down was, "How well do utility programs now do sector-specific," and what I called "…transaction point savvy program sort of design and execution?"

COMMISSIONER MCALLISTER: Go ahead.

MR. CORMANY: Hello, it's Charles Cormany from Efficiency First again. I would like to speak on the topic of data and its value in collection. I think one of the things, I've been a contractor in the field and done this work for about 10 years, and one of the things that was really hard for me to justify or verify was the effectiveness of the work that we've done previously. So you can anecdotally know a lot of things from customer interaction, but I've never been able to access concrete hard data, how much we actually saved on a particular structure by what we did, other than getting back in touch with my own clients and saying, "How much have your bills gone down? And what is your perspective of it?" So I think it's a huge tool for contractors to be able to say, "We can try this set of measures on a house, this suite of measures, and by using these measures we were able to get this savings." It will be a really beneficial tool for the people to understand how they're doing and how they're performing. That data has been really hard to get unless we went in on our own and used data loggers and did it at our own expense. So being able to have that data for contractor feedback to improve their business models and their technique is huge.

Another thing that I think we're really looking forward to is moving towards a performance-based situation over deemed savings, and I don't know how you can do that if you're not measuring and have data collection. I think performance-based and data collection and real verified data, maybe it isn't perfect because it's never going to be, is still much better than predictions and assumptions, and that's kind of in the world we're working in now. And I think we really need to embrace the idea of energy efficiency meters and the value that they can bring. I mean, PG&E, for the people in the room, the work that's been done with CalTRACK and CalTEST is a huge step in the right direction. To have some quantifiable measures that are based against real buildings, that's kind of the CalTEST to make sure we can bring other softwares into the equation, and CalTRACK, having a system that is going to improve modeling predictions and the more numbers it runs through it, the more projects that run through it, the more accurate it becomes. I think these are all really good things towards driving towards a model where we can reward on a performance-based situation, rather than deemed, or a projection.

COMMISSIONER MCALLISTER: So in the next strategy, Strategy 3 on 3.2, we actually highlight CalTEST and CalTRACK in the plan and are definitely interested in pushing that discussion forward and utilizing those where it makes sense.

MR. CORMANY: Yeah, so I'd like to call out, I mean, say some kudos to people who worked very hard on that, some good work going on in that arena.

COMMISSIONER MCALLISTER: Thanks.

MR. OGADA: Hi. Derek Ogada from Southern California Edison. I just wanted to kind of address partially what Jeanne Clinton had raised about IOU targeted programs at the subsector level. So in the Preferred Resources Pilot, South Orange County, we are targeting specific load profiles of customers we know in the area where Johanna Santiago is, that's related to the SONGS outage that had system reliability issues, we're targeting the customer base which is majority made up of residential customers, so we're looking to target the right resource, whether it is distributed generation, EE, DR, to fit a specific time of use case, so we're trying to demonstrate through the Measurement & Evaluation that you can apply EE in a targeted way. So I believe that some of these kind of innovative approaches will demonstrate the value of EE, this is still on the cutting edge. And I wanted to emphasize that, you know, virtual audits by itself are not the only silver bullet because we found in some of our pilots that taking a Google Map and looking at the customer profile doesn't identify that there could be subtenants that have a different profile within the building constructs. So the implementers need to actually have the Webinars and the customer engagements to understand what the actual usage is of the building occupancy. So there's more to be learned from this process, but as you see, the vendors that are doing this, there's a variety of solutions, but not all of them are providing the specific mechanics that we really need at this time. So, for example, on load disaggregation, they can't see the miscellaneous end use loads below 100 watts. So plug loads will not be included in those load disaggregation profiles. And the algorithms to kind of show program design are still yet to be kind of incorporation, so there's still much to be learned in the market. So I think it's still at the early stages of these tools being utilized.

COMMISSIONER MCALLISTER: Yeah, so I would exhort you and others interested, and certainly the vendors out there, as well, so utilities and vendors, and both Commissions, to a previous strategy we talked about was having some discussion of minimum standards for these sorts of tools that we would then, you know, possibly the Energy Commission would sort of say, okay, well, this group of tools is good to go and then the conversation would move to how do we get every customer the right resource in an understandable way in front of them and hand hold where necessary to get a project moving forward.

So, you know, I don't think we're thinking of these tools as a silver bullet, but rather a new and potentially transformative tool that helps us have the conversations and the actual work on the ground that we're aiming for. So, you know, to activate the marketplace. But thanks, thanks for that. Go ahead.

MS. BERMAN: Hi, Jan Berman from PG&E. I thought I would also briefly address Jeanne Clinton's very thoughtful question. I tend to think of us mapping the program construct over actually four dimensions, rather than just the two we discussed here. Clearly, sectors, residential, commercial, small and medium business, large industrial, etc., is a key map and, as well, transaction points is a key map. We have to understand at what point in the energy efficiency consuming ecosystem are people making decisions, and that could be on the Web, retail, it could be that a new product needs to be manufactured, it could be trade professionals, ESCOs, third parties, there are many points of contact, you have to look across the whole map. A third dimension would be technology families, so let's look at HVAC, lighting, water heating, etc., each technology, and see what the efficiency of that is. We also map that over a time period because we have a path towards Zero Net Energy, so we need to look at how efficient each end use needs to be in order to be on that path. And then the fourth, I would say, is geography, so we'd take a look at both what are the key drivers of energy consumption in different geographic regions, hospitality, agriculture, etc. as well as what are the particular focus of local governments in each area. So we'll try to speak to that in our comments in terms of looking across the maps.

COMMISSIONER MCALLISTER: Thanks.

MR. MESSNER: Keven Messner with AHAM. I just wanted to talk -- data is important and as an engineer like you, it's good to have strong data. And we would love to -- I'm not always here agreeing with what CEC does, but if we had a backbone of the data that we all agree on, that's helpful to then get to the policy discussion. If you're arguing about the data and also the policy, it's really difficult. And that's one thing that DOE actually does well usually as it's very data driven, a lot of technical support upfront.

So long winded story to say that that's great that this data holistic look next week, looking forward to that, and a lot of this stuff that's happened seems like little things get added on and added on and added on the efficiency and rebate programs, and then when you look at it holistically, one thing is added on which impacts another. So the data and the requirements that the PUC has for efficiency programs really is hurting the efficiency programs and making it hard for utilities to go through their E3 calculator and everything to actually make cost benefit work, where if you looked at it holistically and you ran the numbers holistically, it would be an energy efficiency winner. But the way that it's all structured, piecemeal, it's not. So it's great to look at it, but I think you should focus on trying to simplify things and getting things done holistically because right now there's so much money, so much effort that goes into EM&V for checking things, and having utilities do things, and evaluators do things, and then the PUC evaluators do things, checking things that don't lead to energy savings. It's millions of dollars going that could go to a consumer rebate or an efficiency program instead of checking what age of the refrigerator, for example. Nobody knows what the age of a refrigerator is on the model. People say, "Oh, it's olive green, so it's 1970ish." You know? And then we spend how many millions of dollars checking to see if that is 1970 or 1972?

COMMISSIONER MCALLISTER: Well, just to be fair, the EM&V budget at the PUC is a small proportion in percentage terms of the overall efficiency budget, and if you think about it in absolute terms, it’s a lot of money, but it’s also looking after a vast amount, a big pot of money.

MR. MESSNER: Right, and I’m not saying EM&V is bad, I just think it could be streamlined and it could be done more effectively if a lot of these other requirements were removed and you looked at it simple and allowed the utilities a freer hand to actually determine these savings. So a longwinded thing to say that data is good, but also don’t forget that simplification and a holistic thing is important. Just throwing on more data, we’ve got enough databases, CEC, DOE, FTC, everyone else, and everyone is doing their own thing.

COMMISSIONER MCALLISTER: So you’re referring specifically to the data that you deal with every day which is the Appliance Database, right? Or something else?

MR. MESSNER: Yeah, and also with the PUC, the DEER database, that's just, I mean, for our stuff it's way off the mark. And then there's requirements of a program to have an age requirement, or there's all these requirements that are put on the utilities, and when you put them altogether, utilities send it up to PUC and they'll get rejected and because there's all these competing different requirements, where if you looked at it holistically, which is what we did with this earlier replacement with TSD, you'll see that the numbers actually turn out to be a net energy savings and good cost benefit. So the whole system is really ripe for streamlining reform to allow more efficiency programs that really exist and to move that into the efficiency programs and less into just EM&V.

COMMISSIONER MCALLISTER: I think Jeanne has something she wants to say.

MS. CLINTON: Yeah, I seem to keep picking you out to pose questions to, so my apologies, but this is just an advertisement --

MR. MESSNER: That's all right. I'll stop coming up!

MS. CLINTON: -- I think we're all eager

to try to make everybody's life simpler, as well as the CAISO's life in terms of being able to know what they can count on. So I hope you're going to come on April 28th when we try to look into these black boxes and figure out if we can simplify the connections between Codes and Standards and forecasting and utility voluntary programs.

MR. MESSNER: Yeah, I definitely will and I look forward to working with the PUC on this -- trying for years.

COMMISSIONER MCALLISTER: Thanks. Okay. Any --

MS. RAITT: Yes, we have two folks on WebEx. The first is Randy Walsh. Randy?

MR. WALSH: Hi, this is Randy Walsh from San Diego Energy Desk and I've been listening in all day to a lot of great information. I might have missed it, the afternoon introductions, I don't know who is there, so I'll just say a blanket hello to Commissioners, anybody that's in space, and hello to staff, and thanks for the opportunity to chime in here.

Just a couple things, especially on this section that Abhi was presenting. I think it might be important to add a bullet in here somewhere to ensure that you are not double-counting actual savings or projected savings, actual reductions or projected reductions. Doing projects right now as a consultant, I'm going to claim that I've made X number of reduced energy use by X. Well, SDG&E is also going to potentially claim that they've reduced energy by X, so now we're really both talking about the same set of data, the same reductions, but it might appear that the overall reductions are much larger than they are. So I think that's important.

The other piece on here talking about maybe double leveraging, it just boggles my mind that utility companies don't know service addresses of where their meters are located. And there's just so much happening now with disaster recovery, it seems like you might have a little more leverage on getting that piece moving forward, you know, if you can also look at that disaster recovery angle, not from the CEC but maybe through another entity.

And when we're talking about the data, a couple of interesting things have happened, obviously Governor Brown's comments and his positions, and now everybody is talking about this further reduction. And for EV Chargers there was a law that was passed that essentially outlawed any language in a multi-family lease agreement that would prohibit the installation of Electric Vehicle charging equipment. I would just throw out the possibility that maybe we're at a point where energy and water use data is a public good, and under emergency situations right now we can maybe step past these confidentiality concerns and just say it's a public good for us to see this data, whatever format that might be. And my focus is on the EV 1103 piece, but I had state client work I had to do this morning, so I was just listening in. And I'll get some written comments in on the 758 and also participate in some of the 1103 works. Thanks.

MS. BROOK: Thank you very much.

COMMISSIONER MCALLISTER: Thanks.

MS. RAITT: Okay, the second one is Michael Nguyen.

MR. NGUYEN: Hello, this is Michael from the So Cal REN. I'd like to ask that Commissioner McAllister and also Jeanne Clinton, your thoughts on does existing policy framework require any change to support behavior and operation as essential elements of the portfolio? And if yes, what are your recommendations?

COMMISSIONER MCALLISTER: I'm not sure I'm going to be able to answer that right off the bat, maybe Jeanne will. But behavior is moving gradually towards the center of where efficiency is going, you know, it's not just about widgets and physical systems, but it's also about how they're used. So I personally don't see any prohibition for looking at those, but you have to be careful because behavior is by its nature relatively more difficult to quantify the savings of. I'm not going to venture to make recommendations on that, I think the plan talks quite a bit about that and I'm really looking to the stakeholders like yourself to help us flesh that out in terms of where we're going with the existing buildings. And I know that the PUC brings a lot to the table, too, in how they're approaching the portfolio going forward, as well. So this is certainly an existing topic that lots of folks are thinking about.

MS. CLINTON: Yeah, this is Jeanne

Clinton from the PUC. I think talking about sort of the role of efficiency caused by behavior and how it gets incorporated, both into utility programs and into the additional achievable or incremental energy efficiency in the Energy Commission's load forecast and the CAISO sort of procurement vision, is something that I don't have the details on today, frankly. And probably the utility folks in the room could speak to this better even than I. But I will say that, 1) at least all of the investor-owned utilities have some element of behavior activities going on with the home energy reports that go out to customers, and I think the challenge here is one can document, you know, these programs haven't been running that long and the question is what's the persistence of the energy savings? I think there's a lot of evidence that there's one or two percent savings coming from households who get these reports, but the question is how long does that last? And the reason we need to know that is because we're trying to decide how much investment to make in renewables, or natural gas power plants that are going to have 10 to 20-year lives, so we're trying to figure out what data do we have to inform us how to project from one or two-year impacts into the future.

I think there also may be some other experimentation going on that I simply am not in a position to report on today. But I think that in general the PUC has taken a consistent viewpoint of wanting to encourage alternative energy resources, efficiency demand response, as well as renewables, and the challenge always is to figure out how we incorporate that into long term resource procurement and investment. And we have to somehow make them equal.

COMMISSIONER MCALLISTER: I would also just mention that there's an annual conference, the BECC Conference, the Behavior and Energy Climate Change Conference, I think it's called, that anybody interested in behavior ought to go to because you'll find somebody with the answers to your questions at that conference.

