STATE OF CALIFORNIA – THE RESOURCES AGENCY
BEFORE THE
CALIFORNIA ENERGY COMMISSION (CEC)

In the matter of,	)	
	)	Docket No. 11-IEP-1A
	)	
Preparation of the	)	Joint Agency Workshop
2011 Integrated Energy	)	
Policy Report	)	

Committee Workshop:
California Clean Energy Future

CALIFORNIA EPA HEADQUARTERS
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WEDNESDAY, JULY 6, 2011
1:30 P.M.

Reported by:
Peter Petty

APPEARANCES

Commissioners

Robert Weisenmiller, Chair

Karen Douglas

Staff Present

Suzanne Korosec, IEPR Lead
Heather Raitt, CEC
Kae Lewis
Pam Doughman

Also Present

Presiding Government Agency Representatives

Chairman Mary Nichols, Air Resources Board
Steve Berberich, California Independent System Operator
Nancy Ryan, California Public Utilities Commission
Anthony Eggert, California Environmental Protection Agency

Presenters

Phil Pettingill, California Independent System Operator (CAISO)
Dave Mehl, California Air Resources Board (ARB)
Andrew Schwartz, California Public Utilities Commission

Panelists

David Wright, California Municipal Utilities Association (CMUA)/Riverside Electric
R. Steven Kelly, Independent Energy Producers
V. John White, CEERT
Dave Ashuckian, Division of Ratepayer Advocates
Stephanie C. Chen, The Greenlining Institute
Bonnie Holmes-Gen, American Lung Association
Carl Zichella, Natural Resources Defense Council
Eileen Wenger Tutt, California Electric Transportation Coalition
Valerie J. Winn, Pacific Gas & Electric (PG&E)
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Carl Silsbee, Southern California Edison (SCE)

INDEX

1

P R O C E E D I N G S

JULY 6, 2011 1:47 P.M.

MS. KOROSEC: I just have a few introductory remarks before we get into the day. Welcome to today's workshop on the California Clean Energy Future. This is being held jointly by the Air Resources Board, the Environmental Protection Agency, the California Independent System Operator, the Public Utilities Commission, and the Energy Commission's Integrated Energy Policy Report Committee. I am Suzanne Korosec and I lead the Energy Commission's Integrated Energy Policy Report Unit.

Just a couple of housekeeping items before I go over the agenda. Restrooms are out the doors and to your left. There is a cafeteria on the first floor at the bottom of the stairs, turn right as you go down the stairs. For those of you with computers, we do have open Wi-Fi access in here with no password needed. Today's workshop is being recorded and it will also be transcribed. We'll make an audio recording available on the CEC website in a couple of days and a written transcript is available in about two weeks. The workshop is also being webcast for parties who are unable to attend in person, we ask that those of you who are listening to the webcast, please submit your questions

and comments via email, the email address is auditorium@CalEPA.ca.gov, and we'll display your questions or comments on the screen at the appropriate time. We've also set up a telephone option for participants that don't have computer access, and we'll open those lines at the appropriate time. Because there is about a 10-second delay between the audio here and what you here on your computers, for those of you on webcast, if you do decide to call in, please turn off your computer when you're on the phone, otherwise we'll get a very interesting echo effect.

The California Clean Energy Future was developed by the Joint Agencies and released in September of 2010 after the Scoping Order for the 2011 IEPR came out in August of 2010. So, in March of this year, the IEPR Committee issued a revised Scoping Order that acknowledged the need to refine the focus of this year's IEPR to include the most effective approaches for implementing Governor Brown's Clean Energy Jobs Plan, and building off the vision that was in the California Clean Energy Future. We have a very simple agenda today beginning with opening comments from the dais, followed by a joint presentation by Agency staff on the California Clean Energy Future Overview and Metrics; we'll then take questions from the dais, followed by an opportunity for

questions from those of you here in the room. You can use either of these two podiums here in the front and please be sure to state your name and affiliation. After we've had questions from the in-person participants, we'll pull up the email questions that we receive from the WebEx parties, and we'll open the phone lines after that. I do want to stress that questions for this part of the agenda really should be focused on clarifying questions for the Agencies on the Overview on the Metrics. Other questions and comments can be saved for the Public Comment period at the end of the agenda. Next, we'll get comments on the Overview on Metrics from our invited panel participants, I do want to note a change in the agenda, our representative from Southern California Edison will be Carl Silsbee and then we'll follow that with questions from the dais. After the panel discussion, we'll then move to the Public Comment portion of the agenda and take comments, again, starting with folks in the room, followed by email, and then the phone lines.

We are also accepting written comments on today's topic until close of business on July 15th, and the directions for submitting those comments to the IEPR record are shown here, and also in the notice for today's workshop, which is available on the back table and also

on our website. So, with that, I'll turn it over to Chair Weisenmiller for opening remarks.

CHAIR WEISENMILLER: Good afternoon. I'd like to welcome everyone to today's meeting. I'd like to certainly thank Mary Nichols for the use of this facility. And also, I'd like to thank all the agencies for their participation in this workshop, the first one in this IEPR series, which is an interagency one, and we're certainly dealing today with the California Clean Energy Future in terms of the way that we work to integrate our various policies and programs into an overall coherent process. So, with that, I'll turn it over to Mary for opening comments.

CHAIR NICHOLS: Well, thank you, and welcome to the Byron Sher Hearing Room. This is an appropriate venue, I think, to be having this discussion. I am delighted to be allowed to participate in this joint interagency review of the Clean Energy Future document, this is a product that emerged, as the Chairman indicated, from work by the agencies that are represented here today, and I believe its origin actually was under AB 32 in the effort to try to figure out how to make a 33 percent Renewable Portfolio Standard effective operationally, as opposed to simply setting a goal, and the agencies got together and began to work through how

their policies complemented each other, where there were deadlines or processes that could possibly undermine that goal, and in the process we came to realize that there was a need for -- we believed there was a need for -- a document that would pull together the policies of the various agencies, that could actually be said to constitute a State Energy Policy that could be put in one place, and then to come up with the management tools to actually implement it. So, this is a work in progress and I think it's a very good opportunity, Mr. Chairman, to hear from members of the affected and interested public about how they see it, and what possible uses they might see for this document, and where it needs to be either changed or amended. So, I'm looking forward to the discussion. Thank you.

MS. RYAN: Good afternoon. Thank you all for turning out for this afternoon's workshop. Just to pick up on Chairwoman Nichols' remarks, I really see this joint exercise that the agencies embarked on, now, I think almost two years ago, as fundamentally about execution. It really came out of our mutual understanding of the daunting nature of the challenge before us to implement a 33 percent RPS, as well as many other ambitious energy policies, while managing cost to customers and maintaining reliability, and protecting

worker and consumer safety, and that really was what led us to initially put together the document that is known as the California Clean Energy Future, but fundamentally was intended to be a composite portrait of all of the different mandates, legislative and otherwise, that we're charged with executing. So, to begin by making sure that we're all pointing in the same direction, and appreciate where we're all intended to go together, then to develop the road map which you'll hear about in the staff presentations and, finally, the third component, which will be part of the staff presentation, and where I think your input might be especially valuable, and that is the metrics. So, inward facing metrics for the management and leadership of the agencies to ask the question, "How are we doing on executing the plan," and outward facing metrics for those of you who are really active and engaged stakeholders to judge our performance, to anticipate forks in the road, or rocks in the path, and also outward facing metrics for the broader public at large to really be able to ask the question, you know, "Is our State Government following through on the promise of the 33 percent RPS of AB 32 of this mandate," and so on and so forth. So thanks again for coming and I really look forward to hearing from you all today or in your written comments, subsequently.

COMMISSIONER DOUGLAS: Thank you, Chair Weisenmiller. I'm Karen Douglas, Commissioner and the Associate Member of the IEPR Committee. I would like to join my colleagues in welcoming everyone here and also add my thanks to Chairwoman Nichols for being here with us and for helping us host this meeting. I think that it's fair to say that you would be allowed to participate in IEPR Workshops just about any time that you wanted, so don't let this be your last if you'd like to do a little more on the IEPR.

I don't want to add much to the description of what the Clean Energy Future document is, we compiled it out of an effort to put together a list of all of the policies that we are pursuing under our separate authorities -- climate, air, energy, environmental -- within the energy realm and under the energy umbrella, and to work together to figure out how to implement these policies in a way that makes sense, in a way that allows us all to achieve our goals and our statutory mandates, and makes sense for Californians and brings us towards the clean energy future that the State is committed to.

This document and this effort do not eliminate some of the tensions and some of the difficulties between some of the policy goals that we're trying to reconcile and trying to work towards. As much as anything, it's

about a process and it's about a commitment to work together, and it's about a commitment to move forward in a way that has the support of our agencies and has the support of the public. So I appreciate you being here today and look forward to hearing the questions and comments.

MR. EGGERT: Thank you. My name is Anthony Eggert, Deputy for Cal EPA; it's a great pleasure to be here. Secretary Adams sends her regards. I think, you know, this workshop is fundamentally about metrics and measurement, and I think most people have heard the old adage, "you can't manage what you can't measure," and I was doing a little bit of research to try to figure out the origin, and it is attributed variously to Peter Drucker Deming, who is the quality guru, but one of my favorite origin stories of this quote was from a guy by the name of William Thomson, who says, "I often say that, when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind. It may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the stage of science, whatever the matter may be." He was also known as Lord Kelvin, who was one of the foundational contributors to the first and

second laws of thermodynamics, who came up with the concept of Absolute Zero, and I think contributed a lot to our ability to measure things, especially in the area of thermodynamics. And I think hopefully today, what I'm looking forward to, is an understanding of whether or not we do have the right appropriate metrics that will guide us on the path to meeting our policy goals, and that they are of a sufficient nature so that we can take corrective course or corrective action if we find ourselves going in the wrong direction, or not necessarily proceeding at a pace that we think is necessary. So I look forward to the discussion.

MR. BERBERICH: Good afternoon. I'm Steve Berberich. I am the Chief Executive Officer of the California Independent System Operator. The California Independent System Operator is responsible for making sure the Grid is in balance at all times, supply and demand are at equilibrium, about 25,000 miles of transmission network, as well as making sure the power that comes from out of state comes in, as well. The Clean Energy Future is an excellent collaborative effort that represents a good piece of work for all of these agencies and the ISO, as well. The ISO is not a policymaking institution, but rather we provide technical expertise into shaping how these things might be

implemented so that we can continue to have a reliable electric system here in California, while also achieving the State's greenhouse objectives and other policy objections.

The metrics that you'll see here today, I think, represent an excellent way of managing this, to demonstrate to everyone that we're working together closely and that we're keeping an eye on how well things are progressing and taking steps if things aren't progressing well. So, I'm delighted to be here today and, Chairman Nichols, I echo the thanks for letting us use this facility today.

CHAIR WEISENMILLER: Let's have the staff presentation.

MR. PETTINGILL: Thank you, Chairman Weisenmiller. I'm Phil Pettingill, I'm the Director of Regulatory Affairs for the California ISO, and I'm joined here with my fellow staff members from the CEC, PUC, and California Air Resources Board. And today we're here to present the California Clean Energy Future, really to you, the stakeholders, and to receive your input. Our intention is to walk through at a fairly high level, the Clean Energy Future Overview, and then the associated Metrics, as you've heard about.

And so let's go to Slide 1, good, and thank you.

When we first created the Clean Energy Future, we really envisioned that this would be a document, it would be a living document, and certainly be seeking updates and adjustments as we went along. It is at least a 10-year view or plan, and what we've highlighted here and just sort of the purpose of the workshop is to recognize with a new Administration and Governor Brown's visions, we certainly need to consider what changes are necessary there, with the actual statutory 33 percent RPS; we need to confirm that the overview is consistent with those new requirements; and more importantly, as you've heard, is to talk about the metrics: are we measuring the right things, and are these helping us show that we're making progress to meeting the essential goals? So let's go to the next slide.

