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BEFORE THE

CALIFORNIA ENERGY COMMISSION

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	)
2017 Integrated Energy Policy	)
Report (2017 IEPR)	)

2017 JOINT IEPR COMMISSIONER WORKSHOP ON SB 350

ENERGY EFFICIENCY 2030 DOUBLING TARGETS

CALIFORNIA ENERGY COMMISSION

FIRST FLOOR, ART ROSENFELD HEARING ROOM

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

MONDAY, JANUARY 23, 2017

10:00 A.M.

Reported By:
Kent Odell

APPEARANCES

Commissioners and Presenters Present

Chair Robert B. Weisenmiller, California Energy Commission

Commissioner Andrew McAllister, California Energy Commission

Commissioner Carla Peterman, California Public Utilities Commission

Katie Wu, California Public Utilities Commission

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P R O C E E D I N G S

JANUARY 23, 2017 10:00 A.M.

MS. RAITT: All right, good morning. Welcome to today's Joint Agency Workshop on the SB 350 Energy Efficiency 2030 Doubling Targets.

I'm Heather Raitt, the Program Manager for the IEPR. I'll go over the housekeeping items, quickly. The restrooms that we normally have available to us are closed, temporarily, for construction, and you can use the ones that are on the north side of the building, sort of under the stairway.

If there's 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 broadcast is being broadcast through our WebEx conferencing system, so parties should be aware you're being recorded. We'll post an audio recording on the Energy Commission's website in a couple days, and a written transcript in a few weeks.

We'll have presentations this morning, both from Energy Commission staff and California Public Utilities Commission staff. And we'll take public comments after each presentation.

For this in the room, who would like to make comments, please give a blue card to our Public Adviser, in the back of the room, and we'll call on you when it's time to make comments and you can come to the center podium.

For WebEx participants, please use the chat function to tell our WebEx coordinator that you'd like to make a comment during the public comment period, and then we can take phone-in participants at the end.

Materials for the meeting are the entrance to the hearing room. They're also posted on our website. And the notice for this meeting provides all the instructions for submitting public comments, which are welcome, and due on February 6th.

And with that, I'll turn it over to Commissioners for opening remarks.

CHAIR WEISENMILLER: Good morning, welcome to this workshop. I was going to say, actually, in terms of what would help, when you give the Public Adviser your blue cards, if you could indicate whether you're interested in saying something after Martha, after Katie, or at the very end. So, there's three opportunities, so that would help us in terms of just lining you up at the right times.

I think today's an important workshop. I mean, we're obviously kicking off the IEPR. We did the Scoping Order last week, or a couple weeks ago.

Comments are due this Wednesday. But, obviously, one of the key themes is going to be energy efficiency, particularly the doubling of energy efficiency. We're looking at it both from a programmatic perspective and a forecasting perspective. So, today's an important part of that.

Obviously, the Governor set this goal in his 2015 State of the State, and that was then ratified by the Legislature in SB 350, also 802. And, so, this is all a backdrop for how we're going to reduce greenhouse gas emissions going forward, particularly the 40 percent below 1990, by 2030. Which, again, was signed into law in SB 32.

When we look at, when we talked about that, particularly when the Governor was going forward, the real thinking was that this was a way to really amp up our activities dealing with the existing buildings. Particularly, I'd say, rented space. And, so, this has been a challenge, I'd say, since Brown won, the first time I worked with him.

So, this is a good workshop, now, to really move forward on what we're going to do. I would note that we had, the first workshop was held in July, of 2016. Our staff worked hard on a paper, today, to discuss various approaches.

And, basically, again, what we need to do is really focus on this project, or this part of our challenges in this IEPR.

So, again, thank you for helping us move forward. I certainly want to thank Commissioner Peterman for being here, today. It's really going to take a concerted effort of both our Commissions to really make progress in this area.

COMMISSIONER PETERMAN: Thank you, Chair Weisenmiller, and Commissioner McAllister, for the opportunity to participate in today's workshop. Thank you to all the staff at Agency, who have been working collaboratively since SB 350 was passed, to make sure that we're coordinated on doing our respective tasks within the legislation.

As Chair Weisenmiller has noted, this is an important part of SB 350, as well as our climate change strategies as a State. And, specifically, regarding today's workshop -- well, first of all, I'll note I appreciate the several workshops that have happened, leading to this point. This is a meaty topic and it's good to have multiple opportunities to discuss things in a public forum, as well as for stakeholders to get together, informally, and share ideas.

Regarding the framework for doubling energy efficiency in setting the specific targets, our staff has worked collaboratively with the Energy Commission, and provided comments to the framework presented. My office has also worked closely with the Energy Commission. And, so, we thank you for taking our suggestions and our input. And I look forward to now getting the responses and feedback from all the stakeholders.

One of the big things that's happening at the Public Utilities Commission, around energy efficiency, over the next several months, will be our consideration of the utilities, the program administrators' business plans for energy efficiency. These business plans are in response to our development of the 10-year rolling portfolios.

And one of the key questions that we'll be asking stakeholders, in our proceedings, is how do the business plans align with the doubling targets? And, so, that's an issue that we look forward to further fleshing out in the months ahead.

I will note those are extensive plans. I think the first one I looked at was about 1,500 pages. So, thank you in advance for supporting our work in that area.

And then, finally, one of the upcoming workshops that I see the Energy Commission is doing is on setting the subtargets. And the IOUs will have their own subtargets. And, so, we look forward to working with the CEC, again, on setting the targets on -- and the PUC's, what we have to do under our jurisdictional responsibilities, as well.

So, with that, thank you and I look forward to your comments today.

COMMISSIONER MCALLISTER: Thank you, Commissioner Peterman. It's really great to have you here. And just the partnership, I think, that the two Commissions are engaging in on 350, but really more broadly around energy efficiency, generally, lots of different subtopics there. But, specifically, how do we get at our existing buildings? Obviously, we're both very concerned about that.

Our staffs at all levels have really been working closely together to make sure we're harmonized, and using, really, sort of looking at the world in a way that is consistent.

So, I want to thank everybody for coming. Certainly, this is among the most important things that we have going at the Commission right now, in my view.

So, my name is Andrew McAllister, and I'm the Lead on Energy Efficiency here, at the Commission. And, as well, very involved in our data discussions and evolution of our forecasting work. And all of that is related to SB 350 and, then, AB 802 sort of broadly.

But there are lots of threads that really move along together, in parallel, to get our doubling. But more, I think ultimately important, is to get to our carbon reduction goals that we have in the State. So, we have very, I think, clear direction overall.

This discussion about doubling, to me, is a really great crucible for having -- for sort of us all getting on the same page, having a really key discussion about what energy efficiency is going to look like going forward.

There's a broad marketplace out there. Probably everyone in this room, I hope you have, at least, but I'm thinking a lot of you have read the AB 758 Action Plan, which is about our existing buildings. There's a lot in there. And the Commission adopted the original one a couple years ago, and an update last month, to that Action Plan.

And, really, that is the closest thing we have to an expression of what the doubling looks like, in terms of practical, on-the-ground kind of moving forward, programmatically. And it talks about a lot of stakeholders. It's got -- it mentions, probably every organization, you know, that's represented in this room, in some way or another. It's the expression of a lot of joint ideation across our two Commissions. But also, out there in the marketplace there are lots of entities who really need to step up and kind of help achieve the long-term energy performance of our existing buildings.

And, so, now that we have a doubling goal, it puts a finer point on all those discussions. And this conversation is really the way we're moving toward getting numbers, putting numbers on everything that we're doing in terms of energy efficiency and trying to figure out, together, what does that whole look like.

So, with the Legislature, actually, and SB 350 identifies a dozen or so, I think it's 11, categories of energy savings that it will be good if we can unpack. And, so, we've done initial analysis on that to come up with the graphics that you see in the white paper.

But there's a lot of -- it's kind of an ongoing discussion and the more information we have, the better we're going to be able to do.

So, unpacking the different sources of efficiency is essential for figuring out what the doubling is actually going to look like. So, this conversation is, right now, what are the numbers? What is the doubling? What does that look like over what time frame?

But as we go forward, we're going to have to deepen in all of these subcategories, whether it's the PUC portfolio, which is probably the most, you know, and the POUs sort of together, those ratepayer-funded programs, those are probably the biggest sources of savings.

But there's a lot out there in the market place, too, and we can't forget about that. And, so, part of the discussion today is, you know, in broad terms what does that doubling comprise. And, then, as we move forward assigning targets, and sort of hopes and aspirations for the different categories of savings, the different sources of savings, including the ratepayer-funded programs, but not exclusive to them.

So, this conversation is really key, then, for IRP and everything else that, you know, all of you are familiar with under the broad SB 350, 802 aegis.

So, I'm really thankful to have a bunch of engaged stakeholders. I'm really thankful for the work that staff has done to prepare us for today. And hopeful that the conversation will really bring out the best in everyone and get information on the table that we can use to make good policy, to define our targets, and then move forward, proactively, to achieve them.

So, thanks, again, all for being here, and staff for putting together this day, and looking forward to hearing what everyone has to say. Thanks.

MS. RAITT: Great. Our first speaker is Martha Brook, from the Energy Commission.

MS. BROOK: Good morning. Thank you for coming and thank you for those on the phone, who are listening and will, hopefully, contribute later when we have an opportunity to do so.

So, my presentation is really an overview of the paper. And, so, hopefully, no surprises here, but just clarification, if needed. Or, if we didn't communicate adequately in the paper, today's a great opportunity to try seek clarification for everyone involved.