MR. NGUYEN: Thank you. Just one last question to Elliot of the presentation of REV Program. It sounds really wonderful. We as a program administrator, we're really interested to hear a third-party implementer. What are your recommended changes to energy efficiency portfolio design so that we support large scale deployment of programs such as yours?

MR. HOFFMAN: Repeat it, please?

MR. NGUYEN: Go ahead.

MR. HOFFMAN: No, if you could repeat it, sorry.

MR. NGUYEN: Yeah, I'm just interested to hear from a third party implementer such as you, for a program administrator what do you recommend us to do regarding portfolio design so that we could support a program such as yours where you reach out, where you're making a lot of change? What do you recommend to us for a program administrator on the portfolio design?

MR. HOFFMAN: First off, we're not a third-party implementer administrator, we're really an aggregator, if you will, of businesses who go through this program. So I'm not exactly sure how to appropriately address. Jeanne, maybe? Could you help me out here, Jeanne?

MS. CLINTON: Yeah, this is Jeanne Clinton of the PUC. I think as Jan Berman explained earlier, the sustainability circle approach that Elliot described is more of what I'd call an informational or technical assistance program that is, in my terminology, an added on layer, if you will, of getting customer engagement, both with operational behavior activities, as well as capital investment activities. So in that sense, maybe the question is what is it about the way utility portfolios and funding are structured that hampers your ability to expand or do more?

MR. HOFFMAN: So I just had a conversation with one of the senior folks at PG&E last week, someone who works with Jan, as a matter of fact, and they're very interested in scaling this, but part of it is this is currently a non-resource program and part of it is what was just discussed around behavior, and a lot of it is around behavior, and you're right, Jeanne, the persistence is too early to tell, exactly. But we see ourselves as more of an education and training company that, instead of each of these businesses having somebody, an HVAC person, then a lighting person, then a water person come knocking on the door, we bring all those people into the circle. So all of these businesses together, they'll be meeting with a lighting person and go through all this stuff, then an

HVAC person, they're exposed to all of this through this six months, so that when they are ready and they've developed their action plan, they know who to call. So it's -- does that help you?

MR. NGUYEN: Yes, I appreciate that. Thank you.

MR. HOFFMAN: Okay.

MR. OKADA: Derek Okada, Southern California Edison. I just want to get some clarification on the behavior constraints, this is an area that I studied from DSM strategy standpoint. Behavior currently defined by, I believe, it's Decision 0909047, says that there are three requirements for behavior, which is comparative energy usage, ex post measurement, and randomized control trial or treatment. These have been limiting in the sense of expanding the behavioral definition to allow a broader set of behavioral interventions, so this has been documented in "Paving the Way," a research paper, or White Paper, that was presented by the IOUs with academics. And there is currently a straw man for expansion of the behavior definition which is before the Commission.

So the challenges here are that there are many different forms of intervention that can affect customer engagement, whether it's gamification, rewards, etc. and a lot of these, if they don't meet the current behavioral test, or lack the Measurement and Evaluation protocols, can't be counted as a resource program currently. So it's not that they don't provide benefit to achieve more widget or energy efficiency adoption, it's just the fact that as a defined behavioral program they do not count.

So this is one of the challenges that is currently before the EEOIR in Phase 3 for policy exploration.

COMMISSIONER MCALLISTER: Thanks. I think we need to move on to the next goal.

MS. RAITT: Actually, could we see if we have any comments first? Sorry. So if you're on the phone, please mute your phone unless you have a comment you want to make. So we'll move on.

So the next speaker is David Ismailyan.

MR. ISMAILYAN: All right. Thank you, Heather, thank you for that introduction. Good afternoon. Thank you for attending this workshop. My name again is David Ismailyan, I'm going to be presenting the strategies planned to achieve Goal 3 of the Action Plan. In the interest of time, let's go ahead and jump into the strategies to discuss the plan's proposal.

We've come to an agreement that energy efficiency for existing buildings is an inherently complex business. To maximize long term energy efficiency outcomes, a stable, predictable, and flexible business environment must be fostered in California by streamlining incentive programs. Current programs may not be designed effectively enough to draw efficiency service providers and contractors.

The plan also calls for developing and expanding direct install programs for hard to reach populations. Another market centered strategy is to implement rolling program portfolios to ensure long term funding in line with business investments.

Strategy 3.1.2 calls for industry professionals and stakeholders to develop partnership programs, to develop innovative pathways to efficiency solutions for their particular industry. One such partnership that exists is the Western HVAC Performance Alliance and we anticipate more partnership programs.

Another challenge for efficiency in existing buildings is long term efficiency potential achievement and verification, that's been brought up several times. Current equipment regulations help consumers, but do not ensure long term performance of installations.

Strategy 3.2 is proposed to facilitate a performance-driven market by developing and facilitating widespread use of verification tools based on actual data. Energy savings will have a higher realization rate. Contractors can market their success through possible certifications. As with most of the strategies presented today, quick and easy access to data is essential for tools development. These tools once developed can then be used for verification on performance-based incentive programs.

With that being said, I'd like to invite our guest speaker for this goal, Joanne O'Neill, Supervisor, Residential Buildings Program with Pacific Gas & Electric. She'll be talking to us about CalTEST and CalTRACK.

MS. O'NEILL: All right, thank you. It's actually Joanne, but I get that a lot.

MR. ISMAILYAN: Oh, sorry.

MS. O'NEILL: All right. I think, Elliot, I might have you beat what's worse than talking after lunch, talking about energy modeling after lunch, so we'll try to make this interesting, although I think Charlie stole a little bit of my thunder, which is okay.

So if we go ahead to the next slide? So I was asked to come talk to all of you today to give an example of, you know, an innovative approach that we've been working on to help inform data driven decision making, and I think I'm falling under Strategy 3, although you can see clear ties to 2 and 1, and probably some of the subsequent strategies, as well.

So just as way of background, this initiative is specifically focusing on Energy Upgrade California Advanced Home Upgrade Program, which many of you in the room are familiar with, but I'll give a quick summary of to make sure that we all have the same context for this. So this program leverages a network of participating contractors and raters who are hired by customers to perform onsite energy assessments, then do energy modeling and hopefully perform the recommended upgrades in the home.

And as mentioned earlier, this is a significant customer decision, so we're not only asking customers to take time off work to be available, to have strangers tramping through their house for days or weeks, but also to shell out usually upwards of $10,000. And so it's really important that we give the customers the tools necessary to make informed decisions.

And so in the context of Advanced Home Upgrade, you know, I think early on, and any of you in the room can relate to this, the uptick in the program did not quite meet expectations and I think one of the drivers that was identified was the barrier of energy modeling. And this is where I think a little bit of context would help paint the picture of where we go next.

So as Commissioner McAllister, you rightfully mentioned earlier, there really is an important distinction between asset ratings and performance assessment software. I think this highlights an area where those lines got a little blurry and which caused confusion. So in Advanced Home Upgrade, we were directed to use CEC approved modeling software for which there is one, and it's an asset rating, and we're using this to predict performance of installed energy efficiency measures. So not only having a tool that was probably used for the wrong purpose, but also just one tool in the market limited the functionality available to contractors and other market actors who wanted to see additional tools available.

It also unfortunately led to, because it was an asset rating being used as a performance rating, led to some accuracy issues of the savings predictions and this, as mentioned earlier, has a pretty negative impact on already complex customer decisions. To make that software more accurately predict, we could require a calibration, but that's time consuming and challenging for an already complex process. So we have that going on in the market. And more specifically for Advanced Home Upgrade, we had participating contractors who were concerned about the complexity of the software and, you know, everything that we're asking a contractor to do as part of the program adds time and effort into an already complex process, and everything we ask of them really needs to add value. And this was one thing that wasn't at the current state.

So with this, PG&E on behalf of the other investor-owned utilities, hired Matt Golden of Sustainable Spaces to work with a broad stakeholder group which included CEC, CPUC, the IOUs, NREL, DOE, and many other stakeholders to kind of map out what the future could look like for this initiative, which we deemed the Software Initiative. I think this is the one time we didn't come up with an acronym, yet those are coming. Next slide.

All right, so the first one, and I'm going to talk about two different pieces of this, first, CalTEST, and then second, CalTRACK. So the idea with CalTEST is an initial gate that ensures reasonable accuracy of software while decreasing costs and allowing for innovative sales process. And so we used actual California homes, software vendors then used their software on those homes, and those predictions were compared to whether normalized actual savings and software was then required to pass on an average insight accuracy level, and so that occurred last fall. We're happy to say that we're in the implementation stages of allowing new software into the program, so I think that was a great step forward in terms of functionality and flexibility in the program, but some unintended consequences, I think, are really interesting for this discussion, as well, is that it established a uniform nationally consistent output language, HPXML, and that allows us to do a lot of things, 1) it allows us to look at different administrators' data the same way, to analyze and aggregate in ways that were not easily possible in the past. We also have really had to focus on transparency, so all of the CalTEST documents and the various tools are all available on the website so that vendors can use that to constantly improve their software, or if they're thinking of getting into the California market can use that as a test bed. And so that was CalTRACK, allowing new software, reasonably accurate software, into the program.

You know, one of the areas that I think is really interesting and that we've scoped out as part of this process and are currently advocating with conversations with the CPUC to, you know, further pursue this, albeit needs some more stakeholder engagement throughout the process, but we really see CalTRACK as an integral part of addressing the issues I laid out in the beginning.

And so the diagram on the bottom shows three steps of CalTRACK, but really what it is doing is it's operationalizing the management of the data, so you have feedback on gross realization, gross savings, and other performance metrics. It also allows and enables you to report and aggregate results and reward the desired market outcomes. And the third bullet there is really enabling more accuracy in our predictions, which is important for both the customer level and the utility portfolio level, and also hopefully gives private market financers a little bit more certainty into the data that we're providing so that they can use it to augment with private funds.

So you know, that's nice, we said a lot of great things, I don't know about many of you, but I'm a what does it mean for me kind of person, so what it means is, you know, that there's a series of benefits and opportunities that these two processes combined can deliver, one which we've been talking about just recently is by not only reducing the time for contractors to participate in the program, allowing them to have quick accurate tools, but also tools that better enable the customer experience not only for describing cost-effectiveness in energy savings, but also facilitate other needs such as comfort, indoor air quality, etc., so you can really have that whole picture to drive customers with what we ultimately want them to do, which is to do upgrades. Obviously the software now is more accurate, so that will give better tools for customers to make informed decision making.

And I think this was mentioned a couple of times before, but it really gives us the ability to track and provide feedback to contractors on their performance results so they can improve their own business systems and their installation standards, and hopefully improve going forward.

And so those are kind of the benefits. I think it also opens a lot of opportunities. When we think about innovative incentive models, in particular, so Advanced Home Upgrade recently moved to a performance-based incentive structure, but that's modeled performance, not realized performance, and I think there's a lot of opportunity from a customer's perspective to incentivize achieved savings, and then also from a contractor perspective to incentivize and drive realization rates, so a lot more opportunities for us and a lot more levers that we can pull.

COMMISSIONER MCALLISTER: What about, just to jump in here, we also highlighted, and I think it's somewhere in here, the CSI Database and sort of how that conditioned the solar market and provided a lot of public data that anybody who wanted to could download it, it was anonymized, but it was project-specific data and, you know, I guess a question would be are you contemplating doing something similar with this, you know, having a project-specific data, what measures were installed, you know, what contractor -- it will be different from solar because it's a different beast, but that produced a lot of innovative thinking, innovative business models, and you never know what people are going to turn up if they have a dataset that's been through this sort of quality verification and is sort of, you know, consistent and, in this case, you know, has pre- and post-energy consumption data, as well. Like if it's anonymized, you know, possibly it could be made public and it would help the marketplace tremendously.

MS. O'NEILL: Yeah, I think that's certainly on the table that, to be honest, wasn't before, right? So I think that those discussions have to continue to happen and I think there's a lot of opportunities, some of the near term, maybe not the massive availability, but certainly using that data to help customers make decisions. So, you know, helping after obviously contractor vetting, having a sort of external rating system or external visibility to performance of contractors. But I definitely think that all of those are on the table now with this additional visibility.

COMMISSIONER MCALLISTER: Great.

MS. BROOK: I have another question. This is Martha Brook. So since you're doing the measured part, you're basically doing M&V for each project. Are you proposing that this becomes M&V for this program and that you move to a performance-based instead of a model-based?

MS. O'NEILL: So currently CalTEST is

complete and active, CalTRACK is just scoped, and so we're working with the CPUC to define how that could roll out. We're a big advocate for it and would like to see it fulfill multiple roles, not only program design, customer information, contractor information, but since there is a clear overlap with impact evaluations, it would be great to have it fulfill that need, but that's still very much open for discussion.

MS. BROOK: Okay, so then sorry for not knowing this, but which discussion? I mean, there's so many different parts of every proceeding, I mean, can these people file comments to encourage the PUC to consider that in this Phase 2 comments that are due the 13th? Or is that a different phasing and timing --

MS. O'NEILL: Yeah, I don't know if Jeanne could comment, but where it is right now, from my perspective, is we proposed it to staff and are in discussions about what that might look like, and are certainly advocating for it. I think the larger benefits are really through joint effort versus just the utilities going in alone.

MS. BROOK: All right, thanks.