When I think about the Overview document, I think about this as, really, a type of a vision statement. It really was developed by bringing together all four State agencies, as well as the California ISO, and much of this has already been said, but what makes it unique is that we brought together many many State policies, goals, and regulations into a single place. And the idea is we all recognize that these are driving a significant change into a very different energy sector than what we have today, and the vision is certainly looking out to the

year 2020 and beyond. And so, with that in mind, just my observations on the background, we went to what is the primary purpose of the Overview document, and it really is to compile all those goals and bring them together into a single planning and coordination device.

We recognize that there are many inter-dependencies between all of us in achieving most of these goals, and so it's important to recognize that we need to have some specific goals and some detailed tasks and objectives, and that's what we mean when we refer to the adaptive management that's here on this slide, is to recognize that we intend to have things done by a certain point in time, but then things will change as we go over the course of the next nine, ten, and more years to make these changes. So I think what you'll see in the Overview is it is comprehensive, it is not only covering the issues around reliability, safety, and electricity, as well as air emissions, and so forth, but it is trying to make sure that we're looking at all of the goals as they cover all energy use and purposes within the state. So let's go to the next slide.

To communicate what is in the Clean Energy Future as a project, we actually created a new website, so hopefully everybody can take note of this because what you'll find here is, currently, the Overview, as well as

two other fairly helpful documents, one we refer to as the Roadmap, and you might think about that as just sort of a project management chart, how we, at least in this first iteration, envision the timeline to achieve some of these major goals and objectives that are defined, or at least mentioned, in the Overview. They are further defined in the Implementation Plan, and for all of you that have taken a look at that, you'll find that it's quite a read, it's about 200 pages long, but it goes through all the necessary details as we came to understand the tasks that are before us, to try to achieve many of these goals and certainly the vision that is described in the Overview.

So I would encourage you to make note of this website because what we're talking about today in metrics will eventually be posted there and you'll see us updating those metrics as we go along over the course of the coming years. Let's go to the next slide.

So I mentioned a little bit about tracking and updating, and in the Overview document, we specifically mention that we know we need to do an update; at least every two years as the IEPR comes out, we have the change in demand forecast because that may very well change what our target is in trying to hit 33 percent, or some of the other goals.

So today we're going to walk through with you what the metrics are, but one of the things we recognize in almost every case is the metric is not unique to any one of us as an agency, so in most cases you can assume that all of us have something to do with helping assure the success of that particular activity that's being measured in that metric.

And then, of course, "today." Today is certainly one opportunity to update the CCEF. We recognized that we needed to do that and I look forward to hearing your comments and your feedback as we go through the rest of the material. For now, what I'd like to do is hand it over to Heather from the Energy Commission, to talk a little bit in more details about what's in the overview, and then, when she is finished, we'll transition back and start going through the metrics. So, Heather.

MS. RAITT: Okay, thanks Bill. I'm Heather Raitt of the California Energy Commission. The Overview outlines the agency's vision for 2020, it's organized into four elements with the first being Demand. As Phil pointed out, the Overview was released in September of last year and we plan to update it to reflect the Governor Brown Administration's Energy Policy. But it has currently drafted some of the targets that include energy efficiency, in which we have a target of

reductions of 5,000 to 8,100 megawatts of peak by 2020, with advancements in efficiency and Demand Response. That would be in addition to the 2,300 megawatts of committed energy efficiency savings included in the 2009 Demand Forecast. The plan currently also calls for installing 5,000 megawatts of distributed generation by 2020. Next, please.

The second element is Supply. The Overview envisions achieving 33 percent Renewable Portfolio while maintaining reliability needs and meeting environmental goals. The agency has also put forward a goal of developing at least one utility scale carbon capture and storage facility in California by 2020. Next, please.

The third element is Transmission Distribution and Operations. The overview envisions that planning and permitting will be coordinated to ensure that sufficient transmission and distribution infrastructure will be available to meet the renewable goals and greenhouse gas reduction targets. Investments in advance metering and Smart Grid will empower customers to use energy more efficiently, and the agencies envision that, through supporting pilot studies, we're targeting 1,000 megawatts of additional storage capacity by 2020.

The fourth element is Additional Supporting Processes, including cap-in-trade to reduce greenhouse

gas emissions and advancements in emerging technologies. The Overview also recognizes that alternative fuel vehicles and electrification of the transportation sector, in particular, will be a central component to energy security in reducing greenhouse gas emissions. The Overview calls for California to develop the infrastructure and operational capabilities necessary to absorb targeted one million fully electric and plug-in hybrid electric vehicles by 2020.

California also will need to plan for and adapt to climate change such as changes in temperature and precipitation that will affect energy supply and demand. And finally, the overview calls for engaging California's institutions and citizens to be partners in achieving its goals.

The agency, as Phil had mentioned, planned to refresh the plan to reflect significant developments since last fall, such as the passage of the RPS legislation and Governor Brown's energy policy. For example, the policy in the Governor's Clean Energy Jobs Plan calls for 12,000 megawatts of localized energy by 2020, and 6,500 megawatts of combined heat and power over the next 20 years. And with that, I'll pass it back to Phil. Thank you.

MR. PETTINGILL: Thank you, Heather. So a quick

overview of what the CCEF Overview is and then I thought I'd share a few thoughts about the metrics, themselves. So, we've talked a little bit about how they interplay with the Overview, and I think the one thing I would mention here on this first slide is the last bullet, is just to indicate that this is our opportunity to propose the course corrections: Are the metrics looking at the right things? Are they measuring the right things? And if we find that we're off, then they can certainly indicate that we need to go back and make some course correction in terms of the overall CCEF Program. Next slide.

I had mentioned the website and this will be another plug for that again, just to point out that what you'll see, then, is all of the metrics displayed on the website, but to point out here on this slide, one I wanted to differentiate, is some things are metrics, some things are where we have goals, and we want to track how we're getting to those goals. But we've also identified some other sort of essential data items, and here we describe them as Data References. And what's important here to recognize is that these are things that we know, like energy demand, we want to track. We want to be aware of where we are because, clearly, if it goes up or down, it has some effect on what we're trying to achieve

with the rest of our goals. So we've proposed that these four elements are things that are issues that we should be at least tracking and seeing how those things are changing as we go through time.

So metrics are really two flavors, and all of those would be displayed on the website. Next slide.

And so, then, Questions and things that we're looking for from feedback from you, the stakeholders and participants with us here: Right now, the metrics are organized around the California Clean Energy Future Overview and what that vision is, but, certainly, is there another way to organize the metrics? Or other metrics that might be appropriate in terms of the overarching long term goals. The other question that we're posing here for you is could they be presented in a different way? Obviously, there are certain intention, information that we're trying to convey with the metrics, and that's part of the reason why we're going to walk through those with you here in just a moment, to make sure that you can hear from us what it is we're trying to convey with the metric, but if there are ideas you have on how we could present them, or make them more clear, we're certainly open and would like to receive those comments from you. And so, with that, I think I'll hand it over to Dave to help us get started on metrics.

MR. MEHL: Well, I'm Dave Mehl with Air Resources Board. And the first metric is measurement of greenhouse gas emissions from the electricity sector. Very significant with the passage of AB 32, greenhouse gas emissions is something very important for everything we do. We anticipate an emission rate of 83 million metric tons of CO_2 equivalent greenhouse gas emissions in 2020. Now, that could vary based on change of electrification, you know, fuel usage, electricity demand, energy efficiency, all these other metrics will go into play on that. So what we do is we're going to be collecting data through the mandatory reporting regulation and updating our projections of where we expect the emissions to be. We're basing the past on actual emissions in the future, based on anticipated electricity demand and fuel consumption rates. The next slide actually presents this image, where the solid line is actual emissions from the electricity sector, and the dash lines are forecasted or expected emissions. What we'll do is we'll update the graph with actual data and plot it vs. what our projected emissions are anticipated to be. With that, we'll move on to the next metric with Andy.

MR. SCHWARTZ: Thanks. My name is Andy Schwartz with the CPUC. So I am covering Energy Efficiency. So Energy Efficiency as it is used here refers to a variety

of measures and programs supporting the deployment of those measures that reduce the amount of energy used to provide energy services. Energy efficiency is recognized as a critical resource to the State of California, as it represents the cheapest and most environmentally benign way of meeting our energy needs.

The importance of energy efficiency has long been reflected in State Energy Policy, beginning with Appliance Standards and Building Codes and Standards, but it's more recently been codified into the State's loading order, which identifies the priority list of resources on which the State should rely in the provision of energy services, with energy efficiency alongside Demand Response at the top of that list. Consistent with this, Energy Efficiency is also identified in the Air Resources Board Scoping Plan as a key strategy in meeting the State's greenhouse gas objectives, providing reductions in greenhouse gas emissions relative to the business, as usual case, on a scale second only to California Light-Duty Vehicle Greenhouse Gas Standards.

The slide presented here shows energy savings resulting from programs implemented by both the investor-owned utilities, as well as the publicly-owned utilities. I'm going to speak briefly to the investor-owned utility data and then hand things over to my colleagues at the

CEC to talk about the publicly-owned utility data. Currently, the IOUs are operating under budgets that were approved in September of 2009. These budgets are on the order of $3.1 billion, covering energy efficiency programs from 2010 to 2012. Collectively, these programs are expected to provide energy savings on the order of 7,000 gigawatt hours, demand savings in excess of 3,000 megawatts, and gas savings of 150 million therms. Given the limited time here, I would just note that the manner in which the energy efficiency goals and data is presented is somewhat complicated by changes in the manner in which the energy goals and the savings were measured by the CPUC; in particular, for 2006 through 2008, the IOU goals were measured on a net basis, so this means you have gross energy savings attributed to the programs, or to the deployment of energy efficiency, and then you apply an attribution factor to determine how much of those savings are really directly attributable to the utilities' role in catalyzing those savings. For 2009, the CPUC shifted policy on this, changing to a gross approach, so the goals or the amounts represented for 2009 and 2010 are gross savings. So, with that, I will turn things over to Kae at the CEC.

MS. LEWIS: I'm Kae Lewis with the Energy Commission and I'm going to talk for a few minutes about

the energy efficiency programs in the publicly-owned or municipal utilities. We monitor about 39 of those utilities in California. In 2006, legislation passed that obligated the Publicly-Owned Utilities, POUs for short, to do energy efficiency potential studies to establish targets, along with the Energy Commission, and then to annually report savings expenditures on efficiency and cost-effectiveness of their programs. They report that to us on an annual basis.

We also derive on an annual basis -– we measure their progress using other metrics such as energy savings as a percentage of sales and also energy spending as a percentage of revenue. The POUs are also required to do a verification process of their energy savings as the IOUs also do. And many of the POUs have submitted what we call “Evaluation, Measurement & Verification,” EM&V studies to us. At this point in time, we are helping them develop their methodology because it’s not developed to the point where we can use the results of these studies to make adjustments in our Demand Forecasts as we can do with the IOUs.

The IOUs, since 2007, which was the first time we worked with them to set efficiency targets, they have actually doubled their expenditures in those four years. They have more than doubled their savings and a little

less than doubled their peak savings. As you can see on this slide, they have increased their savings every year until 2009, that's the first time, in 2009 and 2010, they had a bit of a drop, but really it was only because of LADWP had a huge program in 2009 and it was a big CFL Program that really heavily weighted savings in 2009, and the program ended by the time 2010 started. So, in fact, the POUs have been relatively consistent with increasing their savings. But because they are very heterogeneous and their customers are also -– many utilities have very small amounts of customers, their savings and expenditures can really differ for the individual utilities. I think that's it.