So, just an overview of the SB 350 Energy Efficiency Statute. On or before November 1st, 2017, the Commission, in collaboration with the Public Utility Commission and local, publicly owned electric utilities, in a public process that allows input from other stakeholders, shall establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas, final end uses of retail customers by January 1, 2030.

Our proposed public process going forward is, well, we already started, as we heard from the dais. We have our first workshop on data and analytic needs in July, of 2016. We're having our second workshop today, where we're establishing the policy framework for establishing the annual targets, and setting the subtargets, as we'll talk about.

And, then, we plan to have a third workshop, you know, approximate spring timeframe of this year, on investor owned utility and public owned utility savings, contributions to the doubling. And we anticipate a fourth workshop along the same timeframe, in the second quarter of this year, to discuss and understand opportunities for additional savings that are outside of ratepayer incentive, and financing, and technical assistance programs.

And, then, we're anticipating a fifth workshop to pull all of that information together. Really, to discuss a staff draft final report. So, the staff will be working to collate all the information for the next several months, in a draft final report, and that will be presented and discussed at a fifth workshop third quarter this year. And with a planned adoption of the targets at a business meeting no later than November 2017.

So, the next few slides, we're going to present these two aspects of the white paper. We're going to talk about the target-setting metrics that we're proposing to use. And we're also going to talk about the assumptions that we plan to make in terms of cumulative doubling, and also for extending the expected savings that will then be doubled using an average annual growth rate.

So, first, the metrics. We are proposing that we use a site energy metric to communicate the overall annual targets for doubling energy efficiency, using a common energy metric of British thermal units.

This chart shows the doubling of the 2014 AAEE, and 2013 POU electric and natural gas savings. Those are the -- so, this is doubling of what we've been told to double to establish the baseline for the target setting. And the red line is the natural gas, the blue line is the electricity, and the black, bottom line is the combination of both of those in Btus.

As I talk in later slides, we are not proposing to set subtargets using this combined metric. Because, as most or all of you know, energy efficiency is a behind-the-meter event. And in order to identify, and characterize, and then implement efficiency events, it really makes that to do that at the site kWh and therm level. And we'll talk about that in subsequent slides.

But for policy reporting and tracking we're, right now, proposing to do that at a common -- in a common unit that combines natural gas and electricity at the site level.

And, then, we're also proposing a GHG reduction metric. Again, because of the policy intent of the legislation and the Governor's goals. We are attempting to use energy efficiency in a very deliberate way to reduce greenhouse gas emissions produced by the State. And, so, we intend to track and report GHG emission reductions that are a result of our energy efficiency accomplishments.

Now, with this slide, attempts to communicate is that we're not constraining ourselves to the GHG reductions that would result from a literal doubling of the electricity savings that have been achieved to date, and a literal doubling of the natural gas savings. That literal doubling, translated to GHG reductions, is what this black dotted line is.

And this is figure 5 in the paper. And what the paper tries to communicate and illustrate is that if -- once we do subtarget setting for both kWh and therms, most likely we'll have a different GHG reduction trajectory because, most likely, we will find cost effective, feasible and reliable subtargets in kWh and therms that are different from a literal doubling of electricity and natural gas savings.

So, what this chart tries to communicate is that, of course we want to optimize and maximize GHG reductions, but we're still setting targets at the customer level energy metric, and then converting those savings that we expect over time into GHG reductions.

And if we're lucky enough to have a huge amount of cost effective, feasible and reliable energy savings that surpass a literal doubling, then we can talk with all of you, and our policy decision makers about ways to optimize and prioritize those savings targets to achieve the GHG reduction that we would like to -- we would like to have under, you know, a strong and robust energy efficiency program in the State. But we're not setting targets using a GHG metric. It's more of a policy tracking and reporting metric for us. At least that's what staff is proposing at this time.

So, the next two slides are figure 3 and figure 4 in the paper. It's really important to understand that these are illustrations. We haven't done the work to produce these -- this is like a preview of what will be discussed in the staff draft paper in the third quarter and then, ultimately, adopted by the Commission in November, in regards to the subtarget setting.

So, what this chart illustrates is that the -- we have the literal doubling, with the annual targets illustrated on that top line. And, then, starting from the bottom and working up, we have expectations of electricity savings from current to ongoing efficiency programs. This is that first set of program activity is what we -- what we have to double, in terms of the literal doubling, to achieve those statewide targets, as the baseline for where we start in this target setting exercise.

That the middle set of savings wedges is an illustration of additional savings that would include enhanced utility programs, market activity, new programs that are cost effective and feasible, but do not, yet, have a mandate or dedicated resources, but seem like a very practical and successful opportunity to achieve additional cost effective savings.

And, then, that top wedge is just an illustration that there may be a quantity of electricity or gas savings that we don’t know how to achieve right now, given whatever assumptions and methods that we develop over the coming months for identifying opportunities, proving that they’re cost effective. Proving that they’re not just cost effective, but also feasible and achievable.

So, again, this isn't to -- it's really not included in this white paper as to convey that we're giving up, already, and we don't think we're going to get there. That's not the point of this slide. The point is that it may happen. It may happen, it may not happen. We're going to do the work to figure it out. So, that's what this chart is trying to communicate.

As an alternative illustration, the next slide, natural gas savings, illustrates that there might be cost effective and feasible natural gas savings that go beyond a literal doubling of what the State has already accomplished, and plans to continue over time.

And, again, if you combine an electricity set of subtargets, with the natural gas set of subtargets, one which falls below a literal doubling and one that exceeds a literal doubling, you'll have a different GHG reduction outcome.

And, so, that previous slide that I showed on the GHG topic is just an illustration that we could actually do better, in GHG reduction terms, than that GHG reduction that would -- that results from a literal doubling of each fuel type. That could easily happen and we're going to -- and that's why it's important to track GHG reductions going forward, based on what we actually accomplish in terms of subtarget energy saving opportunities.

Okay. So, the next topic, after metrics, is how do we get to establishing the statewide annual target for 2030, in terms of cumulative energy efficiency savings? And what we're proposing, what staff's proposing in the paper is that we interpret cumulative to be a doubling of the -- so, let me back up a little bit.

When staff look at the energy savings in the State that are reasonably expected to occur, which is what we've been assigned in SB 350 to double, as a starting point for our target setting, that -- the last year of that set of efficiency savings forecast is 2025, because it was that version of our long-term resource planning and demand forecast activity. And, so, in 2025, that's all of the energy savings expected to occur from all of the activities, going back from the beginning of standard setting in the State, and including all of the utility saving programs that happen every year. And, so, the 2025 amount of savings is already cumulative, because it's not just one year of savings -- one year of efficiency program activity. It's multiple years of activity, culminating into one year's worth of energy savings.

So, then our assignment is to extend that level of expected savings out to 2030. And, well, that's the annual growth rate chart that's the next. For cumulative doubling, our interpretation is that we double the expectation in 2030. It's a literal doubling, so it's -- so, that's the black line in this chart.

And the blue line in this chart is just to illustrate, you know, existing and enhanced program activity that is expected to happen over the coming years.

The red line is the additional savings that would be needed to meet a cumulative doubling in 2030. And that's why the red line and the black line meet in 2030, is it's the additional savings that's required to meet that doubling in 2030.

And the green line is there for illustration purposes, and that's basically illustrating a different interpretation of cumulative that staff is not proposing, but it's here for discussion purposes. That green line, it basically is making sure that the -- all of the early years, where we don't meet a literal doubling, is actually added to the later years so that the area under the curve is achieved, in terms of a cumulative doubling by 2030. And that is one interpretation of cumulative. It is not the interpretation of cumulative that staff is proposing in the white paper. And we can definitely answer any questions that might come up about that.

In terms of the annual -- average annual growth rate from 2025 to 2030, we are proposing to use a 3 percent growth rate to accomplish the baseline, in terms of the literal doubling for the statewide annual targets.

And this chart really is trying to indicate that that 3 percent growth rate is pretty comparable to what we would expect looking at the historical activity in the State, and what we've been expecting that we can accomplish using the technical studies that the investor owned utilities, working with the Public Utility Commission, and the public owned utilities do to understand what their potential for savings going forward is.

So, we feel like a 3 percent growth rate really maps well to the technical work that we've done, historically, to identify expectations for efficiency savings over time.

The green line, from 2025 to 2030, illustrates a more aggressive growth rate. That's a 7 and a half percent growth rate. And, so, that's an alternate, just it’s an illustration of how much different those 2030 targets would be if we assumed a different, more aggressive growth rate.

So, the red line illustrates where staff is proposing to extrapolate the expected savings from 2025 to 2030.

All right. So, the next few slides discuss the other aspects of the white paper that are also really important for framing our work going forward. And I think it’s really important, and not necessarily clear, that the -- when SB 350 asked us to set annual targets to achieve a cumulative doubling, they also gave us the constraint that those saving targets had to be cost effective, feasible and reliable. And, so, the literal doubling should be thought of as a starting place. That’s like that’s our -- that’s our goal is to get to at least that much cumulative savings. But we are constrained to identify annual targets that are cost effective, feasible and reliable.

And this is where staff -- this is ultimately why staff is proposing that we need to do the real work at the subtarget level, because every entity that we know of, that has resources and responsibilities to implement energy efficiency programs in the State, have different assumptions, mostly requirements in regards to cost effectiveness.

So, for example, the building standards, by State law, have to use a consumer energy cost over the lifetime of the building and that's -- we're not allowed, as the Energy Commission, to adopt a different cost effectiveness framework. It has to be consumer energy costs and it has to be over the lifetime of the building.