MS. O'NEILL: And I think that was pretty much everything on the slide, then we have a nice graphic that I didn't put together, so I can't take credit for.

MR. ISMAILYAN: Great, thank you. Joanne, right?

MS. O'NEILL: Yes, thank you.

MR. ISMAILYAN: Okay, perfect.

COMMISSIONER MCALLISTER: Thanks very much.

MR. ISMAILYAN: All right, when we speak about a high performance workforce and educated workforce, we're talking about the workforce. Strategy 3.3 calls for updated knowledge leading to a high performing workforce. Updates to curricula for technical professionals oriented to high performing buildings are needed. Determining building sectors that are most likely to demand efficiency measures soon and determining what system and trade skills are needed to respond to such demand will ensure a prepared workforce. Providing energy efficiency soft skills training to contractors, including knowledge of financing options, can lead to deeper energy savings as they can move consumers toward a whole house approach.

Quality assurance provided by the contractor can lead to quality improvements and installations. The plan proposed a broad adoption of quality assurance programs with building and construction firms, including certification and training, which will then trickle down to the rest of the organization.

Lastly, including special skills trainings incorporated into core workforce education and training will serve several market needs.

Deep energy efficiency retrofits are strategized and needed exponentially to meet the state’s efficiency goals. There are building sectors with key building types such as certain school buildings that are well suited for a ZNE retrofit.

The strategy proposes focusing on these types of buildings initially, Erik touched on that during his presentation. For other buildings where strong ZNE potential exists, but there is little or no guidance on the approach, the strategy calls for developing a toolkit. To encourage and facilitate such retrofits, the toolkit would include, for example, design templates and case studies on successful ZNE implementation.

Finally, ZNE retrofits can be costly, so having incentives and financing mechanisms available is necessary.

Okay, there was a 15-minute break planned, but I think we're going to go ahead and skip that?

COMMISSIONER MCALLISTER: Yeah, we're going to plow on through. Sorry guys.

MR. ISMAILYAN: All right, so now we're on to Goal 4, so we'll --

COMMISSIONER MCALLISTER: Feel free to take a break if you need to individually, but we're going to keep going. There's a lot in Goal 3 and I guess I'm going to encourage those of you who aren't sure if you want to comment now to think about this and submit written comments and interact with staff in my office on questions or comments you might have on this, where possible, because we're running quite behind and I want to make sure we have room for Goals 4 and 5. But go ahead, Barbara.

MS. HERNESMAN: Yes, thank you. This is

Barbara Hernesman, I work for CalCERTS. And first I want to commend the staff on the development of Goal 3 and the strategies that go along with it. It's pretty impressive and the word on the street is that we as an industry feel heard. So congratulations on that.

COMMISSIONER MCALLISTER: Heard with a "D", right? Not with a "T"?

MS. HERNESMAN: Heard.

COMMISSIONER MCALLISTER: That's great, excellent.

MS. HERNESMAN: And one of the things I'd like to comment on is making sure when you get into the performance-driven value of it, of the tools, that the tools and the communication is between the workforce and the actual application, that we marry those two, they integrate well, and that we get the performance we're expecting to get. So I think that's going to take input from all of the people who are actually implementing the performance, the operation, and the installation and the maintenance that goes along with it.

When it comes to 3.3, which is my love, workforce, I think the thing that we really want to look at is making sure that we capture all of the trades. So we've heard multiple times about Charrettes and all of that, but the bottom line is we need to cross all substrates. And I think it's really important that we do that, we don't leave any individual out or any part of it out.

Curriculum performance, perfect, it's a great topic. Right now is the perfect time. There's a lot of activity around the private and public industry working on competency model development, which leads to really effective curricula, and then it also leads to the performance that you want from your workforce, and it's a way for us to gauge that performance, too, along with what kind of applications have been done, so you're looking at all of those applications again, you are looking at the operations, installation and maintenance, this workforce then becomes the exemplary of what we are asking for. It's going to take training and it's not just a one hit training, it's an ongoing training, so let's talk about that.

When you build a competency model it gets revamped, it gets refined, it gets implemented, we put pilot programs behind it, and make sure that it's working again. There's engagement between the public and private sector. Community Colleges are a big part of this, working directly hand in hand with private industry. We can do this, we're on it, we want to be properly funded, and resourced to be able to continue to get this into the market that meets your scalability across the board.

Training contractors isn't just a contractor, it's training the contractor and its crew, its quality assurance, its quality control, its crew leaders, its technicians, the people in the office, everybody across the board in a business application needs to have the same amount of training and that needs to be an ongoing effort. Financing is a big part of that. All market actors needs to be involved in that kind of training.

Contractors in the construction firm, what we want to do in QA and QC is that we don't want it to be punitive. This has to be a mentoring application. If we want it to be ingrained, embedded, and a common practice, we need to support it, not make it a punitive action. So that's about what I have to say. I'm really impressed with what you've done here. Zero Net Energy -- I'll just say one more thing -- DOE is working really really hard on being able to provide us with competency models that we can adopt here, let's not recreate the wheel, let's just amp it up and have it meet our needs here in California. Appreciate you.

COMMISSIONER MCALLISTER: Thank you.

MR. MCHUGH: Jon McHugh, McHugh Energy. The first thing I'd like to start out by saying is I'd like to congratulate the California Energy Commission for eight years after the Energy Efficiency Strategic Plan, that we actually have a definition of ZNE planned for CALGreen, so that actually gives an actual location for this roadmap or this path to ZNE. So for a long time there's been a lot of hand waving, it all depends on what ZNE means to you, ideally this actually gets adopted for 2016 and there is actually a definition of ZNE homes as described, an energy design rating of zero, and that's really critical. So there's been a lot of people, you know, it's a whole green washing thing, "Yeah, I put some solar panels on and I have some efficiency features, but is it really zero?"

Nobody really knows. And so I guess the next question is, because my understanding is that a lot of this is supposed to be around nonresidential existing buildings, do we actually have the same kind of location, or end goal where something is defined, you know, in the past there was something called BEARS, I think it's kind of fallen by the wayside, I don't know where we're at right now with that, but ideally it's some kind of BEAR score of zero, or whatever this new design rating might be that incorporates TDV just like we have for homes.

So my recommendation is that this is something that the Energy Commission needs to do post haste and, in particular, you know, the Governor's Executive Action calling for -- is it 50 percent of new State Buildings being ZNE by 2020? That's not that far off. Fifty percent of the remodels of State buildings, that's an even larger square footage also being ZNE. There's not much time, I'd just recommend that that's on your agenda for this next Code cycle. Thank you.

COMMISSIONER MCALLISTER: Thanks.

MS. ROMAIN: Hi, Billi Romain with the City of Berkeley. I just wanted to make a quick comment on the Zero Net Retrofits to say that we'd recommend including also looking at removing the barrier to Zero Net with retrofits. Specifically, there's a lot of confusion and misinformation around replacing existing gas appliances with high efficient heat pump technology, and we've even gotten different responses on our ability to do that from the hotline and also the additional costs of running performance reports for that choice does create additional burdens, especially on homeowners who are looking to do ZNE retrofits.

COMMISSIONER MCALLISTER: Yeah, great. Thanks very much. I would point out that, as we were talking about before, new construction tends to drive Code. So we at the Energy Commission, we're committed to, you know, do our best and we plan to get residential ZNE in Code in the 2019 cycle for application in 2020. So again, you know, so that same Code is going to apply to retrofits, and so there's going to be some reason during the 2019 cycle to think about retrofits, and in particular fuel switching which you highlighted, and offsite self-generation, or offsite generation that could account, in a shaded lot where you can't do solar or whatever, how do we deal with those contingencies, those projects? So those are some issues that we really have to work through and actually they don't even fit within this building entirely, they're cross agency issues that we have to work through for both new construction and retrofit. So I don't know if we walked people through the format of these tables in the plan, but there's a timeframe and then there's a lead/partners, and often you'll see PUC and CEC being leads, one or the other, or often both as leads, and that is to be read as we're partnering on this issue because it's a cross agency effort, it has to be. So here in ZNE that's definitely the case where we've got to work with the PUC for both moving the marketplace and then getting to Code. You know, we move the marketplace through programs and initiatives; out there in the world we build it as needed into Code. So I wanted to kind of lay that context a little bit, so thank you.

MR. CORMANY: Hello, it's Charlie Cormany with Efficiency First California again. I just want to make a simple statement about curriculum development, and I haven't seen it anywhere in the literature, that I think everything should be done in Spanish. I've been a Project Manager for 10 years and I've had all my crew leads, you know, they were BPI certified and trained and everything, but we had very little support for Spanish speaking individuals, and I think it's really crucial to building workers.

COMMISSIONER MCALLISTER: That's a great point, thank you very much.

MR. NESBITT: George Nesbitt, Contractor, HERS Rater, Energy Consultant. To paraphrase Rodney King, can't we all just accept minimum compliance? Can't we get that before we get to innovation and performance?

MS. BROOK: Probably a lot of innovation needed to get compliance, right?

MR. NESBITT: Yes. There is a lot of innovation and performance out there, I've done projects 50 percent energy reduction, site energy reduction before solar, some of our best passive house projects are in the neighborhood of 75 to 80 percent reductions of energy. We know how to do it, technologically it's not a problem. I'm working on a passive house project with a community college and they're still throwing in framing everywhere they can. I mean, these are the people training, supposedly training future people in the industry and they don’t know what they’re doing. HVAC instructors who ignore things like load calculations and duct design. It’s sad. We have to re-train a lot of people. I don’t think everyone has to have the same level of training, but site supervisors, crew leaders, contractors, need to have a high level. They need to be able to at least direct someone with less skill or less education and training into doing it right, and making sure they do it right. QA has been a disaster on that project, despite all my efforts to do QC and tell them what needs to be done ahead of time, I can’t tell you, you come out and someone has covered stuff up. It’s like….

So there’s a lot of talk of model versus actual. Energy Upgrade California has always been based off of modeled savings. The problem with actual savings, come back to my house, energy efficient house, yet my use is below the energy efficient for my neighborhood. So if we’re going to incentivize people like me based on real savings, because I’m conservative you’re going to penalize me because there's no energy to save. So we'll reward the wasteful people. I mean, I have two refrigerators, I choose to fill my belly than heat up the whole house and be warm. You know, priorities, right? Some things are more important. And I do think in that sense, and solar rebates have tended to go to more affluent people, in general. And the truth is, there's a lot of energy to be saved there and we do need to target more wasteful people, I mean, cost-effective, we can get further quicker. And so in that sense modeled savings, you may not hit the target every job, ultimately we care about the average if at least on average we're saving, we're good.

MS. RAITT: We are going to need to move on soon.

MR. NESBITT: Yeah. I just want to say on software, it's a little sad to see what the CPUC is doing. Most of that software if you need Code compliance you can't use it, you've got to re-do it, so we're redoing load calcs in one software, we're going to use another software for Energy Upgrade California; you want to show Code compliance on anything but a prescriptive path, you're in a third piece of software. And I see redundancies, I've got an NSHP project, HERS 2 Rater rated it because it was required by the County, and then when the contractor went to rebuild the house, he went to an energy consultant and re-did it, I'm going to have to go back and re-work it. So let's reduce redundancy. Let's get one thing right, let's reduce redundancy. And then just on the QA QC, HERS Raters, we're out there working with people, I mean, we're in a position to help train people, provide the QA and the QC. Increasingly we have to be there anyway, we should be utilized as part of these programs to verify contractors' work to reduce redundancy and cost.

COMMISSIONER MCALLISTER: Okay, final comment.

MS. LE: Once again, Uyen Le, IBEW Local 11. And actually, I thought that the section was vastly improved from the last time, about a year and a half ago, so I just want to recognize that there's been a lot more attention paid and it's appreciated. And I just want to read a quote from page 74. "Just as the concept of high performance buildings needs to be integrated into

California business models, so the concept of quality assurance needs to be ingrained in the workforce and its supervisory ranks to ensure performance is achieved.”

So what that means is that performance has a lot to do with people who will actually be installing the work and the concept of quality assurance needs to be ingrained into this industry. And that means there needs to be clear certifications and standards as to what are the standards that need to be met in order for folks to be qualified to do these types of installations, or to do this type of contracting. So I really hope that the Commission takes time to identify some of these standards and certifications and to point them out.

And also, another piece on workforce that I think is really important is to look at existing infrastructure for workforce development and that was already mentioned, is we don’t want to reinvent the wheel. Apprenticeship is mentioned in the report, but I would advise for an even bigger role for the Department of Industrial Relations and Division of Apprenticeship Standards to identify what is the curriculum there, not just for new workers, but for upscaling of existing workers, because we want to make sure that the workforce that’s out there right now we can scale up quickly, so that can’t just be new people entering, but also folks who are already in the field who might need some upscaling and then also using the apprenticeship training in order to do that because that is something that the state is already involved with, we already set standards for, that already creates qualified construction workers who can do this type of work. Thanks.

COMMISSIONER MCALLISTER: Thanks very much. Do we have anybody on the Web or online?

MS. RAITT: We do. Carol Zabin, a comment. Maybe we lost her. There she is. Carol, can you -- there you go. Is your mute on, Carol? We heard you for a second.

MS. ZABIN: Hi, can you hear me?

MS. RAITT: Yes.

MS. ZABIN: Can you hear me?

COMMISSIONER MCALLISTER: Go ahead.