MR. SCHWARTZ: Thank you. So I will now be turning to Demand Response. So, Demand Response refers to a reduction in the customer's energy demand over a given time interval and response to a price signal, financial incentive, or a liability signal. Currently, the investor-owned utilities operate a number of different Demand Response programs, these include emergency demand response triggered in circumstances where Grid reliability is physically at risk of being compromised, as well as price-based Demand Response, where Demand Response offers a lower cost alternative to procuring additional supply-side resources typically

during periods of peak demand when wholesale price is relatively high. Although there is not currently a capacity goal for Demand Response, it has expressly been identified, as I mentioned before, as a high priority resource in the energy loading order, alongside energy efficiency.

In December of last year, the Commission adopted a Demand Response cost-effectiveness protocol, which is used to assess the IOUs' Demand Response portfolios, which I understand are filed every three years similar to energy efficiency for three-year cycles. Though the programs most generally are found to be cost-effective in order to be approved, other attributes may also be considered, for example, the dispatchability of a given DR program and its usefulness potentially and, for example, facilitating the integration of renewables. My understanding is that there are a couple pilot projects the utilities are running along these lines. The Demand Response metrics shown here indicate the Demand Response capability across the Investor-Owned Utilities for each year; the metric also includes a comparison of the bottom of the Demand Response capability to the CAISA coincident system peak to provide some perspective regarding the scale of Demand Response availability. For 2009, 2010, and 2011, these are the numbers that are identified as

the Ex Ante Demand Response, these are the amounts of Demand Response that are staff vetted, so they are staff vetted and approved values as, I believe, in the Resource Adequacy Reports that the PUC publishes each year provide these sort of fully vetted numbers. Know that this is not the amount of Demand Response that was actually called; it's the amount of Demand Response capability that's available to be called because the amount that you actually use Demand Response depends very much on the circumstances in any given year and whether or not Demand Response is, in fact, needed.

For 2012 onward, the values represent the amount of Demand Response capability that the utilities have indicated they believe will be available based on their filings in the Long Term Procurement Planning Proceeding, so over time we will be evaluating these and sort of vetting those. These values do assume some incremental Demand Response attributable to the roll-out of Smart Meters and the transition to dynamic pricing, including default critical peak pricing, and peak time rebates that the Smart Meters enable. The reasonableness of these numbers is tied very much to the Commission's determinations regarding the phase-in of default critical peak pricing and peak time rebates, and I should note that we do have – currently, we have a filing before us

that would seek to slow that schedule down, so I think that will be an issue that is fairly hotly discussed in the context of the Long Term Procurement Planning Proceeding.

MS. DOUGHMAN: Okay, the next metric is for Renewable Energy. So this metric is intended to measure the historical renewable energy for California compared to the statewide RPS targets for 2013, 2016, and 2020. The metric also shows the total minimum energy that has been signed in contracts by Investor-Owned Utilities and Publicly-Owned Utilities.

There is at this point one additional graph that shows a portion of the IOU signed contracts that have achieved a number of milestones, including financing, obtaining necessary permits, beginning construction, and commencement of commercial operations. The 2020 target goal is 33 percent of retail sales procured from eligible renewable energy resources. The law also sets targets for 2013 of 20 percent and 25 percent by 2016. I should also mention the metric has a breakdown of the technologies that have been used to generate renewable energy over time.

And then the data that we are using for the metric is currently the total system power data and that shows the actual generation by year, rather than the

energy that may actually be applied for the Investor-Owned Utility RPS because there is a banking and earmarking possibility that is not reflected in the metric.

So the next graph, the solid line shows the actual energy that was generated over time, the blue dotted steps indicate the targets, and they are between two bracketed estimates of what the percentage would be in terms of gigawatt hours, so we have an estimate for –- 20 percent would be between the two red bars, 25 percent between the two blue, and 33 percent between the two green bars because the actual percentage depends on the success of energy efficiency, combined heat and power, and other measures.

Next slide. So this shows milestones achieved by contracts that have been signed by Investor-Owned Utilities, and this chart comes from the Division of Ratepayer Advocates. We would like to prepare a similar chart for publicly-owned utilities, and we have a question in the materials on availability of data to prepare such a chart. We welcome input from you on how to do that. Next slide.

Okay, so this is the Installed Capacity metric. This is actually a series of graphics and information to provide an indication of the installed nameplate capacity

for conventional and renewable resources, including self-generation photovoltaic systems. The metric compares installed capacity to goals for renewable resources, combined heat and power, and energy storage. The goals listed here are 8,000 megawatts of existing utility-scale renewable resources, 12,000 megawatts of renewable distributed generation, and 1,000 megawatts of energy storage. The first two targets are from Governor Brown, and the last is a target that is in the current Clean Energy Future Overview document. The metric also includes the goal of adding 6,500 megawatts of combined heat and power in 20 years and then we have the data sources listed there for you. Next slide.

Okay, so this slide gives an indication of the amount of large-scale renewable installed capacity and how it has changed from 2001 to 2010, compared to the goal of 2020. Above that, we have Renewable DG, which includes customer and wholesale and electricity storage. The electricity storage shown here is pumped hydro. Now, back to the CAISO.

MR. PETTINGILL: Thank you, Pam. Consistent with the ISO’s major emission is to do the transmission planning, at least for about 80 percent of the load served in California. So what you see here is the metric that would look at transmission expansion that is able to

achieve the renewable goals. And so, looking at a goal of 33 percent RPS by 2020, then what we've done is identified at least what we have currently in this representation materials is what we can report on within our particular balancing authority, in other words, clearly other areas within the state, and so our intention is to work with the CEC to collect that data, and then give a comprehensive presentation on transmission. So let's go to the next slide.

Looking at how we would present the information, at least currently using ISO data, what we've done here is identified a set of transmission upgrades that we've gone through in at least two different possible ways; first, possibly through our large generator connection process where we would have identified large generator interconnection agreements that identify the transmission necessary to interconnect renewable resources. But the other way the ISO identified transmission is through our Transmission Planning process. And then, we are tracking how those projects are getting approved, going through the CEQA process here, well, at the PUC, how many megawatts the project would provide, and more importantly, how many terawatt hours of renewable energy that could be provided by the transmission project. And the other thing that I would just point out on this

slide, a little bit easier to read, is the far right-hand column where what the projected online data is for the transmission, and that's helpful because – let's move to the next slide – what we're proposing is a metric that would look something like this. Based on the projects, then, what is their status and how do they build up to allow us to provide the terawatt hours of renewable energy?

Let me just take a quick second and walk you through this – if we take project 1, which is the Carrizo Midway line, it's intended online date is 2012, and that's why it shows up in the data for 2012, and then beyond. It's still blue in color because it hasn't been approved in the planning process. So, we're still trying to look for that signed LGA that would show a need, at least from the ISO's perspective. And then it would change color to orange. But, until it changes, then it would remain this color blue, and that's why you see it staying blue all the way from the year 2012 through 2018.

If we take some of the other projects, for example, if we look to Project 6, which is the West of Devers, that project is already approved through the LGIA process, but it's not expected to become available until 2017, and so that's why you see it reflected in the stack of resources starting in Year 2017 and going forward. So

what we would intend to do is show how the transmission facilities can provide terawatt hours of energy, but then you would expect to see these colors change and become more and more certain as they move through the permitting and approval, and then construction process. So, Dave?

MR. MEHL: The next metric is plug-in electric vehicles. We restricted this metric to the plug-in electric vehicles because they're the ones that have the impact on the electricity system, as opposed to fuel cell electric vehicles, or other alternative fuel vehicles. This metric also measures the cumulative number of vehicles as opposed to most of the metrics are on a year-by-year basis.

The 2020 goal is to have the infrastructure and operational capabilities to support one million electric vehicles by 2020. The electric vehicles that we're projecting here could also be used to meet ARB's Zero Emission Vehicle Program, which has targets that are not specific based to the number of vehicles, it's a credit system, depending upon the type of vehicle, they get different amount of credits. So we projected on the next slide what we anticipate as a likely pathway for plug-in hybrid electric vehicles and also battery electric vehicles, and kept the projections on separate tracks. The auto manufacturers will be required to annually

report how many vehicles were sold and leased for compliance with the Zero Emission Vehicle Program, and we'll use that information to update the metric. And with that, back to you, Phil -– or, Heather.

MS. RAITT: Thanks, Dave. So the next two slides, or I should say that concludes staff's presentation on the metrics, and the next two slides are the discussion questions that are also an attachment to the agenda. We encourage you to provide feedback on these questions, either today or in written comments, recognizing that we haven't had a lot of time to review and digest these metrics. We welcome the written comments by July 13th, a week from today, and as Suzanne had mentioned, the instructions for submitting those comments is in the Notice.

MS. KOROSEC: Do we have any questions from the dais for our agency representatives?

CHAIR WEISENMILLER: No, I think we're set up here.

MS. KOROSEC: All right, we did not have any questions on the email. Can we go ahead and open the phone lines to see if we have any questions online? That may just take us a second. Okay, no phone lines, and I apologize, I jumped right to the phone lines. We need to have the comments from people here in the room, so if

anyone here has a clarifying question that you have for the staff, please come up to the podium and ask. All right, no great waves. All right, at that point, then, we'll switch to our Panel comments, it's going to take us a minute to get the Panelists up here and get the Court Reporter shifted over, so about a two-minute delay here.

(Recess at 2:35 p.m.)

(Reconvene at 2:37 p.m.)

MS. KOROSEC: Thanks for your patience. We're ready to get started again. Heather.

MS. RAITT: Thank you. All right, I'm going to ask each Panelist to introduce themselves, if they would be so kind to do that, and Carl Silsbee has a time constraint, so if I could ask you to –- I'm sorry, my mistake – David Wright, excuse me, has a time constraint. If you would go first, please, that would be appreciated. Thank you.

MS. KOROSEC: As mentioned, Mr. Wright has a time constraint and needs to go first, so, please, go ahead and start.

MR. WRIGHT: I really appreciate you having us here today. My name is Dave Wright; I am the General Manager of Riverside Public Utilities and also the Vice President of the California Municipal Utilities Association. Riverside serves about 300,000 residential

customers and a population of about 300,000 and about 10,000 businesses in Southern California. CMUA represents over 40 Publicly-Owned Utilities providing power to about one-fourth of the state. We are governed by locally elected or appointed Boards, and our actions are closely scrutinized by our customers and local officials, in fact, we can be making a presentation, and before the presentation is over, somebody has driven in because they've been watching on T.V., and they provide comment. So, a very transparent, locally controlled organization. We also are a nonprofit so that we do not have a profit motive; we just want to provide safe, reliable electricity, at reasonable rates, and in a environmentally responsible manner.

CMUA supports the greenhouse gas reduction goals of AB 32 and AB 32 Scoping Plan support the 33 percent renewable energy standard. Many of our governing bodies have, in fact, adopted renewable RPS higher than the 33 percent and they did it before the statewide requirements.

We support the loading order, and we really support the goal of cost-effective energy efficiency, we do support the continued public benefits charge and our utilities provide programs under that public benefit charge for energy efficiency and renewable energy,

distributed generation, electric transportation, and infrastructure that we need for that.