Another example is that the Public Utility Commission publishes decisions that define and describe the cost effectiveness test that the IOUs need to use when they're designing, implementing, and then tracking their programs over time.

So, we end up -- the extension of that example is that each public owned utility also, you know, has constraints on what they can accomplish based on their adopted assumptions about cost effectiveness.

And, then, the other thing that's really important to characterize, I think in this framework setting, is what we mean by reliability. So, SB 350 is very strong in its connection between energy efficiency savings activity and integrated resource planning. And, so, we do expect to use all of our historical and ongoing responsibilities to do integrated resource planning, and to include energy efficiency as a resource in that process. But not every subtarget that we set will have that same requirement to be reasonably expected to occur.

So, that's a -- when I say those words, "reasonably expected to occur," that's the interpretation of reliability for the IRP process, as staff understands it. And, so, if we stopped there and said that the annual target setting for SB 350, every single subtarget had to be reasonably expected to occur, we would fall way short of our doubling goal. Because reasonably expected to occur means that there's current and ongoing resources committed to the program activity, and such that you can depend on it as a supply resource. And that will have constraints that are far greater than new program activity, market activity that are cost effective and feasible, and we've identified them as such, but there may be no resources assigned to those, and they could be completely voluntary. And, therefore, we need to understand whether or not they would occur over time with reasonable -- you know, with reasonable liability will be harder to identify and to confirm.

But it's still really, really important that we set those targets that are cost effective and feasible so that we -- that's really part of our energy efficiency challenge is here's additional savings that could happen if we did apply the resources to it, and we could commit to it in a way, across the State, to make it reasonably expected to occur. So, we do -- we are going to be identifying both those types of programs.

This chart is just trying to illustrate what I'm talking about. It's not in the paper. But as we discussed with stakeholders the draft, internally, and with the Public Utility Commission, it became clear that we had -- we will have to, in our next draft clarify that some subtargets will fall neatly in the IRP bucket, just like we've always done.

And what we've illustrated here is the big, blue savings wedge are existing and enhanced efficiency programs that are reasonably expected to occur. We have budget resources assigned. The enhance existing programs. And, so, they're thought to be very dependable and achievable.

But there might be additional savings that we prove are cost effective and feasible, but have yet to be commitment to from one responsible entity, from the State as a whole, from -- you know, there's a number of reasons why we can think that new market activity won't have the same level of reliability in terms of a long-term resource plan than the programs all of us are more experienced implementing, and tracking over time, that we have deemed to be very reliable and able to be included in an IRP process.

Okay, so the final part of our paper is talking about fuel switching and fuel substitution. We've been challenged by SB 350 to consider both of these types of programs, and to see if they fit, or not.

And our proposal is to make a determination about what we think about each of these going forward, as part of our framework discussion.

Fuel switching is defined as switches between electricity and gasoline. It's otherwise known as transportation electrification. And staff is proposing that, although mentioned in SB 350 for consideration, we're proposing that it's not in the scope of our energy saving target setting because the definition of energy efficiency, in SB 350, is a reduction in either electricity or natural gas consumption. And transportation electrification doesn't meet that definition. So, it would actually increase electricity use and decrease gasoline use, but it wouldn't decrease electricity or natural gas consumption.

So, at this time, we're proposing to not include fuel switching between electricity and gasoline in our target setting exercise.

Fuel substitution, on the other hand, between electricity and natural gas, we are proposing that it is in the scope of SB 350. In the paper, we communicate that, ideally, there would also be a Btu energy reduction that takes place because of that switching. But there may also be opportunities to consider fuel substitution between electricity and natural gas because of what it asks us to think about in SB 350, because the energy is saved in the final --

UNIDENTIFIED PHONE SPEAKER: How do we see this one? The goal would have the bigger challenge of --

MS. BROOK: -- by using --

CHAIR WEISENMILLER: Actually, just wait until we're done and then tee up for public comment. Thanks.

MS. BROOK: By using cleaner fuels to reduce GHG emissions. So, this, we're going to have to be really careful here, right? Because if we just say all fuel substitution is in scope, then we have to be careful because, for example, a reduction in natural gas use will increase electricity use. And, so, it will be a negative savings wedge in our target setting exercise. And we'll have to be careful and be thoughtful about when it's appropriate to do that.

And, so, step one is to identify fuel substitution opportunities that save consumers energy, and save energy on their bill. And there are, certainly, opportunities to do that. And, then, we'll also be considering fuel substitution that results in GHG reductions but, potentially, don't have significant energy savings in terms of a reduction of site Btus.

And I -- this probably is, in my opinion, when I reread the paper, this was not clear. I thought it was a little bit confusing that we were saying that we wanted to see a reduction in site energy, as a result of the fuel substitution, but we were also allowing that if GHG emissions are reduced, it's also potential opportunity for target setting. So, we might want to be clearer about that going forward.

UNIDENTIFIED PHONE SPEAKER: A site alternative fact, calling Hilary President is --

COMMISSIONER MCALLISTER: Could whoever is unmuted, could you please mute yourself, so that we cannot have your -- across the hearing room, your voice.

MS. BROOK: So, those are our prepared slides. I don't know if the Commissioners want to take first crack at questions, or do you want to --

CHAIR WEISENMILLER: Well, just a couple of observations, we have some comments. One of them is when the Governor came in, as Governor this second time, he set an impressive goal for distributed gen, 10,000 megawatts. And if you've been tracking our tracking progress, you know, originally there was a pretty big wedge. We had no idea how to get to the 10,000 number, after adding up our various programs. And the good news is if you look at it, now, we're actually on track. So, in some respects, I tend to imagine it comparable here where, on the doubling, there's a wedge we don't know how to do at this stage. But over a period of time, one of our missions is to really fill in that wedge, or reduce the wedge by tying it to specific programs.

So, for those of you who are going, oh, my God, there's this blank space, you know, the good or bad news is we've gone through that before. And, you know, our job over time is to fill that out.

The other one, on the fuel substitution, it's actually an interesting question in the sense, obviously, under the first Brown administration we really knocked out electrification. You know, just thinking of the-- not the end use, behind the meter, but thinking of the system. It was pretty clear that, you know, you just waste a lot of energy going to electrification, and then transmitting it, and then going behind.

Now, the reality is our good is changing in ways where thinking about the marginal fraction, and for those of who are -- I suggest you work through Ed Kahn's book on electric systems. But that, you know, there's a real difference between marginal fraction and average use. But when you think of marginal fraction, we're getting more and more on the margin, not natural gas, but renewables.

And, so, as you put renewables on the margin then, certainly, those concerns about wasted energy go away. And that, certainly, then, affects your behind-the-meter part, or push in a way which if you think, say, natural gas is a hundred percent on the margin, it would be crazy to do.

So, again, this is something which will have to evolve over time. You know, certainly, at this stage, natural gas is still on the margin most of the time. And, as we go forward, it's going to be decreasing amounts. And, so, that gets into how one thinks about some of the fuel substitution issues over time. So, again, that's something which I think, over time, this is going to have to evolve.

So, there's a couple of areas which are evolving over time, but at least at this point we can start the framework.

COMMISSIONER MCALLISTER: Yeah, so, I totally agree. I mean, as sort of a person with an engineering background, back in the day if you were going to talk about, oh, we're going to use electricity for everything under the sun, including heat, that was like sacrilege. You know, those of you who study engineering, I think you can relate to that. You know, we would never do a high quality energy and then dumb it down to be a low quality energy, which is what low temperature thermal is.

But we're in a brand-new world. We have a different mix, we have different cost profiles, we have -- as the Chair said, we have a different energy mix at the margin. And, actually, it may make a lot of sense to do things that we wouldn't have done with electricity now, with electricity going forward.

And, so, that's a great, that's an incredible situation to be in, so that's positive.

On the other hand we have -- you know, we do have the renewables goals, and we have the RPS, as well. And, you know, again, I always say it, but it bears repeating, you know, energy efficiency really is the thing that we need to literally double down on, but also it just makes sense. You know, half of a smaller number is a smaller number.

So, if we consume less, then it all gets smaller in terms of the scope of our investment in renewables, and everything else.

But I do want to bring up a couple of things. So, I appreciate this discussion. I know some of you, who are more energy efficiency inclined here and on the phone, you know, this is a slightly different tenor and different, you know, tone and content of this white paper. It kind of starts to look more like a forecasting discussion, and that's because it is.

When we're talking about moving into the IRP, and we're talking about, you know ow, demand profiles, and energy efficiency being considered as a resource, and it needs to be robust. As Martha said, it needs to be robust enough that we believe it's going to show up then --

(Phone line interruption.)

COMMISSIONER MCALLISTER: Boy, let's mute whoever that is over there. There we go.

Then, that does raise the stakes in terms of being able to show what's going on out there. And I think, you know, the difference here with straight forecasting is that we're trying to link this to programs that, going forward, will increase these wedges going forward. It's not just perceived wisdom of, oh, here's what happened out there in the world and we're going to assume that that continues, and sort of be conservative on the forecasting front. We absolutely want to forecast what we truly believe is going to show up.

But we also, I think, have an obligation to chart a path towards a doubling, which is not a traditional thing that the forecasting effort does. And, so, we really are melding bridges here, in a way that I think is very innovative. And it does raise the stakes informationally, analytically, and generates the need for discussion like this. So, you know, as you noticed, this presentation isn't, okay, here's exactly what's going to happen going forward to double energy efficiency, and here's the Energy Commission's, you know, sort of fiat about how we're going to get there.