MS. ZABIN: Okay, hi. Carol Zabin from U.C. Berkeley, Donald Vial Center. Yeah, to echo and build a little bit on the last speaker’s comments, I also applaud your mention of certifications and the importance of setting that clear signal to training groups. And I just want to reemphasize what we've said quite a few times, that you can pour a lot of money in training, but unless you create the demand for skilled labor, that training won't be useful or used in the market.

So my question to the Commission is, what role do you see the Commission playing in this process of AB 758 in actually identifying and setting standards around skill certification? And if it's not you guys, who is it? Or who would you work with in doing so? Thanks.

COMMISSIONER MCALLISTER: Thanks, Carol. I'm going to pitch that to staff. I have some initial, well, so I want to acknowledge Carol for being really involved in kind of the workforce aspects of efficiency and other areas, but she's been consistently involved in efficiency, so thanks for that. You know, so you will have noticed themes throughout this document that really have to do with our trying to create conditions for the marketplace to function. And there are lots of balances we're trying to strike, and one of them is trying to emphasize quality, but not being too heavy handed with it because at the end of the day the decision to do a project is not ours, it's out there in the world, it's the building owner, it's the building manager, it's the state or local government, it's some customer, some user, some building owner. So in some of those areas there are workforce standards and there are contracting requirements and sort of that might be a place where these issues could be built in, in fact, already are in many places.

But the question, I guess, and it would be great to receive comment is how pervasive should those sorts of standards be and, you know, if you sort of require certification, say, or other sort of program or incentive-related requirements, or Code-related requirements, those sorts of things, if they are built in, how do you work with the issue of increased costs that might actually inhibit the demand? So I think there's a trade-off there and I think, anyway, it would be good to sort of get the comment on that. And, you know, maybe there is some evidence that there's a sacrifice in quality when you go down that route. I don't know, I'm just trying to kind of get the issues out there because we want folks to comment on bringing the best information and evidence to this and other issues.

So I guess what I'm saying, I kind of hesitate for us to sort of top down dictate this across all building sectors and, you know, if we're going to do that, there's got to be a really good reason for it.

MS. BROOK: This is Martha Brook. I'll just add that this potentially could, thinking about solutions to workforce development and certification requirements and standards and, you know, best practices for skilled labor might be appropriately considered in our sector strategy, so one of the things that we did in Chapter 4 of this plan was we did a beginning of an articulation of how we would address each, single-family, multi-family, commercial, and public building sectors, separately in terms of the priorities and the dependencies of strategies for successful implementations, and my guess is, not being a workforce person myself, my guess is that we would really want to consider at the sector, or even sub-sector levels, when the right balance of requirements for certifications and standards should happen, and in other cases where it might not be as appropriate. So that might be something that we could definitely get your comments on. Yeah, I think it’s a real challenge, and I think what Commissioner McAllister said is true: when the Commission has in the past established certification requirements, it hasn’t always resulted in high quality results. And so I think that’s where we always challenge ourselves to keep abreast and keep updating our own requirements so they actually achieve the results that we expect them to. So I think we’ll have to just consider each instance sort of separately on its merits in terms of its criticality to getting the efficiency goals in the state achieved, and if so, then we need to work collaboratively on that with the workforce partners across the state to make that happen.

COMMISSIONER MCALLISTER: Great, thanks. Go ahead.

MR. KOTLIER: Commissioner, thank you for raising a subject dear to the heart of the Electrical Contracting industry. Workforce education and training is something that is absolutely critical and I really couldn’t sit still and not answer this question about whether the extra cost of certification is worth it. I can’t speak for all the energy efficiency technologies, although I think many of them do warrant more training and certifications, but I can speak very specifically about lighting and lighting controls because that’s one of our areas of expertise.

And I can tell you that we’re one of the stakeholders, along with all three of the IOUs, both of the largest MUNIs, LADWP and SMUD, all the academic institutions and the higher public academic institutions, are all stakeholders in the California Advanced Lighting Controls Training Program, along with original funding from the Energy Commission, and so on and so forth. So basically everybody who is involved in the lighting efficiency and control industry in California is part of the nonprofit California Advanced Lighting Controls Training Program or CALCTP. This program is now about five years old and over $7 million has been invested in this program. It was founded by the utilities along with the California Lighting and Technology Center at U.C. Davis, and the Electrical Construction industry. Why? Because actually it was the utilities who told us this was needed because millions and millions, tens of millions, even hundreds of millions of dollars have been spent on incentives on lighting controls that either don't work or don't work to their level of performance.

Now, I understand there's a question about added cost, but there's actually no basis for the assumption that there's any added cost for certification. The electricians, the electrical contractors who do CALCTP work, and now there are about 2,600 certified electricians, are not paid any more, their rate is exactly the same as a non-certified electrician, number one; number two, I think we can't address that question without addressing the other side of it, which is how much money has been lost by property owners, by ratepayers and taxpayers, in all the incentive work that's been done for many many years? And that is a far greater sum than no additional cost for an electrician to have that certification or contractor.

COMMISSIONER MCALLISTER: Thanks a lot. I guess, so in your comments everybody, if you're coming from a particular area of the building sector, if it's multi-family, if it's single-family residential, if it's commercial, small, medium, I think certainly that's an area where, you know, it's clear we've got ATTCPs, we've built infrastructure, we know that there's a need for this quality infrastructure. And I would ask everyone in their comments to think about how important these issues of certification and, you know, that kind of quality-related infrastructure are relevant to you and that sector because it's going to vary and we don't want to over-build, we don't want to under-build. So we'll be listening.

MR. KOTLIER: A couple quick additional comments I want to underscore.

COMMISSIONER MCALLISTER: We really need to get on to the next. We're only through 3 and we have an hour and a half left. Sorry. Thanks a lot, I appreciate it. Is there anybody else on the Web or the phone?

MS. RAITT: No.

COMMISSIONER MCALLISTER: Okay, great.

So I'm going to propose that we go to Goal 5 instead of Goal 4, and come back to Goal 4, and apologize to anybody interested in Goal 4. But we have Jeanne Clinton here and I know this is going to be quite a robust discussion, we've got Brad who is going to make a little presentation, and I want to make sure we have time for this and folks can stay so that we also get through Goal 4 that would be appreciated, as well. I apologize we're running behind. I will take responsibility for that. It's interesting and I want to get the discussion and let everybody have a chance to participate. So anyway, moving ahead, Jeanne.

MS. CLINTON: Okay. Thanks very much and just so everybody knows, I didn't put him up to moving Goal 5 ahead. But I appreciate it. Some of us are taking a train back to the Bay Area.

Okay, what I want to do is highlight a couple things as I go through this content, it's all in the document so I don't need to belabor it, but what I do want to do is set up some of the issues so that when Brad Copithorne comes up to speak, you'll have some context for some of the examples I think he'll probably be covering.

So first of all, let me put some context ahead of the strategies. So some of us believe that we have the potential to mobilize anywhere in the neighborhood of $50 billion or more in building improvements for energy efficiency and demand response and solar in California, most of that is energy efficiency, a small minority of that is solar. But in order to mobilize $50 billion or more, it's going to take private capital. There's not enough utility ratepayer funds or California taxpayer funds to support this.

Secondly, we have a dilemma, and the dilemma is that the energy and the climate world investment time horizons are 20 years, 30 years, 50 years, 100 or more years, whereas consumer and businesses have time horizons for making investment decisions of maybe two years or five years. So the reason that financing is an important aspect of a strategy for achieving $50 billion or so of energy efficiency is that we have to bridge the gaps between the shorter term time horizons of many building owners and occupants, and the longer term energy industry and societal objectives. And so these financing concepts that are being presented here are being presented as ideas for how to bridge this gap and how to smooth out the appearance of monthly or annual cash flow obligations to pay for energy services. And I'm using that term to mean the combined cost of energy commodity, as well as any repayments of investments in either efficiency or solar. So that's the context, bridging the gap.

So we have a myriad of pilot and short term, I would say sort of whether it's federal stimulus, or the former Assembly Member Skinner here, the AB 1X14 Finance Program that was a loan loss reserve primarily for single-family homes. We've had a myriad of different experiments, pilots, trials, and some of them shrivel up and some of them run out of money, and some of them sort of hop along, and we've got a myriad of players. The Energy Commission does some, the Utilities have done some, during the ARRA era, we had a lot of local government financing programs, we've seen various wings of the State Treasurer's Office undertake different endeavors, and the solar industry obviously has come up with some nifty solutions with leasing and power purchase agreements.

So the very first strategy that's recommended in this document is that we establish a council that would, going forward, shepherd the offerings and identify their priority initiatives that we need in California to mobilize this. And in these slides you'll see that in parentheses after each strategy is named the lead agency, I wanted to take this approach here to just help people sharpen their thinking in terms of comments, so you'll comment not just on the idea, but whether the institutional framework seems right. So it's suggested that the infrastructure bank, which is what the iBank is, and CAEATFA, California Alternative Energy and Advanced Transportation Financing Authority, which is a wing of the State Treasurer's Office, would be the lead financial players in this council. Obviously they would need to be supported by energy expertise from the Energy Commission, the PUC, as well as from Utilities and the contracting delivery industry, but there would be sort of ideally a council to sort of set priorities and say where are there gaps and where do we need to mobilize capital?

The second construct here, again drawing the idea of mobilizing capital from the private sector, is to contribute to the most robust database possible of financial payment and project performance information so that the private capital markets can have the information they need to assess risks, to determine the terms that they want to offer for financing products, and to determine whether or not it's going to meet their returns to offer certain financial products, or what kind of leverage they're going to look for from, let me say, generically public funds, whether they're ratepayer funds or cap-and-trade funds, or other sources.

So this is the construct, figuring out how to place a bet, set the priorities, inform a database that would build over time, it need not be California-centric, it could be regional, it could be national, there's lots of other activity going on elsewhere, the idea is to build the knowledge base that the capital markets need. They need to see $100 million portfolio transactions and billions of dollars of market potential to make decisions whether or not to get into this space or not.

Then there are three aspects of

accomplishing this sort of implementation steps that are presented here, 5.1.3 is to do an assessment of the various financing programs and pilots that are already on the street, including the utility pilots, the PACE activities, and other financing products that may be available, to determine how well are they working, how well are they serving the purposes that they aim for, and at what cost. So that's a critical need for information. The second, then, is to set priorities for what new or what modified financial products that we need and, again, this would be something that perhaps the Council could oversee and help moderate that conversation.

And the third aspect here is to ensure the availability of financing that's matched to the trigger points. So we heard about trigger points and consumer focused transactions earlier today, so this is making sure that we have the right financial products that are matched to those transactions, those delivery agents, and those types of investments that are being made.

This last one also requires a good understanding of the marketplace, and I think Jan Berman from PG&E talked earlier about the crucial understanding of mapping let's call them "program" or "market intervention techniques" to the way markets actually structure and do transactions. So there's a lot of thematic shadowing going on here today of things that we hear from one goal to another because ultimately in my opinion we're dealing with sort of a bird's nest and the threads have to come together and you can slice and dice goals in different ways.

So now, let me do just a very very mini seminar on two types of financing products that the Action Plan speaks to. The first one is Asset-Based Financing. The second one is Borrower-Based Financing. And just to be clear, an Asset-Based Financing has some security, the security is in the building, the equipment, the property, the tax liens, in other words there's something to fall back on to back up the payment, the likely payment. The next slide will be Borrower-Based financing and that's where the financing is based just on the financial status of the Borrower, almost regardless of what they're doing with the money, so there's no asset.

So the plan identifies sort of three

activities for the Asset-Based market. The first one is mortgage-based, the second one is PACE-based, which is a tax lien on the property, but not a mortgage, and the third one explores newer mechanisms. So I don't want to go into the details, but we have these different times in the market, these different opportunities. So this ties us back to the idea of trigger points. What kind of efficiency can be incorporated into the actual mortgage valuation and underwriting process and appraisal process? And we heard this morning from Debra Little about sort of the role of appraisers, there's been a lot of work done that suggests that in certain circumstances there can be a premium associated, at least with solar on homes, less data yet to inform energy efficiency, but that's one realm that needs attention and to incorporate efficiency into those natural transactions where the cost of capital is relatively low cost and the transactions are going to happen anyway, and so the question is how do we take advantage of those?

The second that is sort of arising from the dead, so to speak, for a while, the PACE transactions that we're starting to see come roaring into life after a few years of being set back with some Federal issues, there we have a different kind of transaction opportunity, and the important thing of PACE, going back to the principle that I said we need to bridge the timeframes of decision making, is PACE remains a financial obligation on the property regardless of who the owner is. So for property sold three, or four, or five times in 20 years, that PACE obligation remains with the property. So you get around the problem of having an owner with a shorter time horizon, in my opinion.

The third bullet suggests that, in the case of split incentives where we have leased property, or rental units, we may need to explore some new financial mechanisms to recover investment costs in the situation where presumably the building owner is the one who is going to authorize the investments, but where you have either commercial or residential occupants who are the ones paying the utility bills and the ones who are going to see the reduction in bills. And the plan talks about looking at some new opportunities, some of which are already underway, we already have green leases to some small extent in the commercial real estate industry, there's been talk, unsuccessful legislative attempts to do some tenant meter-based financing, or ways in a multi-family building, for example, of allocating costs to individual tenant meters. And the industries that are primarily ripe for this, of course, are multi-family and commercial real estate, so the plan calls for some exploration and innovation in order to get around this dilemma where we may have as much as 40 percent of the residential population living in multi-unit properties, and probably the equivalent or more of commercial real estate being in leased space arrangements.