I'm going to use our Riverside Public Utilities and I'll call it RPU, I'll fall into the alphabet soup mix, but RPU adopted the 33 percent standard in 2007, though we started a progressive and focused effort on renewables in 2001, most of our POUs, most of the Publicly-Owned Utilities, did it off of those standards and we need to continue to be aggressive on those. Like many of our peers, our Resource Portfolio consists of hydro, solar, wind, geothermal, and biomass. We're constantly looking at how we can maximize the investment, minimize the cost, but really make sure that we have the reliability, so reliable, renewable energy is truly our goal. In addition, we fund grants with UCR. UCR has a program called SC-RISE, Southern California Research Institute for Solar Energy. The utility provides grants every year to ensure that we are looking at the most technically advanced solar that can possibly be produced. Much of what they research is, of course, several years away from market, but it starts in Riverside and we're excited about that. We are significantly reducing our coal power, you know, we have some coal in Southern California, we're obviously going to completely eliminate that at the end of the existing contract, and, in fact,

are looking at a very preliminary investigation on can that plant be converted to a different fuel source and we're having some studies done and we're starting that process. We also have some nuclear power in Riverside, San Onofre Nuclear Generating Station. We just changed out all the steam generators, and that is a non-greenhouse gas emitting resource. We're also looking at meeting all of the once-through cooling regulations. We're a member of the ISO; we participate in all their planning and development sessions. ISO costs are a factor in our rates, but we really welcome the inclusion by the ISO of what our ideas are, what our thoughts, what our feedback is, and they've been really great to work with. We participate in improving transmission, in fact, recently improved a transmission line into the Rocky Mountain area, so that we can access renewables, primarily wind and geothermal, in order to bring that into California.

I mentioned public benefit programs, a big part of Riverside Public Utilities, we get about $10 million a year through our public benefits charge, but we expend much more than that in public benefit programs. One of the areas is actually low income assistance, not completely a Clean Energy Future, but I do need to say, one out of 10 of our customers required low income

assistance last year, and that is a large percent, it shows how the economy can hit a region significantly, and we really work with those customers to provide some support.

We also created the Whole House Rebate Program which, the more programs you participate in to get rebates, the higher your rebate goes. If you participate in seven programs, you get 350 percent of the ongoing rebate; the idea is to completely change the envelope of the home, put a solar energy system on that, a high energy efficiency air conditioner, because that envelope stays energy efficient and provides renewable energy, regardless if the house sold several times. I really love this program, and the Federal Department of Energy Secretary Steven Chu recognized that as a national best practice that other utilities should look at emulating that. Our customers love it because, once they start with one part, one program, they start looking at what they can add on, what they can do to improve their rebate, get more money back, but in the long run they improve that location.

I'm also going to make a few comments on the staff presentation today, but CMUA hasn't met on this, we just got the information, as you know, last week, but we're meeting this Friday and we will discuss this and we

can provide some written comments that formally provide CMUA Board approved feedback. First, the key metrics identified by staff look really reasonable. I want to commend staff, it's really easy to create very complicated, detailed, data driven metrics that you need a translator to understand, these metrics were so straightforward, so well done, staff did a fantastic job boiling them down to easy to understand, not just by members of the utilities, but members of the general public. So my strong commendation to staff for some great work.

Most of the Publicly-Owned Utilities are already reporting this information to State and Federal agencies, including the Energy Commission, ARB, and ISO, we really hope this doesn't trigger an entirely new set of metrics and data that we have to provide, it would really be good to look at streamlining the reporting requirements and eliminating any overlap or anything, it allows us to submit one set of data. Data collection is expensive, it requires people, it requires programmers, it requires software, then usually it requires an annual audit by a specific entity that has already been approved, so really would like that, on the other hand, we've recently had a situation where data from one agency was utilized by another agency and it wasn't consistent and didn't work,

and we had about three months of begging, pleading, and demand to say, “Please use the appropriate data instead of this inaccurate data.” So really would like to look at consistency, but appropriateness. Second, we should add a key metric on cost and cost-effectiveness, really a goal of adopting least cost principles throughout the process as we move towards sustainability is very important; in fact, the RPS statute recognizes that cost to ratepayers to achieve goals is not unlimited, and we should really look at doing this and having the lowest impact to rates. Third, really agree with staff’s suggestion that there should be a metric for the ability to maintain reliability, reliability is a key factor and it’s very important for a successful outcome. We need careful coordination to make sure that exists. I’ve got an example, the elimination of coastal power plants because of once-through cooling, and limits on local generation and imports from out of state really affects California’s reliability, and success of that effort requires coordination of the State Lands Commission, the CEC, the CPUC, the ARB, the AQMD, the ISO, the California Coastal Commission, and others. So you could see changing -– sometimes changing is a very complicated process and takes a significant amount of time. Fourth, really agree that recent statutory changes should be

added to the California Clean Energy Future Plan, including the 33 percent Renewables. However, all the goals haven't been thoroughly evaluated and vetted through a public process, such as a legislative or regulatory process, and we don't think they should be designated as statewide goals or targets until that process is complete.

In the staff presentation, there was an element that said we must engage and partner with California citizens, we completely agree with that, that process should be completed before some of the goals are included. I know the CEC has started evaluating the Governor's Clean Energy Jobs Plan for the 12,000 megawatts of local energy resources by 2020, there is a lot of questions that still exist and it will include a whole number of those questions in our comments, but really those have to be resolved and answered before we move forward, and that should be done in an open and public process.

Finally, I really ask you to continue to recognize the importance of locally Publicly-Owned Utilities, they've served California well, in fact, our rates are generally lower than the Investor-Owned, reliability better, we've made decisions in a very open, transparent, and local process, responsible and local

customers, and really our customers through survey show they prefer our service. We really would like to partner with all the agencies as we move forward and create answers and plans and really do ask you, though, unless there is specific statutory direction, allow our local governing bodies to continue to make decisions that have been successful and appropriate. So, really, thank you for the opportunity to speak and I do appreciate you taking me first, I have another meeting tonight in Southern California. I'll be happy to answer any questions you might have.

CHAIR WEISENMILLER: Thank you for your participation. I guess the one question I had was whether, as a metric, we should be tracking the reliance on coal?

MR. WRIGHT: We absolutely –- I think that's a great idea because that should be going like this over the next decade and showing that we are every year taking a few percentage away so that we will, in a decade or so, have very little. And those few percentage every year is being replaced with renewables. And, again, I think that's a great idea, would welcome that.

MR. EGGERT: If I might, just a couple follow-up. In terms of, you had mentioned cost and cost-effectiveness; do you have a particular metric in mind to

capture that most succinctly?

MR. WRIGHT: We'll provide that as part of our comments because, again, we're still looking at it and developing it and getting ideas.

MR. EGGERT: And then I guess the next question I had was for staff, perhaps, and maybe it can hold, but I'm just curious as to whether or not the metrics as proposed require any additional reporting beyond what currently is provided to the State.

MS. RAITT: I don't believe it does, it's all based on information we have already coming in, as far as I understand.

MR. EGGERT: Because I like the idea of streamlining that reporting process, if there is opportunities to do so.

COMMISSIONER DOUGLAS: Yes, and actually this is a follow-on question from Commissioner Eggert's question. Can you describe the reporting that, say, for example, Riverside would provide to the State? And what you see as some of the opportunities for streamlining? Because even thought the metrics that we started out with aren't additional, we through this process might actually come up with one or more metrics that could be additional, and if you could help us understand, you know, the different reporting requirements that you have and how they might

be streamlined?

MR. WRIGHT: Yeah, we have to create a number of reports and data submissions monthly, quarterly, annually. I'll give you one example that we looked at, so we are members, obviously, of a number of agencies, sometimes voluntary, sometimes we're obligated to. Very recently, staff came and said we do not have the available staff to continue for submitting everything we need to the Air Resources Board and to the Climate Action Registry. So we made a difficult choice, and one I really didn't like, but we basically withdrew or discontinued participation in the Climate Action Registry because I just don't have the staff to provide that data in the different formats that both agencies need. In reality, there are very similar goals, so why isn't the data exactly the same for both organizations? You know, I have a financial background, so I just think, why can't we just add a couple columns to a spreadsheet that provides the information for one agency that another might not have, but submit that same spreadsheet to both agencies? And, again, we could provide actually a list of every single agency we provide the information to, but it has gotten to either we add staff, or we withdraw from some agency/ organization, and the idea of pulling out of the Climate Action Registry, I didn't like, but it meant

that or we go out, find an analyst, hire them, and increase cost to our customers.

COMMISSIONER DOUGLAS: All right, I appreciate that. I mean, obviously you do report data to the Energy Commission, as well as the ARB, and so, you know, we're very open to talk about ways of streamlining data collection.

MS. KOROSEC: Yes, I agree. Thank you. Good comment.

MS. RAITT: Okay, our next speaker is Steven Kelly. Thank you.

MR. KELLY: Good afternoon. I'm Steven Kelly. I'm the Policy Director for the Independent Energy Producers Association and I appreciate the opportunity to speak with you today about this important planning process and, just in background, I know that you all can appreciate this, but the observation I have overall is to achieve the GHG and RPS goals that we've set by 2020 in statute, key infrastructure and investment decisions need to be made within the next three years as we move forward. And that relates to financing, siting, and permitting the resources that are going to meet this stuff, so I just want to reinforce the critical point you are in the infrastructure and investment process as you move forward with your planning routines.

A couple planning principles that I would just like to throw out to help guide you, first, keep it simple. A good example from my perspective of one of the best planning tools that all the agencies put together was the original joint action agency loading order. It was three or four pages, as I recall, but it was very clean, very concise, and everybody in my world understood what you were going to do. And the hierarchy was so opaque, or transparent, that it was very very helpful in leading people to positioning themselves to make the investments today that we think are going to help you meet your goals. So I would just encourage you to do that.

Secondly, similarly, make the assumptions transparent in your planning processes. For example, right now, I've watched some of the – I've been participating in some of the meetings on distributed generation, and my impression has been that the definition of distributed generation has varied across the agencies and across the time. I think it's very important that we come to a common grip about what the 12,000 megawatts of DG actually are, what are the technologies and resources that are going to help meet that goal, because the definitions do vary and the differences are going to matter when you get into a

planning routine in trying to model what's happening, so I encourage you to look at that.

As mentioned earlier, it's important to ensure planning and modeling consistency across the agencies. This starts with data collection, which you just talked about, but also the manipulation of the data and the use of the data, and the extent to which you can be consistent across the agencies when you do this is very helpful to the marketplace.

And then finally, streamline where possible and watch, most importantly, the synergies where the resource choices interconnect because, as I sit back and look at the program plans and I think of the synergies across program elements, it gets very complicated about how one impacts the other in a positive or negative way. It's very complicated for the ISO to model, very complicated for policy makers to think through, but those synergies are there and we need to start wrestling with how that works.

I'd like to talk briefly about planning matrices and respond to some of the questions that staff had raised. And first, this is a general observation that the metrics that are in the presentation today in the planning document for the most part tend to be programs, I think. And really what is the key is what are the

metrics to determine whether the programs are performing as you planned, the lead into the overarching plan, and I am thinking we're a little weak on identifying exactly what those metrics are for each of the program elements that you have in your plan. For example, some of the programs are measured in capacity, some are measured in energy. I think it would be helpful if you can do this to meld them into one common denominator, so to speak, and for those like me who are math challenged, I throw out capacity because it's a small denomination and I don't know what a terawatt hour is anyway. But, anyway, if you can take these programs and translate them into a common metric as a goal that will also be helpful in your planning processes.

The second thing I'd like t mention about the metrics is that I think one thing that is missing in what you've got now is the measure of what has to happen, the rate of change over the next eight years as we strive for the 2020 goals. We know what the 2020 goals are, usually the bar charts show a megawatt or energy number or something, but really what is critical to me as a policy person is the rate of change over time. How much do we have to change in what we're doing between Year 1 and Year 2 and between now and 2020 to achieve it? Because some of these imply a significant amount of change, and I

just want to give you some examples. I did some back of the envelope calculations based on the presentation materials. Demand response, as I understand it, you know, in 1980 to 2011, 21 years or so, a little more -- actually 21 years, 30 years, we got about 2,500 megawatts of demand response. Over the next eight years, we're looking to increase that by 3,500 megawatts. That's 175 percent increase over that time frame. To me, that's a challenge, it's a good stretch goal, but that is a challenge. CHP, it's taken us 30 years to get 4,000 megawatts of CHP that delivers to the Grid, the stretch goal is to get 4,000 megawatts in the next eight, that's a challenge.