No, this is a market discussion. It's certainly driven by programs, it's driven by policy. You know, that red wedge is we may need legislation, to work with the Legislature on enabling new things. We certainly need market innovation, as well. That upper slice, that upper wedge is, you know, we don't know exactly what that looks like. Innovation, both at this building, and at the PUC, and all of our stakeholders doing what they do, in the marketplace more generally, we depend on that happening, as well.

And, so, not only is it here's how we're going to do the calculations, it's we're going to try to work with stakeholders to grow the market, to build these wedges and make them bigger and thicker.

We have some time. I mean, you know, 2030 is not that far away, but it’s long enough that we can’t predict everything that’s going to happen. And, so, I think it’s really a good opportunity to deepen our discussions, to bring our expertise, collective expertise, and put it on the table and try to chart a path forward for this larger wedge of, you know, “unknown savings.”

You know, so I certainly believe it’s there. And there are a lot of different ways that I can imagine it being there, and a lot of them are talked about in the AB 758 Action Plan. But, you know, we need to roll up our sleeves and make it happen. There’s terrific technology, there’s a lot of investment in this arena, so I’m very optimistic.

But I think that, you know, I’m sure the Chair earlier, before I showed up, my apologies for being late, mentioned the data proceeding. That we had a meeting on data, that the data reg update that the Commission is also perceiving that’s happening. So, you know, getting to a better understanding of what’s actually happening out there, so that we can define these numbers going forward, is also a key piece of this.

So, when we set a set of targets, we also need to make sure that we're creating the information and generating the knowledge that tells us where we are in meeting those targets. And, so, I think that's a critical complement to this discussion.

So, I think that's it for now. I'm looking forward to what people have to say.

COMMISSIONER PETERMAN: Thank you for the presentation and for the comments by the Commissioners. I'll just note, I think, as you've already highlighted, there's a lot of interest in what goes into our unknown category, but that is a longer process. And, so, I would -- my request would be that we think about what's the process for clarifying that category? How do we make sure we're on the right track to make sure we're in time to meet the targets established in 350?

CHAIR WEISENMILLER: Okay. So, we've had -- let's start with those who have requested to speak in the room.

And, again, those on the line, please mute yourself. We don't need your conversations here.

So, let's start with Bryan Cope, SCPPA, please.

COMMISSIONER MCALLISTER: In particular, those of you on the phone, it sounds like we're getting a feed from somebody's radio in the background, or something. So, if you could turn that off, that would be helpful.

MR. COPE: Thank you, Mr. Chairman, Bryan Cope, with Southern California Public Power Authority. And, Martha, thank you for the presentation and clarification.

A couple of just real quick things. The subtarget definitions aren't really expanded upon, but it's kind of expanded that you're looking at, particularly, utility-specific forecasts. And I'm curious if you have any expectation as to when that kind of will be expanded upon, as opposed to in advance of a workshop, the third or fourth workshop that you're planning. How far in advance we're going to know, you know, how we're going to be working with staff to work towards that?

MS. BROOK: That's a great question. And, so, as you know, we've met once. And, of course, we met once with the POUs. And, of course, the Public Utility Commission is working, you know, daily, with the investor owned utilities on potential on goals. And, Katie Wu's actually going to talk about that, next.

And, Bryan, at the end of our discussion it's going to talk about next steps. And, absolutely, the first order is mapping out the next several months and working with you to prepare for the next utility workshop. You've been very gracious in sharing some of the information that we need to understand what the POUs are planning to do. We're going to look at that, immediately, and then ask you a bunch of questions. Because there's also some additional information we know we don't have, yet.

MR. COPE: Right. Thank you. I just want to encourage you that the more in advance that we have to work together, the better we'll do, and I'm sure you know that.

The other question that I had, regarding the last section on fuel substitution and fuel switching, you were right. I read it three times and I got three different reads. So, your attention there was important.

But at the end there, you had mentioned something about Btu savings, but you also referenced, Martha, something about impact on customer bills. And those are, potentially, two different questions.

MS. BROOK: You're right, you're right.

MR. COPE: And, so, we need some clarification on that. It's are we looking to try and save the customer money or are we trying to save Btus? Because changing heat pump for a standard water heater, different climates, you can have different impacts.

MS. BROOK: Right, right. Yeah.

MR. COPE: And, so, it's going to be very site specific.

MS. BROOK: Yeah. So, again, just to -- I didn't mean to confuse the metrics discussion by talking about costs. We're talking about energy metrics in terms of target setting, but the cost effectiveness, obviously, that's where the costs will come in terms of the tradeoff between the cost to implement a program and then the ongoing cost to the consumer.

MR. COPE: Thank you. I just want to make sure we're on the same page because they're two different analyses, typically. So, thank you.

CHAIR WEISENMILLER: Yeah, I had actually one thing for, certainly, following up on yours that will be good. We'll eventually have written comments, I'm sure, in this area.

And what we're looking for, particularly in the IRP concept, in the IRP proceeding relating to here, is sort of, obviously, this talks about starting out with what does, say, the SCPPA members see as their baseline energy efficiency, and then what are you doing to double it? You know, so I mean, obviously, again, this is going to be an evolving discussion between now and 030, as we get more and more, you know, fine-tuned on it. But at least where we need to get some understanding from the utilities is what you thought you thought your baseline was in energy efficiency and, then, what you're doing to double it. You know, realizing that, again, we're trying to be pretty clear here that not everything is on the utilities' shoulders. But, again, trying to get an understanding of what you see as your contribution.

MR. COPE: Thank you. To expand on that, then, I thought everyone was starting from the same baseline going forward. If we've got a different starting point for one utility versus another, or IOU versus a POU, then we're kind of creating a big problem. So, unless I hear otherwise, I'm suggesting, or I would suggest the analysis needs to remain with the AAEE forecast and go from there.

And I do commend you that focusing on an absolute number as opposed to a relative number, not a 1 percent of retail sales, or 1.2 percent and double that, that's a non-starter. That's a bad analysis that would create all kinds of difficulties, particularly for the fuel switching issue involved.

So, with that, we look forward to working with the Commission.

CHAIR WEISENMILLER: Great, thank you.

Actually, we have two cards from NRDC, so why don't both of you come up, certainly, sit down and talk.

Obviously, start by identifying yourself for the court reporter, then go ahead.

MR. CHHABRA: Good morning. Mohit with the NRDC. Thanks for letting us speak. So, to start off, our proposal is that the Commission consider definition of doubling the cumulative goal by 2030 as also doubling the annual incremental targets. So, this is closer to the green line that Martha showed in her presentation.

And doing this is an attempt to maximize energy savings and as well the greenhouse gas emissions, which is one of the purposes of the bill. So, you know, we'd urge you to at least try for that.

And going for the cumulative goal, the way we are currently interpreting it, there's a danger that savings that are short-lived, for measures that have a shorter life, those get lost if you account like that. And we'd rather not let that happen.

So, furthermore, we have a mid-case AAEE additional achievable energy efficiency savings target, and using the double of that to track is in line with the recommendations that we really agree with in the CEC white paper, which wants to compare achievements, and targets, and do an analysis of the gap, why it exists and what can be done to reach that.

We recognize the importance of going after cost effectiveness savings -- cost effective savings. But we urge that the long-term of cost effectiveness should limit what we can do in the short term. Parameters that are key to cost effectiveness get more and more uncertain, the further out we go, and so does our estimate of energy consumption trends. So, it’s good to have that there, but we shouldn’t let that limit what we can do in the short term.

And, finally, we agree with CEC that energy savings targets defined by common unit should be rolled out in terms of subtargets. And flexibility in these subtargets is important, as new or potential studies is released and we get a more defined estimate of how much energy can be saved.

And Pierre’s going to talk, briefly, about a methodology to aggregate gas and electric savings.

MR. DELFORGE: Thank you, Mohit. Chair, Commissions, thank you for hosting this workshop and for the opportunity to participate in the discussion.

Now, just to step back a little bit, I think scaling up energy efficiency, from NRDC’s perspective, you know, beyond what’s currently understood to be feasible and cost effective is really critical to achieving our climate targets. Which is why, you know, this conversation is important today.

So, I would like to focus my comments, just to follow up on my colleague's, just on the methodology for aggregating gas and electric savings.

Mr. Brook's presentation properly recognizes the importance of flexibility.

COMMISSIONER MCALLISTER: Could you turn off that other mic, just in front of you? The one to the right of you, actually, right next to you. No, that one right there. Oh, it won't turn off? Okay, it's giving a little feedback. Sorry about that.

MR. DELFORGE: So, Ms. Brook's presentation this morning shows, you know, give an example where the flexibility between gas and electric targets is important because, hypothetically, you may have more cost effective savings on one fuel, than you have on the other. And I would suggest that it doesn't have to be that one is cost effective and not the other. In any case, even if both are cost effective or both are not cost effective, it stills makes sense to optimize and prioritize between the two fuels to achieve the most cost effective savings possible.

So, from that perspective, having a mechanism to trade or adjust targets, or to implement that flexibility, save a little bit more of the cost effective fuel, and a little bit less on the non-cost effective fuel is important. And the question is what method do you use to do that?

And what we believe is that the Commission proposal to use site energy for this is not the best way to do this because it has, first -- you know, within the current RPS level, you know, the 50 percent RPS level, it would have unintended consequences in terms of greenhouse gases.

If you use -- you know, for example, if you can save one more therm of gas and you use the site convention metric to determine, you know, how to balance that with electricity savings, you can end up having more greenhouse gases in your 29.3 kilowatt hours of electricity that are equivalent to that therm of gas.

And, basically, site energy does not take into account greenhouse gases, and does not take into account the inefficiencies in the thermal generation and distribution of energy of electricity.