Now turning to the Borrower-Based financing, this is more typically relevant for single-family homes, as well as businesses that are operating in leased space, particularly small businesses where, in the latter, they don't have control in the building, they're not the owner, but may want efficient lighting, for example. So most Borrower-Based financing is going on the credit score of the individual borrower, the homeowner, or the small business owner. So they're using their own credit to take unsecured loans and using up their own credit appetite if they proceed with efficiency, or equivalent investments.

So other forms, credit cards are the typical way that a lot of efficiency improvements have been done in homes in the past. And to the extent that we're going to have financing of this sort, and you might say, "Well, why do we need it?" Well, there's certain opportunistic times when a furnace dies, an air-conditioner dies, a water heater dies, where somebody is typically going to pay for that, if not with a check from their checking account, with a credit card. And the availability of terms, or the ease at which -- and by "terms" I mean for example the interest rate or the length of the loan -- to the extent that can be modified if they're adopting a high efficiency piece of equipment or solution, we have a higher chance of getting that emergency replacement to be the high efficiency units. So this is not a situation where somebody is doing a whole building or a whole house retrofit, it's where something is broken, they're dealing with a contractor/retailer, they need a quick solution within hours or days, and you don't have time to go through some of these other financing transactions. In this realm, if we want to reach down into all segments of our commercial building stocks, small businesses into our residential stock, particularly if we're dealing with low and moderate income communities, or people with not so great credit scores, we're going to need sort of policy attention to how we can move into those market segments.

A few years ago, Lawrence Berkeley National Lab did a really nice study of how to mobilize energy efficiency in low and moderate income communities and they had some really wonderful bar charts that sort of said high income, middle income, and sort of low/moderate income, and even in the middle income range, I think more than at that time, this was a few years ago, more than 50 percent of the households were not going to qualify under a typical FICA Score for spending extra money for an energy efficiency investment. And when you got into the low and moderate income, it was more like two-thirds of the households were not going to qualify. Well, I don't think in terms of reaching our aggressive goals for energy efficiency we want to say, "Well, we're going to write off two-thirds of this community and we're going to write off a half of that community because they don't have the right FICO Scores." We need to find ways of leveraging public resources and/or credit support in such a way that we can enable more transactions to happen because we need that efficiency to occur.

And then finally, in this particular market of the unsecured loans, probably the best known examples of unsecured loans are credit card debt and car loans and, you know, the car company that is arranging the financing, they don't hold the paper for the full five years or secures that you're owning the car, they bundle them and sell them in securities, in bundles of securities at $100 million or more at a crack. And so what we need to be able to do is, for whatever transactions or financing structures we put in place, we need to make sure that they meet the standards of the secondary financial markets who will want to buy those bundled portfolios of loans. So this comes back to having the data that we need on repayment history, performance history, and the experimentation, much of which has been going on at CAEATFA over the last few years with credit support where we need to show what happens with the repayment histories, and in turn to use that information to bolster a secondary market.

I'm going to stop and take a breath. So the next set of strategies in this sort of overall Goal 5 steps away from financing, per se, and talks about getting integrated and streamlined delivery of solutions where we combine the delivery of the efficiency with the financing, with any utility or public incentives that are available, and to do this in a way that these transactions are coordinated, operating off of a standardized project or information platform, lend themselves to automation to reduce transaction costs, and in the process to basically get more transactions of high efficiency solutions to occur. If these things are not coordinated, each one becomes a veto point for sort of blowing up the possibility of a transaction. If we don't have the right information, if the transaction costs are too high, if we have long delays between the time of closing a loan and when a utility rebate is available, these all can lead to people saying, "Well, I can't float that extra cost for the two to three months that I'm going to wait for my utility rebate." Or, "Gee, wouldn't it be nice If we had sort of a nice streamlined platform where you could have one application that could go to the lender, to the contractor, and to the utility all at once?" And so we're not going to focus on this today, but the Investor Confidence Project has been doing work in this area to try to pull this together, and I think this is a goal for California, is can we bring this integration together.

Then moving on to the role of incentives, we heard earlier about customer focused transactions and targeting. The plan also has a view that if we're really going to mobilize perhaps in the neighborhood of $50 billion of investment, we're also going to need to be smarter and more targeted about the role of incentives. This does assume that there's a financing platform available to manage the time concerns that I talked about earlier in terms of the time horizons and smoothing of cash flows;

assuming that the financing platforms are established, that would enable the State Government and Utility Regulators to be more selective in how and when incentives are used on top of the financing, and that may be to promote certain technologies, to help certain markets over others, to motivate deeper investment possibilities in a building rather than shallower ones, and/or if there are certain trigger points that are proving difficult where an incentive might help push it over the edge.

So these issues, I think, would be the responsibility of both the Utility Regulators, Investor-Owned or POU-owned, as well as the Energy Commission playing a role.

A couple examples of how to do some of these activities might involve alternative capital sources and/or turnkey delivery of energy efficiency solutions. So years ago we had the ESCO industry that started out presenting both capital and engineering and installation and monitoring. Well, that industry has morphed a little bit and it doesn’t necessarily bring its own capital. The Federal Government is using energy performance contracts as a way to at least ensure that efficiency performance is achieved and, in some cases, the capital is also being brought forward.

We talked earlier about the dilemma of what to do with split incentives when you have leased commercial space or rental housing and there possibilities might be something along the lines of the measured energy efficiency transaction structure, which is a particular structure that sometimes is just referred to as MEETS being tested in Seattle right now where essentially a commercial building owner puts down zero, an energy service provider brings private market capital and engineering and installation and performance to the building, pays rent, sort of virtual rent to the owner for being given permission to do this harvesting of energy savings in the building, and meters the result and gets paid on a performance basis, much like a power purchase agreement for energy.

So these are examples of alternative solutions that we probably need to look at if we're going to succeed in trying to capture this large amount of efficiency that we're looking at today.

I'm going to cover two more slides here and then I'm going to pause and let Brad Copithorne talk. So this slide is looking at the specific needs of Government buildings in the way of finance. And its' very clear that we have huge untapped investment opportunities in Government Buildings in California, whether they're state, or local, or schools. And as much as Prop. 39 has been a tremendous addition to the mix in California, it's still a fraction of the total investment needs that Government Buildings have for making these improvements.

And so this strategy says we essentially need to determine the needs and best options for bringing capital to support transactions in these public taxpayer supported entities, many of which have either severe debt limitations or have historical forms of financing which make it difficult to add on additional debt. So this is a suggestion that the infrastructure bank, the State Department of Finance, and other public finance-oriented organizations would collaborate to look at the potential to expand two types of funding mechanisms for Government Buildings, one would be to expand the use of revolving funds, the State Department of General Services has been a big user of revolving funds that have been funded from time to time with manna from heaven, from ARRA Federal stimulus funds, or some cap-and-trade funds. In the past, a few decades ago, there were oil petroleum violation settlements that funded these accounts, and that money has gone into revolving funds, and the California Energy Commission has administered these revolving fund loans to many local governments and universities.

The second type of funding source would be to promote the expanded use of energy services agreements, be they through traditional ESCOs or through new forms of public finance organizations. This would be more akin to the model I talked about earlier, which is where you have a private sector entity who provides not only the capital but the engineering design installation and performance management. So these are two examples, the objective of which is, again, to leverage private market funds to accomplish these because there's not enough taxpayer funding or probably cap-and-trade funding that is going to be available to support the billions of dollars of investment that we need to make in our public buildings.

The last point of the financial sort of battery here of strategies that I'll cover is one that not many people talk about and not many people have the appetite to pursue, but to look at the possibility of better aligning the tax treatment of energy efficiency with the way renewable energy is treated in Federal and State Tax Code.

There are tremendous differences between the way tax credits are assigned and the way depreciation occurs. Renewable energy typically gets or, at least through next year, had substantial tax credits in the neighborhood of 30 percent, we don't see those kinds of percentages at all for energy efficiency. And in the case of making improvements say to an HVAC system, I know one small business owner told me that they were going to have to depreciate their higher cost energy efficient system over 37.5 years according to the IRS schedule, and that just didn't quite cut it in terms of their making that investment decision, whereas we see accelerated depreciation opportunities for solar.

So the point here is they're not treated the same. I don't know what the prospects are of achieving that kind of achieving that kind of treatment at the Federal level, but there has been work on this issue by Paul Frankel at CalCEF who seems to think that it could be an important aspect in mobilizing more investment coming to the Energy Efficiency space as compared to the more easier attraction of capital to the solar and renewable energy space.

So I'm going to stop at that. I do have some other comments on low income, but I think this is a better time to transition to Brad Copithorne's remarks. I'm going to ask if somebody could -- thank you.

COMMISSIONER MCALLISTER: Great. So we're a little bit past 4:00 and so I want to give Brad his time, and then Sara Neff is our outside speaker on Goal 4, and I want to make sure to get her in and she has to leave at a quarter to five, as well. So we might -- the sequence of events might have to change to accommodate everybody, but hopefully we'll get everybody in. So go ahead, Brad.

MS. CLINTON: So actually, let me just

say three sentences of introduction for Brad. So Brad is a former banker who recently spent a couple of years at the Environmental Defense Fund championing a whole bunch of finance incentives and initiatives not only in California but in Hawaii and other states in the Midwest.

Recently Brad changed to the other side of the fence and is in the private sector as a Vice President of Commercial PACE Programs at Renewable Funding, and in that role he assists commercial property owners to invest in energy efficiency and renewable generation by developing low cost financing solutions, including PACE. Thanks, Brad.

MR. COPITHORNE: Great. Thank you, Jeanne and thank you, Commissioner. It’s great to see a number of old familiar faces. We’ve been working on these problems for quite a while.

So, yes, I did switch from Environmental Defense Fund to Renewable Funding last summer. The reason I did that is we have a lot of really good policies in place, so we have a lot of really good policies in place, so we’ve been working on this together for many many years trying to create ways to finance clean energy and we're not completely done, we're not out of the woods, but there's a lot of great stuff already in the marketplace. And we can go to the second slide.

So Residential PACE, thanks in part to great work from the Governor's Office, from CAEATFA and others to set up an insurance pool, Residential PACE is working very very well. There are two companies, mine, Renewable Funding, and Renovate America which manages the HERO Program. And I don't think there are any official estimates, so I'm not going to give you an official estimate, but I would just say if someone wanted to wager the over/under on how much the two companies will do this year, I would make that market somewhere around $500 million. So we are going to finance $500 million of residential projects, and a lot of that is solar, but a lot of that is also energy efficiency, a lot of it is replacement, but it's getting the market going, it's getting contractors operating.

I run the Commercial PACE Program at Renewable Funding, commercial to date has not generated quite as much momentum as residential. I believe that's going to change and, again, my forecast will be over time I expect commercial to exceed residential, the reason being there are very few opportunities for commercial property owners to borrow long term to finance either solar or energy efficiency. We can finance the vast majority of credits. If you think about the solar market, as an individual if you've got a certain FICO Score, and we all have FICO scores, if your FICO Score is above 680, you can do solar. If you're a commercial property, unless you have an investment grade host, so in other words, unless Google is in the building, Walmart is in the building, Hewlett Packard, State of California, City of San Francisco, folks like that, unless you have that you probably cannot do solar without PACE. We can cover the remainder of that market. Most of what we do is solar to date, but we expect energy efficiency to do more and more.

Jeanne mentioned the Investor Confidence Project which I must admit I did do a little work on EDF, but that has done great things in Connecticut to give property owners, commercial property owners, more confidence that the estimates of savings are reasonable. I mean, the classic battle, and we see this, too, is that the contractor goes to the property owner and he's got all the information and he says, "Hey, if you do this, you're going to save so much." Well, with energy efficiency, it's kind of hard to tell. And probably some contractors are being somewhat optimistic. If we've got a third-party coming in, using sort of an acceptable method that lots of folks are using, that has been shown in Connecticut to generate a lot more projects.

Securitization, Jeanne mentioned $50 billion is what we need in terms of clean energy financing in California. Well, I would say in the securitization market, $50 billion is actually a small number; if you're going to do that over 10 years and you're doing $5 billion a year, that's kind of a small market for the securitization space. The good news is we are starting to break into that, so Solar City has done I think three securitizations of some of their solar leases, Renovate America has done a couple of PACE, we've got a couple in the Hopper, this should be expanding rapidly over the course of the next year.

And then finally, I think it was Joanne

from PG&E mentioned the competitive procurement from metered savings. I'm really excited about that, we don't really know how that's going to build out, but one of the things I keep hearing from contractors is some of the incentive programs are difficult, they're complex. It's hard to manage. I mean, finance is also very complex and difficult. We spent a lot of time working with contractors to simplify our offerings. I'd like to think about basically this competitive procurement as maybe another way to simplify and streamline the process for contractors, so that may be a business line that we'd like to take a look at going forward. So next slide.

So what are the lessons we've learned in terms of developing an attractive financing product? The first is fundamentally contractors are your customers. You've got to convince, I mean, the end customer, the property owner, is buying energy efficiency. He's buying a project, he needs financing to be integrated with that, it's got to be easy to use, it's got to be simple, it's got to be easy to explain, easy to execute, and it's got to have a lot of application.