Utility-scale renewables, I think I calculated in your number that we had about 6,000 megawatts of utility-scale renewables today, it might be a little higher than that, but the stretch goal is to add 8,000 in the next eight years, that's 133 percent, give or take a little bit.

DG renewables, I think we have about 3,000 right now, the goal is 12,000. Setting aside what I mentioned about the definition, whatever is going into that definition, that's a huge challenge for policy makers and for the marketplace to respond to this. So, I've calculated that we're looking at roughly about 28,000

megawatts, give or take, of new resources that are going to be added to the system over the next eight years under this plan, which is fine, it's just going to be a challenge. And I think it's something you need to be cognizant of and I think the best way to track the challenge is a rate of change calculation in the metric, how much does it have to change over time in terms of improvement?

The only other comment on metrics I'll make today in my presentation is on the electric vehicle. I originally read the proposal to indicate that the metric was going to be the number of vehicles on the road, zero energy electric vehicles, and so forth, a million. I read the presentation today and it sounded like the infrastructure to support a million cars, those are very different. And you might want to focus in on whether we're talking about metric being the cars on the road, or the infrastructure to support the cars, it wasn't clear to me.

Finally, and more in closing, I just want to raise a couple of concerns that we have when we think of moving forward in this environment. First and foremost, given the stretch goals and the hurdles we have to make this happen, one of the biggest questions we have are, are the requisite experience and staffing available

within the agencies to process these preferred policy outcomes because, if there are not, some of these are going to lag and the individual agencies are going to have to prioritize some of these programs. And how that prioritization goes is going to go a long way to the ultimate success of the overarching program.

So we have been concerned about this, we have expressed this concern to the Governor's Office about the need to increase staffing at the agencies, and we hope that message gets through. I know that certain agencies like the Public Utilities Commission have the staffing budgeted, there's just a freeze, so we're trying to work on that and get you the people that you need to get this done.

Secondly, given that there may well be tradeoffs as we move forward over the next eight years to achieve these goals, we want to make sure we're not changing horses in the middle of the stream here. I've been involved with the RPS now since 2002, it's almost been 10 years. It's just now, quite frankly, getting to where I'm comfortable that it's going to result in some meaningful projects, in the last two years. I hope we're not in a position that we divert the resources needed to attain the remaining 8,000 megawatts by moving staff around so that we can't continue that process because it

takes a lot of staffing and time and resources to make that program work. So I just hope that we keep on track and keep focused on there.

And then, finally, I just note that, while the focus is on clean energy, clean technology, clean energy sector, there is an element of the overarching program that we cannot be oblivious to, which is the need for a certain amount of fossil to support this. And this will be clean fossil, but there is going to have to be some fossil, I think, in the near term to maintain the overall grid reliability. As a practical matter, I tend to think of this as, over the next eight years, this vision of the Smart Grid and the integration of these new program elements as very difficult to achieve by 2020, certainly probably achievable in the next decade after that, but we're really probably what I call one long term PPA away from that, so I don't want the agencies to stop pursuing the infrastructure investment on transmission distribution upgrades and PPAs that are needed to help meet these goals today while we look at some of the other technologies, I just urge you to keep the eye on the prize, about what the goal is for 2020. Those are my comments and I welcome any questions.

CHAIR WEISENMILLER: Thank you, Steven.

CHAIR NICHOLS: Question for you, since you

mentioned the issue about investment. Obviously, a huge amount of the investment that we're relying on to meet all of these goals is private sector investment, which we have certain policy tools to address, but are not able to actually direct investments in most instances, ourselves. Do you have any suggestions about metrics that would help us evaluate how we're doing on that?

MR. KELLY: Well, one metric would be, for example, in the RPS Standard, one metric would be the amount of viable projects that are bidding into the utility RFOs. Now, the Public Utilities Commission has moved to kind of improve what they call a Project Viability Calculator that includes financing capability. So, hopefully going forward we'll be seeing more and more private sector investors lining up to pass through that screen. I think that might be one. It's interesting, in my business, five or six years ago, the industry was bifurcated between kind of the people who did renewables and the people that did fossil. That bifurcation has almost evaporated in my view, in terms of the companies that are investing.

The State succeeded in moving the investment dollars within companies that were primarily fossil oriented, for California at least, into a plan to invest in green. And I think that started with the loading

order concept that you promulgated a couple years back, it sent the signals for people that, if they want to be investing in California, that's where they had to put their money and I've seen a lot of capital move that way. So, I think you're seeing it. Actual metrics would be participation.

CHAIR NICHOLS: Thank you.

COMMISSIONER DOUGLAS: Thank you, Steven, it's been really helpful to hear your comments. I had a couple questions. When you talked about the importance of seeing additional consistency not only in the collection of data, but the use of data and modeling, and so on, can you give us some specific examples of what you mean – processes, models.

MR. KELLY: Yeah, I'll give you -- it's very difficult for any individual stakeholder to participate in all the planning processes that are going on in California today. Probably in the best position to do that are the utilities. For example, in transmission planning, this is my Jihad, so to speak, I mean, I watch –- there is a CTPG, that first it starts with the Energy Commission and its assumptions in the IEPR; a couple years back, it was the assumptions in the RETI Program that I participated in. That information transfers over to the CTPG, which does something, and then that work

product transfers over to the ISO, which does something, and that information transfers back to the Energy Commission, or the PUC, depending on the time of the year, and they do something. It's very difficult for stakeholders to track that. If I knew that everybody was taking the position, "We're going to be open and transparent in our assumptions, and we're going to be consistent as we possibly can across all the agencies in what we're using," it's very helpful. And the I just have to trust you all.

COMMISSIONER DOUGLAS: All right, thank you. One more question. You mentioned that the next three years are critical in order to set the stage for some of the investment that needs to happen in order for us to meet our 2020 goals. What are you looking for in the next three years? What do you see as the signal that you think will help us direct that investment towards meeting the goals?

MR. KELLY: Well, I think it expands across just generation and into transmission, for example. To build transmission in California today, I pretty much assume it takes seven years. To build generation, we're talking three to five years, at least utility-scale. And I'm just backing out from the 2020 goal. You don't want to end up in 2018 to find, "Oh, my gosh, we are way short.

What did we do wrong five years ago?" Because, by then, it's pretty late to actually meet that 2020 goal. So, I'm trying to back out of that and say that we are getting really close to a point that, if you want significant investment occurring in either generation or transmission, or anything else, electric vehicles, those decisions are getting pretty critical right now in terms of signals to people to actually spend the money.

COMMISSIONER DOUGLAS: All right, so you're backing out the time it typically has taken in some processes and suggesting that we better start soon, given the experience that we've had typically with the timeframe for moving forward?

MR. KELLY: Yeah, that's correct.

COMMISSIONER DOUGLAS: Thank you. Those were my questions.

MS. RYAN: A couple of quick -– Mr. Kelly, thank you very much for your remarks. I think your point about we need to be looking not only at progress towards a target, by the rate at which we're moving toward the target, is a point very well taken, and I think you just pointed to one reason for that in your response to Commissioner Douglas. So, I think that's something for us to bear in mind. I want to go back to your other comment that you made about essentially the metrics being

linked to programs and then going into units to measure progress towards those metrics because I think that's actually an interesting question and one that we would benefit from hearing from, from a number of you. And I think it, in fact, makes sense. It makes sense to me, at least that, to a large extent, the metrics are aligned with programs because the metrics tend to measure our progress towards some ultimate goal like 33 percent renewables and we have a program that we design to reach that goal. Sometimes we have multiple programs that are aimed at the same goal and then that can make things more complicated and I think that would be true, particularly if we layer on additional goals, or DG, however it ends up being defined.

But as far as units are concerned, I think one thing that we struggled with when we talked about the metrics among ourselves was, you know, ultimately, for example, do we want to boil everything down to tons of CO_2 avoided? Well, to do that, then you have to make certain assumptions or calculations in a consistent way, presumably across different types of measures and, in a way, you conflate the effectiveness of the measures with your progress towards achieving the measures because you may not actually get the same amount of tons – you may not actually get the anticipated amount of tons per

megawatt hour of investment in CHP, or whatever it is. And so, even though, if everything were in tons of carbon, then it would be easier to add up, or compare, whatever, you have to ask the question, and I'm really asking you all the question, what is it that we want these metrics to tell us? Does it make more sense to measure each thing in its native units? So, whether it's megawatts installed for renewables, or terawatt hours of conservation avoidant, but I think that's for energy efficiency, so I think it's very helpful to get a sense from you all, again, of what questions do you want to be able to answer, what do you want to be able to track? And, again, you all are very involved and sophisticated stakeholders, but you're also engaged –- you look outward towards, you know, other sets of stakeholders who spend much less of their time thinking about these things than we do and, I mean, there's multiple audiences and I think there will be multiple metrics for different audiences, but maybe the most useful thing to know, for us to hear, is what do you want to know? What do you need to see to know that progress is happening? Or to give you some reasonable degree of confidence that progress will occur, where there may not have been historically as much progress as any of us might have liked. So, I don't know, you may have a response to that, Mr. Kelly, or it

may just be something I'll leave to the rest of you all to come back to.

MR. KELLY: I do have a quick response because I think that it may not be the one-size-fits-all and the key is to make sure that you've got common metrics across all the program elements, it may be a couple, it may be megawatts, it may be carbon, or whatever. I mean, unfortunately –- fortunately or unfortunately, it doesn't really matter –- most of these programs originate in the Legislature and the Legislature thinks in megawatts, generally, except for the RPS and except for the AB 32 carbon goal. You know, the CHP stuff and all these little silos that the Legislature likes to create tend to be in megawatts, so you're going to probably have to do that anyway because you're going to have to report to them how we're doing against the statutory obligation.

MR. BERBERICH: Thank you. I guess I'm sort of the King of Megawatts. By the way, in case anybody is interested, we're pulling about 44,000 megawatts right now, which is a pretty healthy load day. In fact, I think we'll probably hit the highest load we've had so far this year, just for some trivia. Steven, it's clear that we're going to have to have some of the fossil fleet that exists now and perhaps -– I don't want to say "additional capacity" because I really think it has to be

capability as opposed to capacity, going forward. How best do you think we can make sure that occurs? Now, I know we don't really have a measure of that, but it has to be there, perhaps Mr. Wright's suggestions associated with reliability as a metric because, if we don't have enough, we will have a reliability issue. Any thoughts, real quickly, on how we can make sure we maintain that? What's attractive to your people?

MR. KELLY: Well, the ISO is the most technically capable entity to identify kind of the requirements and the need for some of these resources, so I think that voice is important. The one thing that clearly would send the message to the world is the lights start flickering, and we don't want that. So you're trying to prove the opposite, right, which is very difficult. But I think it's the role of the planners who are the sophisticated analyses and people, the Thought Police, so to speak, on this, to be thinking about this and the synergies amongst these technologies and be perfectly frank with the world, in my view, that it would almost be impossible in the next 10-15 years to -– I've heard people advocate the elimination of the fossil fleet, I mean, it just makes no sense. So, I think speaking up on that and challenging those assumptions would be helpful.

MR. BERBERICH: Thanks. We'll talk further off

line, I think, about that. Then, for everyone, and Steven, I don't know if you want to talk about this, I would be interested in everybody's perspective on the definition of distributed generation because I think that's an elusive definition. And to the extent you guys can contribute to that, to help us -– hello –- distributed gen -– anyway, if you guys have comments on the definition of Distributed Generation that would be very helpful as we go through the comments.