So, there's a simple solution to this problem, which is to use a source energy metric for conversation, and for -- both for reporting -- and I think my argument is that we can't separate reporting and target setting.

Because when you report, basically you show -- you identify a gap and how big that gap is, and you also suggest policy actions to bridge that gap.

So, the best metric or, you know, some metrics to consider for doing that, both reporting and target setting, would be a source metric, but not the traditional source metric which considers that all resources are 100 percent fossil, which is clearly not relevant for California.

The DOE, last September or October, proposed a new source metric, or a new approach to the source metric, which is called captured. Which, essentially, considers renewable energy as site energy. And still considers fossil resources as source, traditionally.

And when you use that metric in the State of California, with the 50 percent RPS, it gives you a better alignment with greenhouse gases --

CHAIR WEISENMILLER: Yeah, but again, isn't it average and not marginal? I mean, come on, we're economists in this room. You've got to know the different between average and marginal, even if DOE didn't.

MR. DELFORGE: Absolutely. Well, I mean, this principle can be applied to marginal and should be applied to marginal. You're absolutely correct.

But the principle of looking at, you know, what's in the margin and making sure that renewable is not really 100 percent fossil resources.

MS. RAITT: And, excuse me, I just wanted to mention that we are past our three-minute timer for --

MR. DELFORGE: Okay. Well, let me conclude. I think looking at such a metric, you know, adjusted to California, would not only guarantee higher gas savings, it would be more costing -- achieving that goal in a more cost saving manner. And I think it would also provide a framework for addressing the fuel substitution question that you mentioned earlier on because it would give you a framework for looking at when, you know, substitution is beneficial from both a cost and greenhouse gas perspective. So, that completes my comment. Thank you.

CHAIR WEISENMILLER: Thank you.

Andrew?

Yeah, again, my major, again, as we struggle through, it's like how do we do the marginal stuff. And the complication is, you know, it's not like you go into a utility control room and it's flashing 80 percent marginal. You know, that you go through these complicated models and you have to get those right. Yeah, I mean, it's been something which I think the PUC, in the avoided cost context has thought of for 20 years, with wide ranges. So, again, but I mean that's the right way to do it. And as we increase the system and there's more and more renewables on the margin, it certainly affects these sort of voices in ways which, certainly, in 1978 or'80, you know, just would not have been considered.

Carla?

Okay. Well, thanks again, we're looking forward to your written comments.

COMMISSIONER MCALLISTER: I would just encourage everyone to talk about, you know, how we bridge that sort of discontinuity between quantitative reductions and energy savings. Because that's one approach to do it. I think w 're all sort of hearing some merits in that. But I think others will have different viewpoints of maybe what that looks like, and it's really key.

Because, you know, 350 did say double energy efficiency, but we also know long term the umbrella policy we have we're trying to get as carbon reductions, or greenhouse gas reductions. So, you know, we need to have that feedback loop to make some sense, so we cannot just do math between the two, and kind of just have it get an answer like that. But actually have some incentive to reduce carbon as we meet the efficiency goals.

CHAIR WEISENMILLER: Yeah, PG&E next, please.

MR. NICKERMAN: Hi, Luke Nickerman, with PG&E. I'd like to thank the Commissioners for hosting today's workshop, and for the CEC staff for drafting and presenting on the white paper.

My comments are a little bit more process focused, as we're still kind of working to understand the white paper, and the implications.

The first question I had was whether the underlying spread sheet files will be made available? This would help us in just understanding what is being proposed.

MS. BROOK: Thanks. That's a great question. And I think we've -- I've never done the IEPR, so I don't know how often you guys do share the underlying calculations. But, absolutely, we can do that. It will take a little bit of time to make sure everybody can understand the worksheets, but it's a --

CHAIR WEISENMILLER: Our goal is, obviously, to be very transparent.

MS. BROOK: Yeah.

CHAIR WEISENMILLER: So, working through that, with the caveat some of these are more illustrative than literal, and trying to make s re people understand what parts of this process are illustrative versus what parts are solid analytical.

MS. BROOK: Right. Okay, so the other thing that I would -- the only other concern that staff has is -- and we talk about it in the paper, but I didn't mention it in my presentation, is that we do have to go through a formal process to correct the 2015 forecast for a couple errors that are already included in the forecasting regime, in your IEPR work, but are not literally included in the data that we were asked to double.

And, so, we were proposing to formally make that correction. And, so, I don't know at what point it will be ready.

CHAIR WEISENMILLER: Well, actually, probably the simplest way to deal with this is either as a staff workshop, or a JASC event, or something where there's a chance for everyone just to sit down and march through this.

MS. BROOK: Okay.

CHAIR WEISENMILLER: And sort of make sure that everyone's clear on the concepts. And, again, either, you know, work with Heather, either for a staff workshop, i.e. without us here, so I presume it's pretty easy to schedule, or a JASC event to have that kind of detailed conversation on the spread sheets.

MS. BROOK: Okay.

CHAIR WEISENMILLER: Great.

MR. NICKERMAN: That would be great. And, actually, my second question was related, somewhat related, which the paper does talk about the errors that were uncovered, but doesn't specifically identify what they were. And, so, it would be great to know, you know, what those errors are.

CHAIR WEISENMILLER: Yeah.

MR. NICKERMAN: Because I know, just in the analysis we've done, we've had some trouble aligning the results from the goals and potential study with the additional efficiency --

MS. BROOK: Yeah, yeah.

MR. NICKERMAN: So, before we actually set what these goals are, we want to make sure that everyone feels comfortable with what is actually --

CHAIR WEISENMILLER: Okay. And, again, let's have that conversation, very detailed conversation, either staff workshop or JASC, or both for that matter.

COMMISSIONER MCALLISTER: One thing, just by way of high level context. The full IEPR forecast is on the odd years and, yet, what SB 350 says we need to double is based on an even year, 2014, which is just an update.

And, so, you know, just sort of over time things get a little bit out of alignment, and we detected a couple of errors, not huge ones. So, you know, it doesn't make sense to start with a flawed baseline and we want to fix that and make sure it's really robust, and then double that. So, that's really -- it's a little bit technocratic, but that's what's going on there. So, we can absolutely walk through that. But I agree with the Chair that that can be done at the staff level.

MR. NICKERMAN: Great. All right, thank you.

CHAIR WEISENMILLER: Thanks. Kellie Smith.

MS. SMITH: Thank you, Commissioners and staff. Kellie Smith on behalf of the California Energy Efficiency Industry Council. And we sincerely appreciate your efforts here and, of course, your ongoing commitment to energy efficiency.

Today, I want to highlight the gap that the staff report has in it, that was referenced at page 8 of the report, and I think on slide 7. It was characterized as an illustration of energy savings not known to be achievable.

And we appreciate that it says that it may not exist, because we are concerned that a myth has been created in many corners that there is no additional achievable energy efficiency savings to be gained. We hear in the Legislature for a number of years. We're hearing it right now in the Diablo Canyon proceeding, as it relates to Tranch 1 on energy efficiency. And it's something that concerns us because we think that this has actually been created regulatory. It's a defined gap, it's not a real gap.

And we'd like to build on the comments about cost effectiveness, feasible, and reliable efficiency savings. And we ask that you really question the alleged gap as this work progresses, and what can and should be done to address it starting with a few specific areas in PUC jurisdictional programs.

The first one being cost effectiveness. Under current policies, although ratepayers are paying cents on the dollar for achievings saved in the program -- savings achieved in the program, the current test for cost effectiveness also includes participant costs. And, therefore, you quickly get up to a dollar, even if the consumer is only paying -- or, the ratepayer is only paying 10, 20, or 30 cents for that efficiency.

Secondly, there is a process that is called customer view. It's a process that was originally created to be a parallel review process for large projects, where large savings have been designed and applied for. Yet, it's become a parallel review process, now. And, regrettably, somewhat of a black hole where these large projects are held for months, and sometimes longer, preventing customers from moving on cost effective projects.

And rather than being parallel, the process causes such lengthy delays in projects that customers drop out and the employees of many of our member companies give up and go elsewhere. Because of their great expertise in engineering, they're very marketable candidates for a lot of other opportunities in this State right now.

The other thing is attribution. This often subjected measurement results in savings being discounted because the customer might, would, or should have done it, anyway.

For example, we are specifically, my executive director can give you the names of the companies, where our customers who have sustainability plans or language to that effect on their websites, and have been told that that makes them free riders in the programs and, therefore, ineligible for assistance. And we don't think, especially in a State with the great awareness we have about our climate change objectives, that we should really, you know, encourage that kind of a process to continue.

We should, of course, look under every rock to achieve our goals and beyond. But decisions not to fix these program issues and, instead, seek savings from subtargets referenced in the staff report, many of which have no rigor, could swing the pendulum back the opposite direction.

So, we note that the staff recommends, at page 11, biannual reporting to the Legislature, to include options to remedy the gap, should one exists, and we hope that these issues can be addressed as part of that.

We recognize that the CPUC is aware of some of these concerns and is actually initiating some workshops. We hope that they are going to be effective and productive, and we'll work with you as much as we can.

We also note that in the integrated distributed energy resources proceeding that a review of cost effectiveness is teed up, and it looks like we're heading towards a societal cost test. That, in and of itself, will probably completely eliminate that gap. And we will look forward to working with you to achieve that adjustment, as well.

CHAIR WEISENMILLER: Okay, thank you.

MS. SMITH: Thank you.