I mean, one of the things that we're spending a lot of time refining with contractors is we go in and we meet with them and say, "Do you have a commercial deal that's really hard to finance?" And they go, "Oh, yeah, yeah," and they hand us one, and if we can show them a solution that works for that, guess what? They come back to us with four more. So we can finance a very wide variety of commercial projects and residential projects.

I think if you're trying to design a solution that just does, you know, maybe affordable housing, that may be harder to really get the interest of the contractors. Having a predictable underwriting process is also critical, so having the contractor know very early on in the process that, hey, this is one we're going to be able to finance, and this is one we can't, so don't spend your time on it, that's critical.

Having a simple fee structure and a reasonable fee structure is critical, so when I joined we were actually charging about half a dozen different fees to close each commercial

PACE deal, and the number was fairly large, it was upwards of six percent of the deal, but it was also that it just felt like all these different entities had their hands in your pockets, and they're all legitimate fees, I mean, it was all our State JPA, you know, we had to get paid a fee, the lender wanted to get paid an underwriting fee, lawyers, County collection, etc., it was all legitimate, but it just felt painful from the customer perspective. So one of the things we've tried to do to simplify it is, first, we've negotiated lower fees, but second, putting a simple cap on closing costs, which is a little bit less than what the actual fees are, we're picking up the difference and we're saying, "Hey, you pay us three points, that covers 100 percent, you never have to worry about all these nickel and dime fees" and that's been very successful.

Longer terms help reduce payments, so, I mean, Al has done a great job with the on-bill finance program, but you would think that, hey, zero percent interest, how would we ever compete with that? Well, actually it turns out we can compete with that sometimes. Rates are about six percent for commercial projects, but often times what the customer is looking at is, “Hey, what’s my payment?” So I’ve got so much in savings in year one, if I’m paying, you know, half that on my financing, hey, that’s a great deal. We can finance out 20 years and in residential we do 25, so often times I’ve got a lower payment than Al does on OBF, so that ends up making me competitive.

And the final lesson, I would say, is build off of what works. If you’ve got something that contractors like, if they’re doing a transaction already, figure out, okay, how can I just make a small tweak to that such that it works better, as opposed to how do I just sort of build something from the ground up? So next slide.

So I said on this slide, “Key lessons on an attractive financing product is critical…” but go to market strategy is far more important. So my company, Renewable Funding, has been working on PACE for about six years, we’ve passed a number of different bills to clean it up a little bit. We think we have a very good product, but you can’t just build it and expect they will come. So what we've had to do to really drive this momentum in residential PACE is we have to date hired 16 senior sales people and we're going to 28, and these aren't 23-year-old guys right out of school, these are people, you know, 35, 40, 50-years-old, who have been selling generally energy efficiency, financial products, solar, other things like that, in the marketplace for five to 10 years. We've had to hire them, we've had to basically get -- we've got a 12-person software team who is invested in tools to make it really interactive and easy for the contractors to execute. So I would just warn people, if you're thinking about creating a new financing product, it's a lot of work and a lot of investment. If we don't make that investment, even if it's a perfect product, even if it's zero interest rate for 30 years or whatever, people may not show up. Next slide.

So I've been out of the policy space for the better part of a year at this point and just really heads down, and so I have to note, I'm not as up to speed on the different debates that are going on, but I just wanted to outline just four things that I thought you all might find interesting. I don't know exactly what the policy solutions are, but they may or may not be helpful.

So the first is I assume most people who work in energy efficiency, generally we have a feeling that, hey, we believe energy efficiency is a better product than solar, and we keep getting frustrated that everybody does solar and they don't do energy efficiency. And I share your pain, but that is the marketplace and there are a lot of reasons for that, and you know, it's hard to fight momentum.

So I want to outline a couple of people who are doing something really interesting with this. The first is a company called Go Green and the CEO of this company is a man named Ted Novak, smart engineer, it's just a small little solar company, I think he's based in Roseville, and basically what he does is he goes to midsized jobs, so like million dollar or $2 million jobs, where a customer has decided they want to do solar, puts out an RFP, and competitively bids it. And guess what? You end up with four or five solar companies all come in and they spec it out, and they say, "Okay, let's say it costs you a million dollars for doing this many solar projects, and we'll reduce your bill to 20 percent of what it was?" And he says, "Okay, I'm not necessarily cheaper at solar, but what I can do is I'm going to do $600,000 of solar, $200,000 of energy efficiency, you know, or maybe $300,000 and get a $100,000 incentive from PG&E, and I can get you as much savings for $800,000." But what he did is he started with somebody who already decided they wanted to act, they were moving forward, the reason they decided they wanted to act was solar, but he wins a lot of business this way. And, you know, again, I think that's pretty easy.

Another situation we're working on with one of the really big solar companies and probably a slightly more -- a much larger kind of energy efficiency company than Ted, but we're trying to do a PPA. And we could get the PPA down to I think about ten cents a KW wage, which we thought was a very good price and it became apparent that we were going to have to get much closer to eight cents in order to win it. So I called up this company that does energy efficiency and I said, "Look, what would happen if you expressed your product as a PPA?" And he said, "Well, I thought we could do it at six cents." And so we said, "Okay, well, let's do a combined solar energy efficiency PPA, we'll do it at eight cents, and we'll hit the company's target." We're still working on this, but it's an idea where, again, we're just building off of somebody who started with solar, enabling that market by doing energy efficiency.

Next topic I just wanted to talk about real quick is a couple of entities out there that have been very helpful in the commercial PACE market and they've been hired by LA County and BayREN, so one SRS which is the company that's doing the Connecticut PACE Program and the Investor Confidence Project, and Renewall who works with LA County, and basically what's been happening is these guys are independent consultants, they go into the marketplace in their relative jurisdictions, they're paid by BayREN and LA County and I think BayREN's contract with SRS is such that they only get paid if they actually close deals. But they go out, they talk to the customers, they help them understand PACE, they make all the PACE companies, myself and the others, compete for the business, but they really kind of hold the hands, seed the markets, etc., so that may be something that can be helpful going forward.

Again, I'm going to talk a little bit about my problems, but one of the issues, one of the problems we have with PACE in the marketplace right now is the underlying law that governs PACE is the 1915 bond law. And in 1915, we wanted to transfer money around, we wanted to move money from San Diego to Sacramento, we hired Wells Fargo and put it on a stagecoach and set it up there. So the way the bond law works is we take the property taxes that the owner pays on December 10th and April 10th, we have them sit with a trustee bank in Delaware until March 2nd and September 2nd because money moves around by stagecoach, evidently, and earning zero interest, and it's even worse because what you pay in principle in December doesn't get to the investor until September. And the cost of this, which we just have to build into our rates, is 25 basis points, about four for commercial and probably as much as 50 basis points for residential. So we think that's something, this doesn't benefit anybody other than the trustee bank, so we'd like to figure out a way to get that fixed.

And then finally, I mean, just again talking about the problems that I see, we spend a lot of time quoting deals that we can finesse, but we also get a lot of phone calls where we have to say no. Right now, my limits are I pretty much have to have a $250,000 minimum in order to justify the cost, I mean, if somebody brings me a $230,000 deal, guess what? I'll look the other way and make it happen. That will go down over time, but I turn down a lot of $150,000 deals. I can't do houses of worship, either. We're just concerned basically with the PR risk of you don't want to foreclose on a community church, it's just not who you want to be, which makes the worst problem that they're not able to get the capital. We had a Pastor at one of the churches calling up and just pleading with my colleague, trying to do something and he couldn't make it happen.

And then the other one that we're having trouble doing are affordable housing and other kind of community sponsored entities. So if you've got like a community health center, oftentimes the way they'll be financed is they'll have a mortgage for 40-50 percent and then the County and the City will also put in capital to build or to pay for these things. And they'll say, "Look, you're doing a public service, but we actually don't need to get paid on that capital, but there's a lien associated with it." So most lenders say, "Look, it looks to me this property is 120 percent total lien to value, we can't finance it, I need to figure out a way because I've got a couple million dollars of projects I think I could do if I had some sort of assistance on that."

So that was all I had. I just put my email and phone number on the last slide if I can be helpful to anyone, please do not hesitate to call.

COMMISSIONER MCALLISTER: Thanks a lot, Brad. I really appreciate your being here. A lot going on and I'm sure, as we update the Action Plan and we kind of get more experience on the ground, this will evolve in a good way.

So let's see, I want to make sure that Sara Neff has a chance to present and then we can hopefully work through, sort of do it in reverse, maybe do Sara Neff and then finish up the Goal 5, and then go back and finish up Goal 4. So hopefully that's going to work, it's a little awkward, but that's where we are.

MS. NEFF: Hello, am I on?

MS. RAITT: Yes, you're on Sara. Go ahead.

MS. NEFF: Hi everybody. Thank you so much, Commissioner McAllister for having me and the rest of the Commission. I will try to go quickly since I know the schedule is a little wonky today. I'll just introduce myself. I'm a building owner. My name is Sara Neff, I'm the Vice President of Sustainability at Kilroy Realty. We own 14 million square feet of Class A office space between San Diego and Seattle. Most of that is in California.

We're very focused on sustainability. We try to reduce our energy two percent each year, we've done it for the last three years. We just got named an Energy Star Partner of the Year again and Global Real Estate Sustainability Benchmark rent is first in all of North America last year on sustainability. And what might be a coach into this discussion is we were also last year part of the inaugural class of Green Lease Leaders, so I can answer questions about implementation of green leasing. And we also do lots of demand response.

So the way I thought this would go is that I could talk about what triggers a need to reduce energy use in my buildings, and then get into the questions the Commission gave me to answer, related to Goals 4.1 and 4.2. And I'm happy to be interrupted and take questions throughout. I just want to be as helpful as possible.

Okay, so what triggers need to reduce energy use in my buildings? There are sort of three events that happen; one is a major retrofit which gets triggered by an acquisition or repositioning, and these are the really comprehensive deep dives, you know, do 12 projects at once retrofits, but energy efficiency is not typically the driver. And this is when we just bought a building and are trying to bring it to our levels, some people do this in the face of dispositions, or you know, a full building tenant has moved out and we're trying to reposition the building for the existing market. But, again, energy efficient not a main driver there, although we will do a variety of energy efficiency retrofits as part of the larger, you know, aesthetic redo the lobby kind of thing.

There's also end of life replacement of equipment and energy efficiency can play a factor there that's highly based on utility incentives and also just our trust in the newer equipment, if it will perform as well over the next 25 years as the older equipment did.

And the third item, which I think is most relevant to what we're talking about is these minor retrofits, you know, these sort of one off projects because, unless there is sort of a major retrofit opportunity like an acquisition or a repositioning, we building owners, even though very focused on sustainability, don't do these large projects. I'm happy to answer why we can't use PACE.

So why would we do an energy efficiency project? Sort of what happens? One is the investment has to be recoverable, that's triggered both by the lease and the project's payback, also there needs to be utility incentives, and there has to be a willingness of the Asset Management team to both do the project in their own time and also to bother tenants. One of the things I sort of don't see within the Draft Action Plan, which I liked a lot, was understanding that we owners often are schizophrenic in terms of our personalities, we have sustainability focus like me, very focused on energy efficiency, you have Asset Management whose job it is to protect the comfort of their tenants, you have engineers who care a lot more about equipment going down and failures, and so all of these people are sort of in conflict in our ability to get a project over the finish line. Then, even if you had a great Asset Management Team, the tenant personality is really important, sometimes don't care about energy efficiency, some care quite a bit on the lease structure, so beyond just if you have a green lease, if it's a full service gross lease versus a triple net lease, that's quite important.

And so those are basically what sort of decides whether or not -- and availability of capital, either on bill financing or just in-house capital.

I want to point out that what I didn't

list in terms of what triggers an energy efficiency retrofit is a pro forma, or an asset rating, or any sort of belief about a value at sale. The Rocky Mountain Institute is about truly a practice guide called "How to Calculate and Present Deep Retrofit Values," Scott Muldavin who I'm sure a bunch of you know, has written that. And that's a guide for Asset Managers to consider sustainability in an asset valuation process. We're real excited about that and I'm hoping this sort of throw increased value at sale into my financial models, one I sort of try to present a case for these sort of projects. But right now that's not typically done.

Then currently for us, and I know we're not alone, appraisals themselves are not a major factor in decision making, Green Addendums to my knowledge are not used, although there are market leaders such as James Finley, formerly of Wells Fargo, who I've been discussing him for a number of years, and he has proposed a methodology for incorporating green into appraisals, it's called "The Green 14" and it's basically a bunch of just places within a larger discounted cash flow that you would put green information into your DCS.

But right now, yeah, appraisals are not a major factor for us.

So I want to talk a little bit about appraisals, I was asked to speak on that. We're long term holders, so we rarely do appraisals, and even when we do so, we typically try to avoid appraisals if we can. Merchant builders also don't use appraisals, those are the people who typically, where they hold buildings for about seven years and try to turn them around because they've usually built those buildings from the ground up, and so there's not a giant retrofit thing happening there.

So I'm worried that within this Draft Action Plan there's this major focus on appraisals, but I think this could miss a major share of the market if this is seen as the major tool to influence us. Like I said, I would take anything that would help me make the case for energy efficiency like increased value at sale, but it's probably not going to be a driving factor, and the real way to get us to care about energy efficiency is getting our investors to ask us about it.