MS. RAITT: All right, are we ready to move on to the next speaker? V. John White. Thank you.

MR. WHITE: Thank you, Mr. Chair, Madam Chair, Commissioners, staff. Thank you for inviting our participation in this workshop and I share the respect and appreciation for the hard work that your staffs have done. I have a couple comments on metrics and then some thoughts on planning issues.

First of all, I think I share Chairman Weisenmiller's observation that we need to be tracking the level of coal imports and the planned retirements and reduction in use. This is important not just from a greenhouse gas standpoint, but also from the standpoint of resource adequacy and transmission planning. Our resource adequacy process currently at the PUC embeds all the existing fossil at the front of the transmission

queue, regardless of the plans for its future. And so it artificially pushes the renewables out. So, to me, this is a very critical element of the metric and I think it should not just be coal imports, but also fossil retirements, as well, because we don't want to base our reliability planning on resources that we are going to soon be doing without, without even looking, and that's the current practice.

Secondly, it's been our view for some time that California must not have a CO_2 centric greenhouse gas policy, and one of our concerns has been neglecting of the other greenhouse gas pollutants, so we want to be sure in these metrics that at least methane and black carbon are counted, evaluated and considered because, for example, one of the principal strategies for reducing methane, which is 40 times more powerful than CO_2 is distributed utilization of renewable methane in fuel cells and other advanced technologies. This has not been a key part yet, unfortunately, in the talk about Distributed Generation resources, and yet these resources have very significant value to meeting these other goals, not to mention that, in many cases, they're baseload resources, so they actually help contribute to reliability and so forth. So, this is an example of why I think the metrics need to be broadened.

I will say that, as enthusiastic as we are to see all this level of cooperation, as Steven said, this still sort of looks like a representation of each agency's own silo, okay? So one of the things that we've got to do and what I'm really glad you're here all today and wish you had other of your colleagues here, is that one of the features that made the Energy Action Plan process so valuable was that it included not just staff, but Commissioners. Now, I know you all have Energy Principles meetings, but there is nothing like an opportunity, particularly from a resource constraints standpoint, to have public opportunity to discuss with all of the agencies at the Commissioner level because that, then, gets dialogue going with the Commissioners, and then we start to get to a policy focus that is broader than the sum of all the agency activities.

So those are my thoughts on metrics and a couple more thoughts on process. First, I do think it's very important, despite our focus on these near term goals, 2020 is not very far away, and in the electricity planning business, a 10-year plan is almost immediately out of date, so I think you need to now start thinking beyond 2020 and maybe not as far as 2050, but I think 2030 is probably a horizon without our capacity to grasp, and I think because, if we don't, if we stop at 2020,

there is a danger of making mistakes. For example, there is a lot of hand wringing about once-through cooling, and yet we believe that we're going to need much less fossil than is currently imagined, particularly if we are successful doing the other things like energy efficiency, like balancing authority coordination, and so we shouldn't just project all that fossil as being absolutely needed without evaluating what the options are. And so that's why I think the 2020 horizon is too short, it's a good focus because that's what our statutory goals and stuff are focused on, but from an electricity planning standpoint, we've got to look beyond. And I don't want to pick a number, the Governor said 40 percent, I'm good with that, but it matters less what the goal is than that we're thinking out that far.

Thirdly, there was a reference to the CHP goal as a Governor's goal, and this was news to me, and so I'd like to have a little more clarity about where that came from, and if we're going to have it in here, we had certainly better have an efficiency standard included because all CHP, just like all renewables, aren't equally valuable and we should be encouraging the highest efficiency uses.

We've talked about the loading order and the relative success, but I think we have much more progress

that we need to make with respect to energy efficiency. We need much more transparency, not just dollars spent or programs administered, but actual emphasis on what are we getting for the money we're spending. I think we're going to have to face up to the politics of time of use pricing if we're going to be successful in regard to energy efficiency.

We also are going to have to be more transparent about things like buildings; the Energy Commission has a program we hope will soon be up and running that could be a basis of helping people grade buildings so we can rank them, not with numbers, but with grades like in school, so we know who the "Ds" are and who the "As" are, and we can get them talking to each other.

I mentioned the silo problem as one of the biggest challenges that we face in achieving what Steven said with regard to the progress that's needed to be done quickly. We cannot afford to have everything be as bifurcated and as divided as it has been. And so, one thought I had is, first of all, these kind of meetings for us are very valuable and for people that have the opportunity to come and see you all, I think you need to do this on a regular basis. I'd like to suggest that there be quarterly meetings at the Commissioner level, if possible, and take up specific topics at each of these

meetings. And a couple suggestions I have is the once-through cooling, future of fossil conversation, one of the things we have to recognize about fossil is that we're going to need, as Steve said, some of it for capacity, but we don't want it to run all the time, we don't want to use that capacity for energy, so we're going to have to change the incentives for how these people get paid. Now, capacity markets have been controversial, but we need to figure out a way to pay the capacity to be there, but not have that capacity have to want to run all the time because it will interfere with what else we're trying to do.

Secondly, when we get to the once-through cooling, our friends in the City of Los Angeles, I understand, are coming back to the Legislature again to revisit the Water Board's policy and, in the end, we need to have that conversation out in the open about what are we doing? Retiring or repowering? And we have all this new fossil capacity that is coming on line, fast ramp, and high efficiency, how much of that can we use to substitute for the coastal plants? Recognize that there may be specific cases where we need to look at specific plants and suggestion maybe the Water Board needs to be a little more flexible. But we don't want to just have it say, "Oh, the sky is falling, we can't do it," and I

think an interagency forum maybe with the Water Board would be a useful topic for discussion.

Second, the Distributed Generation resource discussion has already galvanized a lot of conversation. I think that would be a topic worthy of a significant interagency Commissioner level discussion, and so we can maybe examine what kind of resource diversity are we going to do with this portfolio. For my money, DG is under 10 megawatts and primarily customer-owned, okay, there are other who want to call it 20 megawatts, but to me that’s more wholesale generation that’s finding a home in the world of Distributed power. That customer-owned generation is very valuable, but it’s complicated to get at and the incentives that are needed to bring it on line vary. You’ve got some projects that are going to need self-generation incentive type help because it’s on-site load. Others are going to have the opportunity to export power to the grid, like from landfills or from dairies where there isn’t a lot of on-site load, so those are going to maybe need the feed-in-tariff. So I think you need to think about the resource base was have, the regional diversity, and the combinations that will work to give us resource adequacy, reliability, greenhouse gas reduction, and renewables, and not just one of the four because, when it comes to cost, solving for multiple

problems for large-scale renewables, as well as distributed, we need to solve for multiple goals, not just renewables, but also these other factors. Then, I think at the risk of calling attention to a problem that folks would maybe rather not hear about, I think we need to take a special look some day at the Los Angeles Department of Water and Power. This is the single biggest greenhouse gas emitter in the system and their progress is variable, depending on what's going on in the City with regard to rates and the City Council, and so forth. Air Resources Board and CEC share jurisdiction for oversight of the DWP, but knowing what their plans are, and having them be accountable for those plans will be the best way to ensure their compliance and not have a messy penalty argument. So we need, I think, to focus particularly because the Los Angeles system is very important to reliability, and there is great opportunities for sharing power and resources with the ISO system, there is a history of religious differences between the ISO and the DWP, but we have new leadership in both institutions and it's really important, I think, that they be included not so much as an enforcement target so much as a partner in all this enterprise, because their success is vital to the achievement of these goals and, if we wait until 2015 to find out how

they're doing and what their plans are, then I think that will be too late.

Finally, I'll just say that there's going to be a lot of talk about cost of renewables and I think we're going to have to look at the value, as well as the cost. We know that we pay for natural gas, regardless of the price, through automatic pass-through to the ratepayers, there is no opportunity to discuss or debate that, it just happens, so when gas prices are cheap, renewables tend to seem expensive, but if we look at how we can make this program solve multiple problems and create value for ratepayers, as well as emphasizing, as I know my friend Carl Zichella is going to emphasize, that we're talking about bills people play and not just rates, but this cost value proposition is one where all of these agencies that are here, and some that are not, have a part of that story and a part of sharing in the discussion of those issues. So I thank you for letting me comment. Thank you for your attention.

CHAIR WEISENMILLER: Thanks for being here today.

COMMISSIONER DOUGLAS: I just have -– this may even be more in the nature of a comment, but both you and Mr. Kelly have brought up the issue of the need for fossil generation, and yet the question of how might the system use fossil generation differently and how much is

needed, how much of the existing fossil capacity will we need going forward, hopefully through an increasingly through new and efficient plants as opposed to just some of the less efficient plants out there, pursuant to legislation, these agencies you see sitting at the table today have been working together on an analysis of this question in the South Coast, and it's been interesting because it has been a new way of looking at a question, it's required a lot of new analysis, it's required kind of integrating analyses, some of which have been done in some ways, but not in the way we kind of need to put them together, so it's just a comment that, while work on that is progressing more slowly than I would like, I think that we see its importance and its value and I'm hopeful that we will get to it and get it done in the right way, and in a way that all of us and the public will have confidence in, but it certainly has not been easy to look at the system in that different way. And, of course, the question in that legislation has been, under this policy preferred scenario with Distributed Generation and efficiency and renewable energy, how much in-basin fossil generation is needed for reliability, or for balancing the system, or for whatever other reasons it might be needed there. So, it's been an interesting endeavor and to be continued probably for longer than we would like,

but we're on it.

MR. WHITE: It kind of depends, you know, on assumptions and you may need to do some scenarios and, after Fukushima, we have to also maybe reexamine how long we might be having some of the nuclear plants available to us.

COMMISSIONER DOUGLAS: I agree with that question, you know, we do need to, especially as we look out beyond 2020, look at the question of how the nuclear plants will be available to us and it's a daunting question, frankly, because it's a lot of zero carbon electricity that right now is factored into our assumptions. So it's a question –- I think it's a very important question. I also just want to say that I appreciate your suggestion that we look beyond 2020 because, in particularly, 2030 is not that far away from a planning perspective and so we want to make decisions today that are at least informed by that longer term perspective, even though, of course, the closer we get to today, the easier it is to have certainty. But, anyway, I appreciated your comments.

MR. EGGERT: Just a quick -– I would echo the comment that looking beyond 2020 is important, to see that we're -– that the trajectory, for example, for GHG is continuing to bend down and we're not fooling

ourselves with the dip that comes back up afterwards. Actually, just maybe a question with respect to your comment about the CHP and the efficiency of the CHP, is your suggestion that it be tracked by efficiency? In other words, you'd have different bins associated with it? Or was it more than that?

MR. WHITE: My observation is that, if we're going to have a CHP goal part of this program, I'm very supportive of capturing thermal energy savings both in cooling and in heating, because they are often more cost-effective than some of the electricity programs by themselves. But, at the same time, there's a lot of different ways to do CHP, it's sort of like DG, it sort of matters what kind. And my suggestion is that the kind that we should value the most are the kind that are the most efficient and that some kind of a loading order or something within the CHP, I mean, we don't disagree that that should be part of the goal, partly because it's in the Scoping Plan and because it helps get at things like heating and cooling that are sometimes afterthoughts in the focus on electricity. My thought was, if it's going to be part of the goal, then we need to define it a little better and be sure that we have our eye on the efficiency.

MR. BERBERICH: Yeah, John, I appreciate your

comments, as well. A couple of thoughts, and I guess they are more comment than questions, qbout the Parson Divide(ph.), I submit to you that we will work on that. There is new leadership on both sides of that; because there is a lot of coal production down there, the collaboration, I think, can help resolve that issue. And, also on the definition of Distributed Gen, I think it is going to have to be flexible. The conundrum we have is kind of where you plug it in really matters, and I know you know that, so we'll have to work that issue, as well. Really, I think I just have a comment there, Chairman Weisenmiller.