CHAIR WEISENMILLER: In terms of just my theory, obviously, when you look there’s a lot of studies that go through and have very large technical potential study results. And when you look at, say, our Barriers Report, it’s clear there’s a lot of, you know, a substantial number of housing units in California, the older ones, which are rented housing. Which gets you to the issue of owner occupied, you know, and then just the gap on incentives.

And we’ve been struggling, you know, since Brown one, trying to figure out how to move the needle there. And that’s something which I’m hoping that that’s one of the focuses, you know, certainly 758 did, that as we go forward and make some progress there, we can see that gap narrow.

But again, you know, and given the benefits where a lot of our lower income customers live in rented housing. But again, if we could actually make progress there, that would have substantial benefits. So, thanks.

MS. SMITH: Absolutely, thank you.

CHAIR WEISENMILLER: But, again, I’ll let the PUC worry about the PUC issues, energy efficiency issues.

COMMISSIONER PETERMAN: Sufficiently worried.

Thank you for your comments. As you've noted, well, first of all, the concerns you've identified we are aware of, and there are being efforts taken to address them. As you noted, there's work happening on cost effectiveness, as we look to see what type of harmonization we can have on cost effective methodology across the various customer side resources.

And, as was noted by Martha, because there is variation in cost effectiveness, statutory direction, as well as regulatory approaches with the IOUs, versus the POUs, and, you know, other programs, it will be important to look at how we're looking at cost effectiveness across all the different potential sources. And not just the IOUs.

So, I'm familiar with the IOU process. But, frankly, less familiar with how harmonized that methodology is on the POU side. So, that's something I would be interested in understanding, as well.

MS. SMITH: Thank you.

COMMISSIONER MCALLISTER: I want to sort of give a flip side of this view, too. Because, absolutely, I, you know, get that there's an industry out there and, you know, incentives, your know, ratepayer incentives are key in a lot of initiatives in that industry.

But on the flip side I guess, you know, and I'm going to go to kind of the bigger picture, baselining effort that we're trying to do here, that has to do with the data proceeding.

There are a lot of savings that won't, actually, be attributed kind of -- I mean, obviously, we want to put the program monies where they get the bang for the buck, and that they get savings done that may not have happened otherwise or, you know, sort of help the right parts of the industry so it can scale and get market transformation. I think that's very, very important.

But, you know, there are many, many projects out there that will move the baseline. That will, you know, upgrade a house and, you know, the contractor's done a project, and maybe it wouldn't be cost effective by sort of an energy-only perspective, but the homeowner, or the business owner is doing a project and it saves energy.

We'll detect that. If we put together the right analytical resources, we will detect those energy savings whether or not they are associated with a program.

And, so, I think there's a bigger -- you know, there's a bigger goal here where I think we can -- if we can do the baselining right, and then we can determine what those wedges of savings are, really independent of whether or not they are in a program, just the fact that they exist. So, that's really the bigger question for me.

And, then, yeah, absolutely attribution to this or that initiative, whether it was PACE, or the portfolio, or whatever, you know, rates as SB 350 calls out, that's sort of complementary question, but it's not the same question.

So, I feel like seeing what energy usage patterns look like over time helps us understand what the gross savings are, independent from all these other programmatic questions, and then we also need to be asking the programmatic questions. But I just don't want us to lose track of the overall marketplace and the overall, you know, trends in energy consumption, per se.

So, I know it's a little bit not -- you know, it's maybe not directly relevant to you and your members, but I think we need to keep that bigger context in mind as we move forward.

MS. SMITH: Thank you.

CHAIR WEISENMILLER: Jonathan Changus.

MR. CHANGUS: Good morning, thank you. Jonathan Changus, with the Northern California Power Agency.

First, want to note our appreciation and thanks for the pre-meeting that occurred at the Chair, and Commissioner McAllister's request. And really appreciate Martha and Bryan taking the time to meet with a number of the POUs, as well as the agencies, and organizations that represent them, to walk through in advance. Normally, we're responding to and really appreciate more of the collaborative, iterative dialogue. I think that's really an important tone to set as we move forward.

We'll be following up with more detailed, written comments. But kind of the 30,000-foot level, really appreciate kind of the third subheading, talking about cost effectiveness, and feasibility, and some of the constraints. And noting the difference between resource planning, but also the need to set those aspirational goals and how they work together. I think that was really important clarification to hear, how we're going to differentiate that. I think we're going to continue to refine what that means going forward, but it's a good place to start.

I think the other piece that we want to keep track of as we talk about what the State needs as far as GHG reductions, what utilities are looking for as far as resource planning is also, at least for most of NCPA members, is energy service is customer services, and what customers are looking for. They're related, but they have separate and different pushes and pulls on what we choose to focus on.

And, so, I think at the end of the day we're all trying to work to figure out what we can do to equip, support, and facilitate customer decisions regarding energy efficiency. And there's definitely a lot of room for improvement as related to the data, as we learn more about like the building level, through AB 802, and the benchmarking program. The AB 758 Existing Buildings Energy Efficiency Action plan not only lays out a number of strategies, but I thought did a phenomenal job assessing the different market segments and what some of the barriers are.

We saw more of that with the SB 350, low income barriers piece, too. So, we know it's out there. We also know there's some challenges.

And I really think I appreciate most the uncertainty right now. It would be, I think, unbelievable to assume that we knew exactly how we're going to solve all these problems that we're not quite sure we've fully fleshed out.

So, I think it sets a good tone and tenor. I'm sure we'll find something to nitpick about, because that's what we do. But it's starting off in a really good space and I'm looking forward to working with you guys more. Thank you.

CHAIR WEISENMILLER: Thank you. Let's go on to the PUC presentation, next.

MS. RAITT: Katie Wu, from the CPUC.

CHAIR WEISENMILLER: Again, can you just mute everyone on the line, so that we're fair.

MS. WU: Good morning. Thank you to the Energy Commission for having me, and for everyone in the room and on the phone for being here today.

My name is Katie Wu. I'm one of the supervisors at the California Public Utilities Commission, in our Energy Efficiency Branch.

(Microphone comments)

MS. WU: Oh, is this better. Okay, thank you.

So, I'm here, today, to present on the CPUC components of the SB 350 doubling target. Mostly, I'll be providing some background on our Potential and Goals Study, as well as some context around how we're thinking about adopting the study to fit the 350 needs.

So, within SB 350, the ones relating to IOU programs notes that energy efficiency savings will come not only from the financial incentives and rebate programs that the investor owned utilities and community choice aggregators run, but also programs that cover energy efficiency retrofits in schools that are required under Proposition 39, energy efficiency savings that will occur through operational, behavioral, and retro-commissioning activities, which are relatively newer to our portfolio, as well as programs that save energy in final end uses by using cleaner fuel. So, that fuel substitution issue that Martha was covering, earlier.

And all of these savings, we determined the potential for these savings in the investor owned utilities' portfolio, through our Potential and Goals Study. It's a biannual study that we're required to do every other year under CPUC decision.

Currently, where the study for 2018 goals is underway, and we're going through public review process with that. And the next study will cover 2020 goals and beyond.

And, so, as has been mentioned a few times during this workshop today, it will be an iterative process to determine what the investor owned utilities' contribution to SB 350 wind up being, and we'll refine as we gain more information moving forward.

And, so, the CPUC is required by the Public Utilities Code to work with the Energy Commission to identify all potentially cost effective energy efficiency savings, and establish targets. The PU Code is augmented by Commission decision.

Which most recently, in August of last year, required that the Potential and Goals Study be determined to develop annual, as well as cumulative goals, for 2018 and beyond, and to set goals that are net of free ridership. And, so, that addresses some of the -- or, that gets to some of the attribution issues that Kellie Smith mentioned earlier.

But we're really trying to ensure that the ratepayer funded programs are going after savings that are beyond what a customer would be doing, anyway. I think, in California, energy efficiency has been around for so many years that much of the low-hanging fruit is gone, now, so we want to make sure that we're getting incremental savings through our ratepayer funded activities.

And, so, just some high level background on our Potential and Goals Study, if anyone's not familiar with it. The way that we determine the potential and eventually adopt goals is we start with the technical potential, which is the assessment of total energy savings by end use and sector, relative to baseline of existing energy uses. That's, technically, all of the energy efficiency that's possible within the marketplace.

We then apply our CPUC's cost effectiveness framework to the technical potential to determine what the economic potential is, what is cost effective to achieve through the IOU programs.

And then, lastly, we make an adjustment for market potential that’s predominantly based on past -- or program performance in the past, and other conditions, to then determine what is reasonable to achieve through the energy efficiency portfolio, what can we expect to happen.

That eventually feeds into goals and scenarios of incremental savings that are disaggregated by climate zone and building type. And these goals are adopted by the Commission through decision.

Navigant Consulting is our current contractor on the Potential and Goals Study. And they’re currently doing research to refine the inputs and assumptions that are going into the model, that we’re planning on releasing a draft version of in May of this year.

And, so, some new definitions of energy efficiency potential that works to expand that technical potential that I was just referencing, come from AB 802, which was passed in 2015. This modifies our baseline policy to also include savings that are below code, or below adopted codes. These previously were attributed to the CEC’s wedge of codes and standards savings that feed into the forecast. But, now, the ratepayer --

sorry, the IOU programs have more flexibility to pursue these savings and they would be attributed to the IOU programs, then.

Additional savings may also come from behavioral retro-commissioning and operational activities. Historically, we have not counted these in the IOU portfolios. So, these are another source of technical potential that will be in the portfolio.

And lastly, AB 802 requires that we quantify savings using normalized year energy consumption, which helps to support quantification of the savings that are occurring under behavioral retro-commissioning and operational activities.