So getting on to other questions, I was

asked to talk about the concept of the Asset Rating, and we really like that idea. We think that's great to have an asset rating not tied to occupant use. We landlords feel very sort of frustrated by our tenants and we at Kilroy do a lot of tenant engagement, we have awards for tenant engagement, I'm happy to talk about tenant engagement, but it's quite frustrating. And so we like the idea that our assets would be rated on the asset alone. We talked about future cost savings, I heard that discussed a lot today. I just want to point out that from the owner's perspective, future cost savings is some of the most heartbreaking thing to try to deal with because there's never a cost savings because our utility costs go up every year, so what we're talking about, really, is an avoided future cost. But my bill always increases. There's never a year that my bill doesn't increase, I mean, I'm lucky if I can squeeze a two percent energy reduction out year over year and the utility cost goes up like 10 percent. So the bill still goes up painfully. And even though I know intellectually that I've made it not even worse, it's a difficult metric. And so pitching owners on future cost savings may lead owners to, you know, do a first project because they're excited, then they see their bill go up anyway the next year, and then they don't want to do future projects, so really be careful with nomenclature around that word.

I was asked if an asset rating itself would be enough, or if I think prescriptive measures should be separately valued. I absolutely think prescriptive measures should be separately valued and this is because retrofits are piecemeal, they're not done holistically. I know basically nobody who strategically goes about retrofits in terms of analyzing the energy use intensity of their buildings and allocating capital appropriately. These projects chase utility incentives, you know, it's where like I said earlier you have willing Asset Managers, willing tenants, the right lease structure, and so it's not strategic enough to be really done holistically. And so a prescriptive measure valuation would be great because then we could really make those individual measures happen. I completely understand that it's better if we did these deep retrofits all at the same time, but on a practical level I just don't know anybody who does it that way.

And I was also asked if an Asset Rating should touch on only current use, or future use, as well. And our consensus here was that reasonable future use would be fine, so changing say from an office to a lab kind of thing, but maybe not office to residential. At that point, maybe you want to trigger a reappraisal. But our feeling from the building owner perspective is that the very base bones of a building, the efficiency of the windows, the amount of glazing, the base mechanical equipment, doesn't change a whole lot between, say, office and lab, or some office and industrial. And so we think you could have an Asset Rating that does capture that.

And the last question I was asked was, how do you all get some guinea pigs for this? How do you go find some people to be trained to create these asset ratings by wandering around buildings? This is a tough one. Those of us like Kilroy who are really focused on sustainability, if the CEC was partnering, say, with Energy Star, we love currying brownie points with them, and so we would happily sign up a bunch of our buildings to be used as guinea pigs for this, but it’s going to be really hard to touch Class B and C properties because we all tend to be Class A. And that’s another reason why actually offering additional utility incentives, I know there have been folks from the Utilities speaking today, also I don’t think to be that helpful; anecdotally we feel that it’s also to people like us, Class A owners, that take the bulk of the utility incentives. And so things that owners care about are, you know, expedited getting things like permitting and Certificates of Occupancy, so if the California Energy Commission had any ability to influence local Departments of Building and Safety and that kind of thing, that might be a way to get owners, BNC owners, to notice because brownie points alone are really something only a Class A owner would provide.

So that’s a brief discussion of how we do energy efficiency retrofits and why we do some and not others, and touching on some of the goals of 4.1 and 4.2. And I’m happy to answer any questions or let the proceedings continue.

COMMISSIONER MCALLISTER: Thank you so

much, that was very helpful. And I certainly hope that you'll look through the whole plan and comment, you know, from your perspective on some of the other goals and strategies because your perspective is always refreshing and obviously very well informed, as we've all heard now. So I really appreciate it. Thanks for making time with us.

MS. NEFF: Thanks very much.

MS. BROOK: Hi, Sara. This is Martha Brook. I did want to ask you that question that you said you would answer about why you don't use PACE.

MS. NEFF: Sure. So we are a REIT, we are a Real Estate Investment Trust, and when our Chief Accounting Officer spoke to her counterpart at a REIT that had done PACE, we determined that differences between the two meant that PACE would go on our books, it's not off balance sheet for us, and would negatively affect FAD, Funds Available for Distribution, which is why we were told by our Auditor that this would not be an off balance sheet transaction for us. And just to give a little bit more perspective on that, I mean, so for us we have common area charges, right, so the great thing about PACE for owners like, say, Simon is that, you know, their ability to recover their common area charges is something like 70 percent, but their ability to recover property taxes is like 90 percent, so even just a greater recoverability of PACE makes it extremely attractive for them; we don't have that same problem, and so that's one of the reason why it's less attractive to us.

MS. BROOK: I see. Okay, thank you very much.

MS. NEFF: No problem. Any other questions, green leasing or otherwise?

MS. WADHWA: Hi, Sara. This is Abhi Wadhwa from the Energy Commission. Could you speak a little bit more about what mechanisms have you found to motivate tenants and have them be more engaged? I understand you said it's been challenging to engage them, but have there been any successful --

MS. NEFF: Oh, yeah, absolutely. So we employ basically, I don't know a better word, a buckshot approach to tenant engagement, which is we will try absolutely everything to see what sticks, and what we have found is different tenants respond to different things, so we have an incredibly long list of tenant engagement programs and we are basically completely unable to predict what will work for any one particular tenant, but there is usually something. So we send out a quarterly sustainability memo and some tenants respond to us on that. Social Media is very popular with tenants and, you know, we've had great success engaging tenants in, you know, competitions where everybody is tweeting in various energy efficiency measures that they're taking on their floors. A lot of tenants use our electronic tenant handbook portals and they are able to see our sort of sustainability programs there, not related to energy, but we have to do in-person training with tenants on things like recycling, and that can be helpful. And, you know, the other sort of I think major thing about tenants sort of getting through the Asset Manager barrier, or the third property manager barrier, when I have tenants that are multi-national, like there's another tenant who is their triple-net tenant, so it's super hard for me to do work with them, but I know they also want Energy Star Partner of the Year, and so I'm able to cross that divide and talk sustainability professional to sustainability professional, and now we're collaborating on a very large demand response project, but that's because I know they're otherwise engaged on a corporate level. And we do a lot of demand response and there are times where buildings don't even notify their tenants that they participate, some let their tenants know every single time, some tenants just like to know in general that their building is doing something, but don't want to know when the actual reductions are happening. And so I would say that in my five years of doing this, I still haven't figured out what the magic recipe is for, okay, you know, I mean multi-nationals tend to be more engaged, big urban area of San Francisco tends to be better poised than like suburban San Diego. But, yeah, it's really hard to tell what will really stick in terms of tenant engagement. But there is usually something that works. And anecdotally, it's the tiny companies, the little start-ups and the very large companies that are willing to engage on sustainability, and the folks in the middle are harder to touch.

MS. WADHWA: Thank you, Sara.

MS. CLINTON: So, Sara, this is Jeanne Clinton, before you turn into a guinea pig, or, sorry, pumpkin, you don't want to be a guinea pig.

MS. NEFF: Both. I'm never not a guinea pig.

MS. CLINTON: So I'm with the PUC and I want to go back to the comment you made that the most important way to get sustainability as sort of a large scale priority is by getting your investors to ask about it.

MS. NEFF: Yeah.

MS. CLINTON: So could you expand on that, you know, which investors, what drives investors to focus on that? And how could the world, or the U.S., or California get more investors to do that?

MS. NEFF: Right. So we are a publicly traded company and so we have investors all over the world, and the reason we started doing things like participating in the global real estate sustainability benchmark is because of investor request. And one of the things that our senior management is seeing more and more on investor calls is more questions about, you know, our energy performance, the amount of LEED buildings we’re building. Now, a bit of that, I will admit, is specific to Kilroy, we have a lot of tech tenants who really care about sustainability and won’t move into a building unless it’s like gold in a lot of jurisdictions, and so those investors are wondering if we’re actually going to be able to deliver the product that our tenants are actually going to want to lease. But I think it comes from European investors, and there are European investors who care deeply, not to say that there aren’t American ones, but I would say the American ones are definitely slower. You know, I would say providing a study which would be really helpful, tying some metric of sustainability performance to, you know, predicted price per share, something related, a study that could be given to the CalPERS of the world, that really linked something that the CEC measures with stock performance would probably be incredibly helpful because, then, you know, Equity Analysts are always looking for, you know, within everything that they could find out about a company, what are the factors that correlate with increased performance? And as much as we could link energy efficiency and sustainability to increased performance, then investors start caring. And there's a dearth of research, there's just very very little that links us to, I've found.

MS. CLINTON: That's terrific, thank you. Could you just comment: a couple years ago I saw a presentation by CoStar that was showing a lot of commercial office real estate data in major metro areas for buildings that had Energy Star or LEED ratings, and it seemed to show that all the right metrics were there in terms of fast lease up, and high rents, and high resale value. Is that kind of data not sufficient?

MS. NEFF: I think this gets to the bifurcated market issue, so those who care about Class A, those of us who have the lead in Energy Star Buildings, our investors are sort of already asking about it and already care. So we are in this wonderful virtuous cycle. If you want to touch the rest of the market, you're going to have to move beyond LEED and Energy Star, right? Because Energy Star only touches the top 25 percent of the market, and LEED even less. So there needs to be something, you know, if I take a building that is a 30 Energy Star score and get it up to a 50, you know, what is the value there? There’s no work really done, as far as I know, on that subject. So, yeah, I would say Class A investors are getting more into this and they’re getting better about asking about it, but as far as the rest of your stock, not really.

COMMISSIONER MCALLISTER: Great. Anybody else? Do we have any questions online or the phone? No? Okay, great. Sara, thanks so much, really really appreciate your making time. Hopefully we got it under the wire, so --

MS. NEFF: Absolutely. And, yes, thank you very much. And your folks know how to find me if there are further questions.

COMMISSIONER MCALLISTER: Great, yes.

MS. NEFF: Great, thank you.

COMMISSIONER MCALLISTER: Okay. So I think the next step is to finish out Goal 5 and that’s, I think there were a couple more strategies there, and then get back to Goal 4 and then hopefully folks can stay. We’re a quarter of five now. So running a bit late, but hopefully folks who are interested in Goal 4 can stay. And of course we have the comment period still open, we have, you know, we're all ears in terms of hearing what folks have to say, and please do contact staff with anything, you know, how to shape your comments, what we really want to hear about, talk to us about that. Okay, thanks.

MS. CLINTON: Okay, so this is Jeanne Clinton speaking again for those on the phone. I'm going back to Slide 5.7 for Strategy 5.7, not to give short shrift to the substantial number of low income households that we have in California. Just for context, a study a couple of years ago of the sort of profile of low income and multi-family households in the investor-owned utility areas revealed that I think about a third of all households roughly qualify for the low income energy savings assistance program, and that eligibility is defined as 200 percent of the poverty level or lower. So roughly a full third of all the households' quality for that. And I think, if I'm not mistaken, that 200 percent of the Federal poverty level is somewhere in the neighborhood of mid $40,000s a year of income in rough numbers, and maybe that's for a family of four, but it's not a high number and yet we have one-third of all our households qualifying in the IOU areas.

Secondly, in the Multi-Family Market Assessment Study, I believe -- I'm doing these numbers from memory -- but approximately 40 percent of all low income households live in multi-family buildings of five units or greater. So just these two number. Roughly one-third of all California residential households in IOU areas qualify for the low-income programs. And 40 percent of those households live in multi-family five plus unit buildings. So we're talking about millions of households that are low income and/or in multi-family housing. And so we've got the problem of limited income, not necessarily good credit scores, and occupants paying their own utility bills and not owning the property.

So we've got lots of barriers in terms of how do we mobilize investment in improvements of a physical asset nature, I'm not going to speak to sort of the operating and behavior dimension right now.

So the strategies in the Action Plan are first to look at sort of a balancing of forms of assistance and by balancing between grants, direct installations which are typically free or in some cases a modest co-pay by the owner, or loans. So what is the right balance of funding and financing assistance to offer in order for California to maximize the savings and lower costs to these households or, in the case of public housing, to the housing managers? This is clearly an issue that requires attention by the Utility Regulatory Authorities, Investor-Owned and POU-Owned, as well as the Legislature. So this area clearly needs some work.

Secondly, there's been a number of stakeholders who are thinking that cap-and-trade funds could be a potential source of bringing deeper subsidies into making energy efficiency and, I might add or solar, happen for low income households. And so again, now we have the need to assess the relative blend of sources of funds between utility ratepayer funds and cap-and-trade funds that might be tapped, and we do have statute in California that 10 percent of all cap-and-trade funds must be spent in economically disadvantaged communities and 25 percent of the spent funds must benefit these communities. So there's some concern that these funds would be -- make sure that certain communities are not left behind in the process of achieving greenhouse gas benefits.

And third, we have the challenge of figuring out what to do with owners versus tenants and occupants in terms of how much assistance to offer to the owner on a whole building or what's called common area basis, how much assistance to offer to the individual tenants, or their domiciles, or whether to combine programs that seek to sort of put it all in a package in a bundle.

We don't have answers to most of these questions right now. We have various major spending programs going on, the IOU Energy Savings Assistance Program spends over $300 million a year in providing direct efficiency services. We have more cap-and-trade money becoming available that I think we expect in the future, but the question is, what portion of that $50 billion of capital mobilization needs to occur in this market segment and how are we going to orchestrate that?

So the Plan lays out a number of these

strategies that could be pursued, and I think we're keenly interested in hearing stakeholder comment and suggestions for this.