CHAIR WEISENMILLER: That's good. Yeah, I think, John, as we struggle through these things, at least in my mind, the first priority is the coal back out, the second priority is going to making sure that we're starting to think through the backstops on the nuclear plants, and the gas stuff is more like the third trench, you know, then I think it would be unfortunate if we start at the first trench and let the coal stuff continue, but not deal with the potential we could have on a nuclear displacement.

MS. RAITT: Okay, our next speaker is Dave Ashuckian.

MR. ASHUCKIAN: Thank you very much. I'm Dave

Ashuckian representing the Division of Ratepayer Advocates and I appreciate the opportunity to represent ratepayers. DRA is an independent division within the California Public Utilities Commission and our statutory mandate is to advocate for low affordable utility rates that are consistent with safe and reliable service. And with that, we also advocate for environmental protections. I do think that the clean energy future opportunity here is a perfect opportunity to help guide an area where we focus on how these programs are doing. I'll call it an annual report card of the state of the state in achieving our energy goals.

One of the things that struck me in looking at the presentation and also, as we, the Division of Ratepayer Advocates, look at how these programs are implemented by the investor-owned utilities, is that we have to continue to consider the interactions between the various programs and one of the things that struck me is even how this presentation that the staff made is organized was by "here's the program, here's how it's achieving its goals, here's another program, here's how it's achieving its goals," but there is no obvious interaction between the various programs. And I think there are some simple ways to potentially change the way that is presented, in a way that helps policy makers

understand and address how these programs interact and how they can be changed when they are implemented. For example, slide 23 talked about how the renewable resources have increased over the last 10 years and the Governor's goal of 20,000 more megawatts by 2020. If you overlay that on the slide about we're trying to also achieve 8,000 megawatts of energy efficiency, how does that affect the demand? I think that the reduction in 8,000 megawatts with the demand for more resources is, again, an issue that we have to consider, and that gets to the point of the timing is critical and looking beyond 2020 is critical.

One of our jobs as the Division of Ratepayer Advocates is to evaluate the requests and the contracts and the activities that the utilities are asking for to achieve the state policy. When, as we show on slide 23, that we essentially have 33 percent renewables under contract at this point in time, when they continue to ask for more resources, we have to say, "You don't need those right now because you already have achieved your goal." And therefore we have to look about how these things affect long term. The other example is with Demand Response. I think a lot of these programs were created as a result of the energy -– I won't call it a crisis, but the energy events of 2001, it was a man-made crisis –

- but a lot of these programs had good intentions, had great expectations to achieve results from that situation, and yet we have achieved many of those -– the system has evolved and has achieved many of those goals, and yet we're just now continuing to finalize many of those programs. We have just adopted -- just paid for $5 billion worth of Smart Meters. The goal of those Smart Meters is really to achieve Demand Response, and yet we're still approving individual programs for Demand Response at the utility level. And so how those individual programs are going to overlap with how Demand Response, should become ubiquitous among all ratepayers, I guess, is something we have to continue to think about. And we even have seen Severin Borenstein say, in a presentation at the PUC, that the original goals of Demand Response have changed because there is very little change in the wholesale price of electricity because our capacity has become so robust and therefore Demand Response really has less value to the ratepayer now that we have such a robust capacity, and so we have to continue to think about how these programs interact with each other.

One recommendation that we made regarding the implementation of AB 32 was a specific loading order like the Energy Action Plan created for the overall

electricity system, but a loading order based on achieving a specific goal of reducing greenhouse gas emissions, and then identifying programs that can reduce emissions as what is the most cost-effective, and then go to the next level, what is the next cost-effective, etc., etc., so we actually have a loading order within the program goals of the total electric energy system program.

And I do support the comments about how the Energy Action Plan, where there was joint agencies interacting, was really a great system that, even though it had a lot of discourse at times, it did allow a lot of these programs to get discussed at an open forum and it provided that interaction in thinking about, well, if we do this, how does it affect a different program?

A comment that Dave said about cost effectiveness as a critical piece of that, again, cost-effectiveness is one of the issues that we, again, as ratepayer advocates obviously are concerned about, but, again, making sure that we are not duplicating, we are not paying -- the ratepayers are not paying for one program and, at the same time, paying for the exact same benefits in another program that essentially do not provide any additional benefit to those ratepayers. Some specific comments regarding rate reporting, one of the things I think, as

Steve said, is that the trends are critical and the timing is critical, just knowing what the system average price is is an interesting piece of information, but how that has changed over time is really the impact that ratepayers are affecting, you know, they have planned for a certain utility bill over time and if that changes over time, regardless of what the individual magnitude is, they have expected a certain amount of growth or of a cost, and therefore that change over time is really critical to the ratepayer. Identifying what the rate impact is from individual programs is also critical to understand which programs are truly achieving their goals and which programs may be really costly for what the results are is another program that I think this metric could expand upon. Realizing that 30 percent of all customers in California are under the CARE, which means that they are within -– they are subsidized, the rates, they are within 200 percent of the Federal poverty level, one-third of essentially all customers have a difficult time and cannot afford their rates, and so just having that metric of what the overall rate is, or revenue requirement is doesn’t get to the point of how affordable rates are for those customers who are struggling.

Regarding the comments on electric vehicles, again, I think Steven made a good point about it’s the

infrastructure that, really, we have the true ability to achieve or to affect. But, again, when you look at the goals of the electric vehicle program, those goals are really going to be achieved and probably only going to be achieved if we can truly affect how those vehicles are charged on the system. And that means those vehicles have to be charged off-peak to achieve those goals. If we allow infrastructure to be – to let vehicles charge on-peak, we're going to actually need more infrastructure to handle those vehicles and we're not going to achieve any of the environmental goals that those vehicles were going to expect. And so, the ideal infrastructure for those vehicles is in-home charging, to encourage people to charge at home, after they get home from work. And that in-home charging is only necessary for those individuals who actually have vehicles. So, again, being cognizant of not just going out and putting out infrastructure with the expectation that, you know, you build it and they will come; in the case of electric vehicles, I think it's the incremental infrastructure is the way to go because it actually will help achieve the environmental goals that the program is designed for.

The last thing again is, again, back to the timing. We have seen significant reduction in cost of renewables over the last 10 years since the RPS program

has achieved, and so making sure that we don't -- we're not too over-reactive to trying to achieve our goals too quickly, allowing the market to adjust and to reduce the price of some of these programs so that we can actually achieve the programs at the most cost-effective manner is critical. We are still nine years away from 2020 and, again, we already have contracts for our 33 percent renewables, and yet now, just now, we're seeing the price of renewables come down. Is it because the developers know that we've already achieved 33 percent under contract? Or is it because, you know, of our transformation of the market? It's hard to tell the difference. But the point is, as we continue to implement these programs, making sure that we're not too over-zealous and trying to achieve them too quickly, so that we can't achieve the value. And, again, when it comes to reporting these programs, I look back to – looking at the performance goals, for example, greenhouse gas has the environmental benefits, rather than reporting on individual program goals and their abilities to say how many renewable megawatts do we have, identify here is the goal of greenhouse gas reduction and here are the five or 10 different programs that are working to achieve that goal, and then identifying what the cost of individual programs are and how those programs interact

with each other so that policy makers get a better understanding of how, for example, maybe Demand Response isn't the best program to pursue at this moment in time, maybe more renewables or some other program would be a better, more cost-effective way to achieve those goals.

Regarding the comment about DG, I think, in my opinion, DG is any resource that is connected at or below the sub-station level, and so, to me, it doesn't matter what it is, it just matters where it is connected. And so, again, one of the values of DG was the fact that it does reduce the need for transmission, but on the other hand, if there is not sufficient load where you put the DG to absorb that load, then you may need transmission to take the DG from one location and send it to another DG location. So you have to be careful about how you implement DG, and 20 megawatts is typically the size of what is considered DG, that's a pretty good sized power plant. And so, again, consideration of how that is implemented is critical. That's all I have.

CHAIR WEISENMILLER: Okay. Thanks, Dave, for the comments. I guess I had one question. Certainly DRA has been in the middle of multi-year effort on conservation and quantification, and I was trying to figure out if there is any simple metrics we could use in this analysis, other than getting involved in that

controversy, like the number of home/house audits, or something so that we've got a way of measuring energy efficiency benefits without quite, as said, diving into the whole litigation landscape that's occurred.

MR. ASHUCKIAN: Right, right. Well, you know, and that's an issue that we have had in how you measure energy efficiency, you know, just procuring a fluorescent light bulb does not make for a reduced load on the system, and so -– and this gets back to my point about the interaction between programs. If we continue to procure resources, whether it be renewable, fossil fuel, or whatever, the energy efficiency goals are attempting to reduce our load. And yet we are also continuing to increase our resources at the same time. We actually have to –- the only true measure of reducing or achieving our energy efficiency goals is reducing our need for resources, to replace that load. And so looking at how much total resource growth is occurring by procurement is one metric that is, I think, a true measure of whether we are achieving our energy efficiency goals. We see utilities asking for resources in the Long Term Procurement Plan. At the same time, they're saying they're achieving their energy efficiency goals which, when you put the two together, there should be no need for new resources. And so, again, ratepayers end up

paying for the resources to increase load, and we're paying for the efficiency products that reduce our load at the same time. What we have, and the ISO has projected, a significant planning reserve as we approach 2020 that is a result of these programs not interacting with each other, to make sure that we're not over-procuring with these various programs. And the concern that we have is that we're actually making California a less secure – the energy market will become less secure because, like we had before, we have over-procurement, individual power plant operators will have less opportunity to sell their products and it may result in a rebound effect, so to speak, in us basically saying, "Hey, you know what? California has kind of screwed up the system again by over-procuring, by doing too much, and it's no longer a robust market for us to invest in."

MS. RAITT: Okay, thank you. Our next speaker is Stephanie Chen.

MS. CHEN: Good afternoon. Thank you to the joint agencies for having this forum today and for taking on the task of coordinating these efforts. My name is Stephanie Chen and I'm with the Greenlining Institute. We are a think tank and advocacy organization that is dedicated to economic empowerment for communities of color and low income communities. And it seems to me,

from my point of view, which as I recognize is a very unique vantage point on this panel, that I think really the only oversight in these metrics is in communication with everyday customers.

The substance of the metrics are well tailored to the task and I think they're being refined through this process today, but one of the stated objectives is to involve citizens. And citizens play a couple of roles in this process, they are voters and they are customers, and I think that, really, the most important thing is, as customers, how much time are they willing to invest? How much money are they willing to invest? They're certainly not the biggest resource in terms of how many megawatts or terawatt hours we're going to need to reach some of these goals, but they're quite possibly the most important in that they're funding a lot of this and they're probably the most complex in that it's a lot harder to understand what makes them tick.

But I think that we're not really going to be able to move forward smoothly and quickly if we don't start taking into account from this very early planning stage where customers are and where customer sentiment is on a lot of these projects. We need them to participate in some of these things, like energy efficiency, some Distributed Generation and Demand Response in certain

capacities, and we need them to pay for a lot of this stuff.

Dave mentioned about $5 billion in Smart Meters, we’ve got the Smart Grid coming up, we’ve got all of the renewable energy projects, and all of these are really adding up incrementally in terms of bills for customers.

And I know that it’s hard from our vantage point to understand how people who aren’t into energy stuff don’t understand how important peak demand is and how important Demand Response is, and all of these things. But these are just not things that ordinary citizens care about, they care about the results that come out of these, but they’re not necessarily identifying with the way that we look at the metrics and with the way that we need to look at the metrics from a system-wide perspective, and from a policy-wide perspective.