And, so, CPUC policies that are affecting the economic potential, that second tier of potential as I mentioned. As has come up a couple times during this meeting, the Integrated Distributed Energy Resources proceeding is addressing cost effectiveness for all demand side programs at the Commission.

In 2016, the Commission adopted an update to the avoided cost calculator, which updated inputs that determine the benefits from demand side savings. The result of -- and this slide is missing this number. But the result in updating the avoided cost calculator was an approximate drop in the value of avoided costs that feed into the calculation of benefits from demand side programs.

The drop was predominantly due to the drop in natural gas prices that have occurred since 2011, which was the last time that the avoided cost calculator was updated. There was also a drop in the cost of capital for avoided energy supply. And we aligned the value of greenhouse gas, of avoided greenhouse gas to align with the ARB's auction price, and that also led to a drop in avoided costs.

But, potentially, increasing the economic potential would be the use of a societal cost test, or application of a social cost of carbon within our cost effectiveness framework. And that is under consideration in our Integrated Distributed Energy Resources proceeding. So, I would encourage stakeholders to plug into there, if you're interested in following that discussion.

So, coming back to the Potential and Goals Study, the Potential and Goals Study will include some scenarios that serve as sensitivity analysis to the energy efficiency potential to better understand how the potential and goals would change under certain conditions.

Scenarios currently under consideration for the

2018 study include different cost effectiveness tests, including, potentially, the use of a societal cost test. Financing options. Increased customer enrollment and behavioral retro-commissioning and operational activities. Varying levels of marketing and outreach. And varying incentive levels.

So, all of these scenarios are conditions that the CPUC has the some ability to manage and control. The final report will include an analysis of these scenarios that will be presented to the Commission for their consideration. And the Commission will then decide which scenario to adopt as the potential and goals for the energy efficiency portfolio.

And the timeline for our goals and analysis setting, currently Navigant is working through the Demand Analysis Working Group to develop methodological changes for the 2018 study. I believe all of the DAWG meetings are publicly accessible. Is that correct? Yes. So, stakeholders are welcome to participate in those meetings, as well, if you want to follow the Potential and Goals Study more closely.

By May, we'll be releasing a draft version of the Potential and Goals for public comment. And we intend to present -- or, we intend to adopt the goals, by Commission decision, by August in order to feed into the CEC's IEPR process.

And, so, my presentation today is focused on the Potential and Goals Study, and how we're working through that study to start to answer some questions related to energy efficiency and SB 350 goals. There are other changes, within the CPUC portfolio, that may end up affecting potential, or goals, or Commission policy around energy efficiency.

As Commissioner Peterman mentioned, earlier today, we are currently in implementation of a rolling portfolio cycle, and that guarantees ten years' of funding for energy efficiency activities, until the Commission issues a superseding decision.

And, so, that gives the market a little more certainty that these energy efficiency activities will continue and we'll, hopefully, be able to target long-term projects through the rolling portfolio cycle, as well.

We're also, currently, working on aligning the rolling portfolio cycle milestones and deadlines with integrated resources planning. This work is just starting to get underway and we're trying to understand how it all fits together. And, so, as we gain more experience with this, as we continue to collaborate with the Energy Commission, and stakeholders, we'll have a better understanding of how our investor owned utility energy efficiency activities fit into integrated resources planning activities.

Some more granular changes that are included in the portfolio include modifications to program administration. As Commissioner Peterman mentioned, we just received the business plans from the investor owned utilities that will cover energy efficiency activities from 2018 to 2025. This includes having a single lead program administrator for statewide programs, as well as starting to address this Commission mandate of having 60 percent of energy efficiency programs implemented by third parties, by 2020.

And, so, it remains to be seen how this will affect the portfolio, but it is a different model for delivering energy efficiency savings than we've used in the past.

And, lastly, this question of how energy efficiency forecasting fits in with integrated resources planning still needs to be answered. As I mentioned, we're just starting to understand the question and the scope of the issues that need to be thought through. And, so, we'll have more information as we continue to work on this question.

And, so, if you have any questions about the

Potential and Goals Study, Paula Greundling is our staff lead on that, and our CPUC contact information is here for reference, as well. So, I'd be happy to take any questions.

MS. RAITT: Thanks. So, do you want to go ahead and do another public comment period?

CHAIR WEISENMILLER: Why don't we have Bryan talk about next steps, and then we'll take public comments across the board.

MR. EARLY: Good morning, everyone. My name is Bryan Early. I work as an advisor to Commissioner McAllister.

I just wanted to thank everyone for coming and participating in the workshop, today. The goal of which was really to discuss both the analytical framework for having the Commission adopt targets by November of this year, but also the policy and timing process.

I just want to reiterate that this is going to be an ongoing process. We're not going to stop this work in 2017. SB 350 does reiterate that in 2019, and every two years thereafter, we revisit the subject in the IEPR. But the fact remains that between now and November, you know, we do have a limited amount of time.

And, so, please in your written comments, which are due February 6th, that's when we're asking for them, highlight to us if there are issues that you would like us to tackle between now and the Board adopting targets that we have not yet proposed.

And just to make sure everyone is sort of clear on our, just the nitty-gritty of our next steps here, the goal is that prior to the -- prior to the Commission adopting targets, likely in the October Business Meetings, we'll publish prior to that a final staff report, which contains the information distilled here, the comments that we receive, the iterative process that we'll be engaged with the POUs. And, of course, a discussion on savings that would come outside of ratepayer funded activities.

So, that final staff report will come out at some point in the future, and then we'll have a workshop on that, and that will be the document that will end up going to the full Commission.

And, again, to the POUs, I want to thank you very much for coming and participating. And a meeting we had a couple of weeks ago, sort of teeing us off. You know, expect to hear from us soon. Really look forward to working with you, both in discussing your current Potential and Goals Study, and getting ready for a workshop and a subsequent analysis of savings that can be expected to be achieved through POUs. So, that's all

I have on next steps.

COMMISSIONER MCALLISTER: Yes, thanks, Bryan. And I just want to make a couple of points here. You know, just to make sure -- I think, you know, from Bryan's comments, Bryan Cope's comments earlier, I think you get this. But it bears kind of some dwelling on.

So, the collaborative process here is really key. Those of you who follow my proceedings know that, you know, I certainly take this very seriously, the Commission does, and the Appliances Standards and the Buildings Standards. In the AB 758 process, you know, really those -- those are -- the last rounds of those efforts have been as robust and, I think, vital as they are because we have come together and everybody's sort of rolled up their sleeves and put in their best, good effort.

And we've listened as the Commission. And we hope that you see your comments reflected in the products that come out of those processes.

Now, this is another area where, you know, I think even more so that philosophy has to apply to get to goals that are both aggressive, and meet the Legislature's direction to us, but also are doable in reality. Well, you need to tell us what your reality is. And there's really -- and we will be listening to that. So, there's really no substitute for that collaborative process. So, one.

Number two, part of the urgency here is that, again, it's sort of been said, but I want to just put a finer point on it, the doubling goal and the IRP process are siblings. They are inextricably linked. And, so, we want the IRP process and the doubling efforts, and the energy efficiency efforts to be in sync, one reflect the other. And be on the same page with everyone who's out there in the world. You know, primary among them the utilities, but many other stakeholders making that energy efficiency transition to a doubling. And, so, that we can see it in the data, so we can see it in our IEPR process and, you know, each round of updates that we do.

So, you know, that really is trying to make it as easy as possible on everybody to do what is essentially a pretty difficult thing.

And, so, we want to be intentional and we want it to be clear what's going on. And, so, again, the pieces need to fit together here. So, that's really some of the urgency of doing this workshop, now, and then a series later that makes sure that we're all holding hands on this, and marching forward, together.

So, anyway, that context, I think, just bears keeping in mind.

With that, I'll -- any other comments, I'll wait until the very end after we receive the next round of public comments.

CHAIR WEISENMILLER: Great. So, let's start with Eric Rubin.

MR. RUBIN: Hi, Eric Rubin, Energy Solutions. And I want to say a couple things. First of all, regarding the 3 percent annual growth rate that's used to extrapolate the savings goal to 2030, I'd suggest that because that savings goal -- because that additional savings, from 2025 to 2030, may be conservatively estimated right now, that it's important that we focus on having a means of reevaluating that growth rate in the future, as there's more evidence about what the savings potential is likely to be.

And also want to echo SCPPA's interest in --

(Phone line interruption)

MR. RUBIN: To echo SCPPA's interest in laying out what is the process by which we can contribute evidence on what will be the savings from various energies that will be contributing to the goal, on spread sheets and whatnot. Thank you.

CHAIR WEISENMILLER: Great, thank you.

Let's go on to ZYD Energy, please.

MR. ZHANG: My name's Yanda Zhang, with ZYD Energy. Thank you, Chairman. Thank you, Martha, for your presentation.

Two questions. The first one is regarding definition of cumulative savings. Martha, you talked about in figure 6, in the paper, there's two ways of defining it. One is cumulative at a particular year, and another one is cumulative with all the cumulative, some previous years.

I think those definitions have a big impact what will be the actual impact on the carbon reduction. So, my question is, in defining or selecting which definition to use, have you considered or Commission considered how the definition is going to be aligned with the State carbon reduction goals? Well, more specifically, Governor Brown clearly mentioned that this doubling savings is one of the five pillars for the carbon reduction goal. According to that, the ARB Scoping Study for 2030 goals, and what they specified is 2.5 of the AAEE savings, not just double. It's actually 2.5 in all the scenarios they looked at to be able to achieve 2030 goals.