COMMISSIONER MCALLISTER: All right. Hopefully we can limit questions, limit time for comments, rather, but I don't want to keep anybody from commenting at all. So let's go.

MS. ETTENSON: Sure. Lara Ettenson, NRDC. Thank you for this inclusion, I think it's very important. I wanted to make everybody aware that NRDC has a fairly new project called Energy Efficiency for All that focuses specifically on multi-family affordable housing, and so we'll put on a couple of fact sheets in our comments for you for consideration. Two other points, I think there's an inherent tension right now at the California Public Utilities Commission that has an objective of touching as many homes as possible, or all willing and eligible, and then also wanting it to be an energy savings goal, but yet not having any clarity on what that goal is, or a minimum level of energy savings products to ensure that there's some sort of bill savings even taking into account that maybe we'll lose some bill savings when now they can actually use their heating and other things like that. So we think it's very important that we consider actually establishing an energy savings goal around that, and then try and figure out all the nitty gritty, so we'll provide some thoughts.

Last, I know that there's a lot of coordination spoken to in the plan and I'm glad to hear that this collaborative can actually aid in that. Not only do we have the CSD for Cap-and-Trade, but CSD has a lot of money for just a general weatherization that right now is very challenging to coordinate with the ESA Programs. So I think when we think through the priorities of the collaborative and how we're going to address all these different activities, that there needs to be a lot of clarity around what exactly we can coordinate and/or consolidate, and also there hasn't been a lot of talk about water, but there are also water opportunities that we can integrate, as well. Thank you.

COMMISSIONER MCALLISTER: Thanks. Go ahead.

MR. GASPARI: Hi. Al Gaspari from PG&E, I'll be very quick. But first off, thanks, the report looks really good and I'm excited to help and work on it, I think the edits were really strong.

I just want to focus on one thing and I think it's the idea of market coordination, so you have lenders on one hand like Brad and others, that, you know, I run the financing programs at PG&E. We're getting these people coming to us again and again and again and we're working with them to try and coordinate them with the energy infrastructure. And I think that's really important. We need people who are able to translate the energy and the engineering and take that into something that is useful for financial transactions and to make sure that they're able to deploy capital that is ready to go. So, you know, identifying where the barriers are to doing this and it differs across different customer segments, so I won't go into too many of those.

And then removing the silos, so making sure that there's consistency across different silos so that people can see the same types of information and that there's not different programs that have different rules and things along those lines.

And then finally, you know, as PG&E, you know, what we found from our customers through the OBF Program and other things, that we are their trusted energy adviser. So you need to make sure that people are making the smart energy investments. As the capital is coming to market, you want to make sure that the capital is not driving a decision that the customers are going to regret in five to 10 years, and make sure that the energy project is good and is going to perform for them over the life of the projects. Thank you.

MS. BROOK: Can I ask you a question real quick?

MR. GASPARI: Sure.

MS. BROOK: In the different market sectors and different financing options, are you requiring or recommending specific protocols for the project delivery and also the financial data so that you can actually collect it in one database and get Actuarials? That’s what I’m struggling with, is how many of these common protocols are already out there and used versus it’s a free for all?

MR. GASPARI: Great, so in the financing pilots which are administered by the CPUC and

CAEATFA, there will be a Data Manager that will be pulling together all those data. There was a data working group that recommended the measures and I believe that they're going to be able to leverage the BEDES Database and so they are looking outward at the protocol and that will be CAEATFA's vendor, the Data Manager who will finalize those.

MS. BROOK: Okay --

COMMISSIONER MCALLISTER: I'm going to suggest that we make sure that the interagency coordination happens so that the structures that we're using match those and, you know, so when the time comes we can do a data exchange with those programs.

MS. BROOK: Okay, great. Thank you for that.

MR. GASPARI: Thank you.

MS. SKINNER: Nancy Skinner, U.C. Davis. I appreciate the emphasis in this area, but I think that we have to think carefully about how to design it because, first, we have a large percent of the residents that we characterize in these households are also on the utility programs that give them a fixed rate on their utility service. So, now of course if they're in a multi-family unit, they don't have, regardless that they don't have the signal from their bill payment to make a change, they also don't have the control to make changes to where the largest percent of the usage is. So by the reports own stats, the vast majority of energy use in multi-family buildings is space and water heating. So electrical use within multi-family buildings was a very small percent of residential. Electrical use overall was only 32 percent of residential and, of that, 76 percent of it was single-family. So within the multi-family, the big places where we can get improvements are in space and water heating, but those are the activities that the tenant has the least ability to affect. So we really have to aim our programs towards the owners, and we just have to think about how to design it and this may be an area where some form of requirements will be necessary. Thank you.

MS. BROOK: Thank you.

COMMISSIONER MCALLISTER: Thanks.

MR. NESBITT: George Nesbitt, HERS Rater. The energy efficient mortgage is a product that's really deserved a lot more attention and use than it’s got. And it requires HERS Rating, imagine that? One of the things the rating system does is it looks at cost of improvement savings, time, net present value, you know, financing costs. I would think that whether you’re using PACE financing or other financing, it’s a tool to use. And especially when we start getting towards resale value, what happens when you sell a house with a PACE lien? How do you value the future obligation versus the value of the improvements that were made? And sadly, energy efficiency has not been valued, especially, you know, sadly real estate is more about location, location, location, or maybe it’s what people can pay. And so the cost of buying real estate has no relationship to its actual value. So when we get to tenants and like the affordable, there’s the CUAC, the California Utility Allowance Calculator, for those of you that are acronym challenged, yet here’s another example of another agency that created another tool where we had a HERS Rating System that essentially, you know, predicts what your utility rates are. I worked in the Affordable Housing Industry some and, honestly, I don’t know how, I mean, even with good PV rebates, you know, they're installing solar, doing energy upgrades on existing buildings and whatnot, and it's really not clear how they actually capture any value on the utility bills because the tenant typically is paying most of the bills.

The other thing, I think financing, as we saw in the solar industry, solar leases and PPAs really helped expand the industry. The one concern I have with financing and contractor provided financing is whether or not the contractor has too much incentive too much incentive to push financing that may not be of value, or providing a product of value to the customer. So certainly there's a cost to the contractor to offer it and do whatever they need to do to help the customer get the financing --

COMMISSIONER MCALLISTER: Let's try to wrap it up, we've got to get on with --

MR. NESBITT: -- but they should not have the incentive to push financing for their own benefit. Okay, thanks.

COMMISSIONER MCALLISTER: Thanks. All right, coming down the home stretch here.

MS. RAITT: We may have one caller. Can

we open up the lines? Please mute your lines if you don't have a question. Okay, hearing none, we can move on to Goal 4.

COMMISSIONER MCALLISTER: All right, Daniel.

MR. JOHNNSON: All right, thanks everybody for your patience. I'm just going to run through this really fast, I had this beautiful script planned, but I'm just going to do bullet points.

So Goal 4 is just trying to -- I guess I made an analogy for a Smart Phone, which would be that maybe a lot of people don't know how their Smart Phone works, but they want the best, and so then they're going to familiarize themselves with that technology, and so I guess I kind of think that Goal 4 is trying to make that happen with Energy Efficiency where even people who don't know much about it, they'll want it, want that new iPhone 6.

So there's two distinct strategies in Goal 4, pretty much it's focusing on real estate value and with this we're going to do two distinct pilots for Res and Nonres, and these are Energy Asset Rating Pilots, and they'll be using the Strategy 1.4, the Uniform Property Valuation approach that Erik had talked about. And so after the two pilots are working on the Energy Asset Ratings, then we also would like to quantify the cumulative energy and water cost savings from these measures, and then pair those two together and use the asset rating and the energy and water cost savings to show buyers in real estate transactions just what they're getting.

Then we'll go into Energy Efficiency Appraisals, and I know that Sara had talked a little bit about that earlier, but pretty much there's the -- what is it, the Appraisal Institute? It's a nationwide trade organization and they have what's called a Green Addendum, and it's a template form for people to appraise and use it to value energy efficiency. And out of 11,000 Appraisers in California, only 27 have taken the course to train themselves on it. So the Action Plan is proposing to kind of check out the Green Addendum and see how it could fit into this strategy.

And so then the next bullet down is trying to get the property listings to show those

Energy Efficiency Asset Ratings and I guess make it kind of like a window sticker for nonres and res buildings.

And then finally, Green Leases, which is where the building owner and the tenant share the cost and the savings of energy efficiency improvements. So that's the first strategy.

The second one is Targeted Data and Research Driven Marketing, Education and Outreach. And this -- we've heard a lot about outreach today, so I won't go too crazy here, but pretty much just making decision maker focused and, you know, extending our outreach and leveraging partnerships, and then also leveraging our partnership to work with Energy Upgrade California and the EBEC Oversight Committee that was talked about in 1.9 that Erik talked about, that's part of this, working with Energy Upgrade California and really it's just trying to get a cohesive message about what the Action Plan is trying to accomplish and making it market-driven and consumer focused.

So let me go to this last thing just so I can get you guys to comments. All this really shows, this is in the Action Plan, but it's just pretty much showing that, you know, there is -- let me get my notes here -- you know, there's just an overwhelming amount of messages right now associated with Energy Efficiency and so the Action Plan, the ME&O for the Action Plan has to break through that background noise to achieve actual customer engagement. The resulting action is the goal, but it's not easy to achieve. To achieve Strategies 2.2 and 4.2, the ME&O and program designers must work together to align objectives and messages to provide programs that work for the targeted consumers. So I'm just saying the key word there is "targeted." And I just think that, yeah, the ME&O is going to be a really important part for the Action Plan to achieve all these goals and find the energy efficiency that's been planned for by the Governor. So, no, no more Sara. All right. There you go. What time is it? Five?

MS. BROOK: You did that in record time, I think you did it in three minutes. So you get the prize. Thank you, I'm going to make my bus now, so I appreciate that, Daniel.

I think that we should try to wrap up. I was going to talk about milestones, but they are in the Action Plan and I think everyone -- I would ask you to comment on our milestones because I think there are some that are realistic and some that might not be realistic, so it would be great to hear your feedback on those.

COMMISSIONER MCALLISTER: So you're talking about Figure 4.1 or milestones that are in the tables?

MS. BROOK: Well, those also, but we have a high level set of milestones in the kind of introduction section of the plan, let me find it, it's on page 23 of the plan. And if those are the right milestones, we want to hear that, if they're not, what are we missing? And if they're completely unrealistic, that would be really great to know, also.

COMMISSIONER MCALLISTER: Great. So let's see, I feel like we gave Goal 4 a little bit short shrift, but that's the way the cookie crumbled today. I'm really glad we got through most of the plan, you know, you all I think had a look at it, and I would really recommend that if where your interests and your activities are, wherever they may be, you know, read that section and, you know, we haven't really talked too much about the schedule, but basically we're revising this thing based on comments that we get, we'll have a few more workshops through the IEPR that will be joint with 758. We also will have some additional activity on AB 1103 and other aspects that are also reflected here, certainly Prop. 89, Guidelines, Updates, and things like that. But later towards the end of the summer, probably, sometime in the summer, the Commission will take a vote on adoption of the Final Plan. And then it will be formal, it will be an adopted document, and we'll be subject to it really, self-imposed to some extent, but we want to make sure that what's in here is something we feel committed to. So it's really important that this is the time to sort of get your informed opinions into the process and talk with staff, and figure out sort of, look, where are we off base? There's a lot in Goal 4, there's a lot in Goal 3 on the workforce stuff, you know, ME&O, it's not directly in my area, I think we have some staff expertise on that, they're doing a lot at the PUC, but that's I think an evolving what works kind of area. So I think we've got Energy Upgrade California that has been a collaborative activity, but we want to make sure that it's as sort of effective and targeted as possible. So those of you out there that are working daily who have some sense of what works and where resources could be most effective, we really want to hear that. And that goes across the whole plan, really, so just for example.

MS. BROOK: The only thing I would add is that this staff here is not going to wait until the Final Plan, we're actually starting to assume that we need to be implementing; otherwise the milestones that we listed are completely unrealistic. And we're going to be partnering with PUC staff, you know, based on their schedule to really align our objectives.

But I would like to take this opportunity to ask any of you who are planning to provide comments into the PUC's Phase 2 decision, there was one mention of making comments and making recommendations for how the programs can change in the 2016 cycle to address this Action Plan, so I would encourage all of you to consider providing comments to the PUC to help them make decisions about guiding the portfolios to align with this plan. And then I hope as many of you as possible come back and talk to us next Tuesday when we talk about data.

COMMISSIONER MCALLISTER: Well, great. I'm going to head us toward the finish line here, pass the mic over to Heather for a recap and next steps.

MS. RAITT: Okay, so just to reiterate that comments are welcome. Written comments are due April 21st and shown on the screen and in the notice is the information about how to submit comments. So that's it.

COMMISSIONER MCALLISTER: Okay, well, thank you all for coming. I'm sure we'll see each other here in future workshops and really appreciate all your participation. So we are adjourned.

(Whereupon, at 5:12 p.m., the workshop was adjourned.)

-o0o-

REPORTER'S CERTIFICATE

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand this 13th day of May, 2015.

PETER PETTY
CER**D-493
Notary Public

TRANSCRIBER'S CERTIFICATE

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were transcribed by me, a certified transcriber and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand this 13th day of May, 2015.

Karen Cutler

Karen Cutler
Certified Transcriber
AAERT No. CET**D-723