And, also, I'd also like to mention a study, I think this White House released a Midcentury Strategic for De-carbonization. That's a paper issued by the last administration in November. They have some analysis about what will be the expected savings from energy efficiency needed to contributing de-carbonization.

So, again, you know, my, I guess, question is in defining what the cumulative savings, I'd kind of like to suggest the Commission to indicate what would be the associated carbon definitions. What's the definition? What's the annual goals to be set? At least to show us if those definitions can be aligned with the carbon reduction goals.

MS. BROOK: Okay. I started thinking you had a question, but I think you're just asking us to clarify the GHG impacts of both assumptions in regards to the cumulative doubling. Is that correct?

MR. ZHANG: I guess it's also, it's comment/question, comments regarding that is we kind of recommended that the definition, instead of, say, using some kind of interpretation, instead it's based on analysis-based.

MS. BROOK: Okay.

MR. ZHANG: Based on analysis of what would be the actual -- how it impact? How is that going to be aligned with the 2030 carbon reduction goals, and use that to define the cumulative savings goals?

CHAIR WEISENMILLER: Well, again, I think we have to start thinking more and more about GHG. Having said that, the scoping plan that you refer to is a draft staff document. It's not an ARB document, adopted. And in addition, if you really look at the pathways model behind it, it does an incredible job relating like transportation, buildings, power, you know, public -- it does all these things. But it's a very sketchy model on the specifics.

And, you know, when you really probe on the details, like the last pathways model had a similar percentage, but when you looked they said LEDs. And it was like, well, gosh, that will get you some of that percentage, but not much.

So, again, I think the ARB's certainly expecting, as we go forward, looking more to really detailed analysis, like we're doing today, to help flesh out where they're going, as opposed to us looking at their higher level analysis there. So, thanks.

MR. ZHANG: Well, maybe I talk to you later, in more detail, Martha, but in the --

MS. BROOK: Yeah, then, please, put your comments in writing because we do have an obligation to respond to those in a very robust way, so that would be very helpful, too.

CHAIR WEISENMILLER: Right.

MR. ZHANG: Can I ask another question?

CHAIR WEISENMILLER: Sure.

MR. ZHANG: Okay. The second question is related to the codes and standards. I think it needs some clarification, from some of the descriptions. One is regarding the Integrated Resource Plan, the paper specifically mentioned that IOUs, or different entities, can already include those savings from standards that have already included the AAEE.

But I'd like to point out that when AAEE was doing back then, it included standards adopted, as well as standards to be adopted. Some of those standards was thought to be adopted, actually has not been adopted.

So, in the AAEE, the AAEE, itself, include standards that has not been adopted.

CHAIR WEISENMILLER: Well, in fact, if you look at the Trump action on Friday, there's a number of Federal standards that are now froze that are pending, that were either adopted or pending.

MR. ZHANG: Yeah.

CHAIR WEISENMILLER: So, anyway, but that's more of a conversation in the demand forecasting area.

MR. ZHANG: Yeah. My question, maybe I just ask my question is I think I say one of the things I, hopefully, get some clarification of how that's going to be determined in terms of the IRP and --

CHAIR WEISENMILLER: Okay, again, participate in the demand forecast which is either, you know, the DAWG, JASC, as we go through and update the AAEE forecast. But, certainly, it’s not here today.

MR. ZHANG: Okay, well --

CHAIR WEISENMILLER: Well, again, we need to move on. But, certainly, encourage you to do public comment, or written comments.

MR. ZHANG: Okay.

CHAIR WEISENMILLER: And, you know, again, continue talking to staff.

MR. ZHANG: Thanks.

CHAIR WEISENMILLER: Okay.

MR. ZHANG: Thanks.

CHAIR WEISENMILLER: SMUD.

MR. CENICEROS: Good morning, Commissioners. Bruce Ceniceros with the Sacramento Municipal Utility District.

We’re really pleased to hear the consistent support for having this be a carbon-driven goal. You know, it’s obvious to everyone that that’s what this all about, policy-wise. The trick is making it happen, because it makes things rather tricky.

We also appreciate Commissioner McAllister’s comments about, and everyone has said this, I think, at some point, that this process needs to be inextricably linked to the integrated resource planning process. That's where the rubber meets the road in terms of what makes sense to do.

We like the idea of a common metric and the flexibility to start to support fuel substitution, electrification kinds of measures. It's been mentioned many times this morning that that's going to be a critical additional source of carbon savings to get to the State's aggressive carbon reduction goals by 2030, of 40 percent.

And it's also notable that the natural gas end use savings has tended to lag far behind what we've been getting in the electricity side. And looking forward, just saving gas through efficiency is not going to be enough. The various policy reports and analyses have shown that it's going to require electrification of natural gas, efficient electrification to get there.

One thing that we'd like to say is that there are a lot of policy barriers to that, and other means of accessing new sources of energy savings to get to this doubling target. And it hasn't been totally clear, yet, how progress will be made on the policy barriers, in conjunction with setting these targets and charting a path forward to achieving them.

So, it would be nice to get a little more clarification on how that’s going to work. We’ve got things going on at the PUC. There are other policy forums going on, other proceedings of the CEC, as well.

Just one example, here, about electrification is, currently, there’s really not any way, you know, clear way for a utility that is doing electrification to claim credit for the gas Btu and carbon savings. And a large portion of the State is covered by one utility delivering gas or another delivering electricity.

We’ve got to craft that, as well as a bunch of other policy barriers here. So, allowing some time at some of the workshops coming up in this proceeding, or coordination with the other proceedings, and making it very clear which policy barriers need to be addressed and in which forum they’re going to be addressed would be very helpful. We look forward to providing some written comments.

And as part of that, we have started an effort to look at an alternative way to put carbon into the metrics, be more of a specific carbon-based metric, to see if that’s really a feasible path. This gets really tricky with the marginal emissions changing over time.

We won’t have results of that, probably, by

February 6th, but we'll share results of that as we proceed with that. And that might be one alternative to look at, along with NRDC's really excellent analysis of some of the options here, which you'll get to see in their comments, coming soon. Thanks.

CHAIR WEISENMILLER: That's good. Well, again, this year's not going to get all the solutions. I mean, this is going to be something which so many people are going to be working on, you know, for at least the next decade. You know, hopefully, by then we'll be pretty close to the target or achieving the target.

COMMISSIONER MCALLISTER: A couple of --

CHAIR WEISENMILLER: Anyone else in the room have comments?

COMMISSIONER MCALLISTER: I wanted to just comment on that, just briefly.

CHAIR WEISENMILLER: Yeah.

COMMISSIONER MCALLISTER: Chair?

CHAIR WEISENMILLER: Go ahead.

COMMISSIONER MCALLISTER: Yeah, I just wanted to make a quick comment. So, you know, really appreciate Bruce's comments. I guess, any sort of fine point description of those policy barriers that you face, I think would be helpful. Certainly, we're the Energy Commission. We don't make the solutions, necessarily, to those policies -- those barriers. But it helps highlight, you know, put the flag up so that we can start working on pathways to solving them.

And, particularly, on natural gas, I mean, I think we all agree it’s complicated. I guess, it would be really helpful if, certainly on the energy efficiency side of things, or that the energy efficiency sort of economy, it does -- you know, it’s not easy to argue for electrification just because of, you know, we all know natural gas is relatively cheap on a per-Btu basis. And, also, some of the technologies that are going to enable electrification are still new and they’re relatively pricey. So, you have sort of an upfront cost and an operational penalty in some cases. Not in all cases.

But I think having, you know, some real hard-nosed analysis of what the market path is to get there, and get some scale, would be really helpful from you and from others. You know, ways to support, programmatically, that shift, are kind of in short supply right now. So, I think it would be good to elucidate some real alternatives there.

CHAIR WEISENMILLER: Okay. So, again, anyone else in the room have public comments, questions?

Actually, let’s start with just public comments

-- let's figure, is there anyone on the line?

MS. RAITT: Yeah, I don't think anyone -- if anyone on the line wanted to make comments, please use the chat function to raise their hand. So far, we don't have anybody.

CHAIR WEISENMILLER: Okay. So, let's transition to --

COMMISSIONER PETERMAN: Yes, thank you for this workshop and thank you very much to all the speakers for your comments. There were some really good, tangible suggestions, already.

I particularly appreciated the comments acknowledging where, in the existing PUC proceedings, the Energy Commission proceedings, work needs to be done and completed in order to inform the target setting here. So, I will go back and pertaining to these issues at the CPUC. And, thank you for your time.

COMMISSIONER MCALLISTER: I just want to thank everyone for coming, again. Really looking forward to your written comments. Those of you who did not speak up, live, definitely put your thinking caps on and help us get to a good goal. Really, I would like to get to a point where this is more or less a consensus-based goal. But, you know, we have to do what SB 350 asked us to do. And I think process here is really important. I just can't emphasize that enough. So, really appreciate all your great input today and going forward. Thanks, again.

CHAIR WEISENMILLER: Well, again, I also want to thank folks for their participation today. Looking forward to your written comments.

And, again, I think those of you who have been following the IEPR for the last, I want to say six years, you know, understand, I think every time we've talked about the demand forecast, I've always been very clear what the long-term vision was, but that you had to go step by step. And you weren't going to achieve it in a single year. And God bless, we haven't achieved it in six years.

So, I guess, this is again something where, you know, it's going to -- you know, this first small step and, you know, long-term vision. But there's a lot to do over time. And I think, you know, you have to help us think through the evolution in a way so that it goes smoothly.

So, anyway, thanks again for your help. This meeting's adjourned.

(Thereupon, the Workshop was adjourned at 11:58 a.m.)

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