But we’ve got to make sure that we are making the effort to translate that so that we get buy-in from customers. And this is really not to say that communities don’t care about these efforts and, in particular, the communities that I represent often, I think, are underestimated in terms of their environmental commitments. And that’s really not what I’m saying here. Communities of color, low income communities, very much care about environmental issues.

And, in fact, there was a poll that was released in November that USC and the *LA Times* conducted that showed that Latino and Asian American voters cared a lot more about some of these issues -– air quality, water quality -- than White voters did. And you look at Prop. 23, too, I mean, that was a major environmental push to overcome that Proposition and communities of color and the Environmental Justice movement, I think, really put the nail in the coffin for that one.

But the thing is, communities still feel that they are not being reached, that there is a communication barrier between the environmental movement and environmental causes and the things that they care about the most. And what that represents here in terms of achieving system-wide goals is really untapped capacity. I think we have to view the customer as a resource just as we're viewing any of these other more technical resources.

From our experience, even in organizing around Prop. 23, we ran into some of our own coalition members, our allies, who could not support the proposition. Many were Chambers of Commerce, or business development organizations, and they were really swayed by the fear of increased costs. And even messaging from allies from within wasn't really enough to be able to overcome that

fear.

Another example that I heard, and perhaps one that is a little bit more optimistic for our purposes here today, is one of our chambers has a member who is a small Latino-owned independent farm, and this farmer was approached to give buy-in on the organic farming. And he wasn't really into it, he was saying, you know, organic farming is something that other people do, it is something that is expensive, and it's really more the purview of people who don't look like me, don't live near me, don't know me, and don't know people like me. But this chamber said, "No, no, that's not – you're misunderstanding the concept, this is just going back to the way that our grandparents farmed." And immediately he got it and he bought in. This is exactly the same concept and you're achieving exactly the same result, but there's a huge difference in the way, in the effectiveness of the message that's being put forward.

So I think that, with the overview and the metrics, to the extent that we want it to really be available to the public and we want customer understanding and customer buy-in, we have to make this information digestible to the average customer, and that's not just the one that identifies with organic, but

the growing number of consumers and the growing number of voters who really identify with other messages.

And I don’t think this is a new idea, really. You know, when you see organizations that go out there and they’re protesting a power plant, they’re trying to get a power plant shut down, you have the ones who are out there because they are concerned about greenhouse gases and they’re concerned about climate change, and then you’ve got the ones out there who want to keep their kids healthy, they want to keep their air clean. So if you go and you knock on that second person’s door and you say, “Hey, come on out and help us out so that we can curb climate change,” that person is going to probably have a lot less free time than if you said, “Hey, come on out and help our kids be healthy enough so that they can play Little League.”

And I think here, when we talk from a system-wide perspective, we run the risk of falling into, “Okay, we’re going to design price signals and we’re going to provide enabling technologies, and we’re going to provide rebates or tax incentives for the enabling technologies,” and that will be enough to get people on board. I think it’s enough to get some people on board. But what that says to other people and what it says to a lot of the communities that I represent is, “We’re changing your

rates, but you can do this and you can buy that so that you can keep your costs low, so that you can keep your bills low." Well, for the customer that can't afford to respond to that price signal, that's really a slight, it's a punishment. And that's going to create some resentment.

So, if we want to really engage customers and we want to prevent resentment of the kinds of things that we know is important to invest in for the long term future, we have to find a different motivational hook, and we're actually going to need to find a few of them in order to really tap into what matters to California communities on a very day to day basis.

And I think the same thing goes for policy makers. The policy makers that are in this room are the easy audience, you know, "We're with you." But if you need legislative buy-in for some of these things along the way, and I think we probably experienced this moving along, they are going to respond more to a constituent-oriented message than to a policy-oriented message in a lot of instances because they're the ones that are going to have to go out and sell it at the town halls and sell it in their campaign appearances, and things like that, and they can't sell it if it's seen as "you're asking more money from me for somebody else's benefit."

And I think that we really need the customer buy-in because we don't want to have more Bakersfields. We don't want to have more misunderstanding of what it is that we are investing in. And I think that we, being involved in this planning process for so long now, we kind of assume that public sentiment is somewhere near where we are, but for most people, they're just now hearing about this for the first time and the first thing they hear about is "we're installing a Smart Meter on your house." And they're not really sure what that means and they're not really sure they like that.

And I think that there's always going to be this issue of the power company wants to do this, and the power company wants to do that, because they're really the gatekeeper in all of this, and so I think when it's seen as the power company wants to do something expensive for general benefit, for statewide benefit, for somebody else's benefit, we run real risks there, and we run the risk of public sentiment either just vastly increasing the cost of what we need to do, or really derailing the process as a whole.

So I would actually suggest that we need a metric for customer buy-in and we need a specific policy objective to create a more energy savvy California customer base.

Now, that *LA Times* poll that I mentioned earlier, that looked at voter sentiments, but what it asked is, "How much do you care about X,Y,Z? Do you care a great deal about X,Y,Z?" But what it didn't ask is, "How much time and how much money are you willing to invest in X,Y,Z?" And I think there is a real difference between what people say, "Yes, I will vote for this because it is good policy," and, "Yes, I will change my daily habits," or, "I will make more room in my monthly budget," particularly for the folks who more room in the monthly budget is maybe a dollar, maybe two dollars, and that's it, that's all they've got.

And so I think what we need to do is take a look periodically at how customer sentiment is looking at these issues across the state and, in doing so, in creating the sample for that, for such a survey we really need to look at the income diversity, geographic diversity, and cultural diversity that is represented within California; it's a great benefit in a lot of ways, it's hard to manage in a lot of ways.

And I would suggest that we also take a look, recognizing that public sentiment is a little bit behind where we are in our understanding and our adoption of some of these ideas, it would be interesting to take a look at a panel study that sampled the same customers

over a period of time because, again, most people are really just getting their first introduction to what this new energy future is going to look like, and so if we start looking at where folks are now and how they respond as this becomes more of an everyday reality, then we can sort of see where we're understanding things differently than the general public, how well the general public is responding to some of the messages that we're putting out there.

And I want to highlight, given the constituencies that Greenlining represents, I really wanted to highlight the thing that jumped out as the biggest problem for me as I was reading through these materials, and it came in the discussion of the System Average Rate, which maybe not everyone is going to be reading, but the reference notes that rate increases may not actually translate into bill increases because you can invest in energy efficiency, you can invest in distributed generation, things like these are only available to the wealthy, or to the pretty well off.

We've got some problems in the state that will provide some of these things for low income households, we've got the Energy Savings Assistance Program that provides a limited amount of assistance to a limited

customer segment, and there are those customers that are 250-300 percent of the poverty level, who are just not going to be able to afford these kind of investments. And so, for those customers, which is a big chunk of customers, “my rates are going up and I can’t really afford any of the solutions that are being discussed,” so that, when that ends up happening, you end up getting that feeling that this is a punitive change and it’s going to breed a lot of resentment.

And I think that that’s not only a communications and a messaging risk, but it’s also a real risk when it comes to the imbalance between who is making the investments and who is able to reap the benefits. And I know that we’re not talking – we’re talking about the metrics and the outreach today here, but while everybody is in the room, I just have to say that equitable access to these direct customer benefits is not only going to help get buy-in and keep resentment down, but it’s going to help us get to those goals. To the extent that we need customers to participate, it can’t just be the “have” customers, it’s got to be all customers, otherwise this isn’t really California’s energy future, and it is some of California’s energy future.

So I would also suggest that, when we’re looking at customer sentiment and customer buy-in, we also look

at how that translates in terms of household income because I think that there will be some surprising results when it comes to how much proportionately lower income households are willing to invest in some of these measures, and I think that those lessons will be very valuable as we move forward in terms of planning, particularly as we start looking well beyond to the timeframe that we're looking at here.

And I think that the last thing that I want to suggest is expanding the greenhouse gas metrics. There is a concern that the cap-and-trade structure is going to allow some bad actors with the access to free allowances and then, after that, through the offsets, these bad actors will be able to buy their way into just emitting, as usual. And this means that the climate hot spots that are around those emitters are going to continue to cause health problems and they're also going to continue to drag down our efforts towards emissions reductions, overall.

So, in addition to looking at aggregate statewide metrics, I would also be interested in seeing a sample of some of the climate hot spots that are around some of these particular emissions heavy areas, to see whether we are in fact seeing some lumpy progress as we move through this, and that we can better design programs that will

address that, not only for the overall emissions success, but also for health and safety concerns. I think that's all I have for now, but I'm happy to entertain questions.

COMMISSIONER DOUGLAS: Thank you. I do have a couple of questions. And I wanted to follow-up on your suggestion that we make a greater effort to explicitly reach out and engage with some of the communities that you represent. What recommendations do you have for how we would approach that? Do you think it's through –- you know, I think it's generally not through workshops like this, although I appreciate your being here. Chairman Weisenmiller asked me to ask, you know, is it making materials available such as the website in other languages, you know, but yet the information contained isn't necessarily very accessible even if it were in another language. Is it through other kinds of outreach? What recommendations do you have for us?

MS. CHEN: So a few things come to mind, initially, and I don't know if anybody has tried this experiment, but I have and it's kind of entertaining to watch. Try and explain the stuff that you do to your dad, or your neighbor, or the guy next to you on the bus, and you would be surprised how much of a niche we really find ourselves in, and not coming myself from an energy background, it's interesting to find myself in this kind

of niche, but I think that give that a try first and foremost, I think that providing information in multiple languages is an excellent start, it's an essential place to be, but that, too, you know, to come to the website requires a knowledge, first of all, that the website is there, and then the time and the inclination to go there, so it's a great passive resource and it's a great repository for information, and I think we should make it as accessible and as useful as possible, but at the same time, I think we also have to really go and get the word out there, and I think what we saw in Bakersfield is that the word didn't get out there ahead of the technology, the technology got out there, and then nobody really knew what to do with it.

So, I think that more assertive outreach to the extent that it's necessary. I don't know that the general public needs to know a lot about transmissions -- sorry -– but, to the extent that they need to understand why we're investing in what we're investing in, in a way that really matters the most to them, it is going to require us all getting out there and saying, "Look, this is – let me talk to you a little about what we're talking about." And also, "Let me hear what your concerns are."

And I think that an excellent conduit for that,

and I think Dave probably hears me say this a lot at the PUC, is through community-based organizations. These are organizations that have the ear of the communities that we are trying to reach and often times that's how Greenlining reaches communities is through the community-based organizations that these communities know and trust, and who know how to speak the language, and I mean that not only just literally, but also have the cultural sensitivity and the better understanding of what makes this community tick.

And I think, too, that we really shouldn't discount youth in terms of this outreach. Youth are into new stuff, they are eager to jump on board with things when they are put to them the right way, and so I think that it would be kind of interesting, and you see a lot of these sorts of efforts in terms of the digital divide, which is another area where Greenlining works. A lot of times Broadband adoption in a household will kind of start through the kids, and maybe to the extent that a household needs to respond in terms of energy savings and energy usage, youth may be a good way of getting in there.

But I think we have to break out of the economist and the analyst mindset that a price signal is going to do it because a price signal assumes that we are all

economically rational actors and, I don't know about you guys, but my credit card bill does not indicate economic rationality. And I don't think that's the case for many Americans. So, I think we've got to find, really, another angle beyond the one that makes sense to us on paper.

COMMISSIONER DOUGLAS: Thank you. To what extent do you think the CARE Program helps buffer low income people against the effects of rate increases that could come about, as opposed to some of these programs? Is that a sufficient mechanism? Is that under-inclusive? You know, how do you see that interacting?

MS. CHEN: You know, it's interesting that you bring that up. The PUC is in the process of looking at, of course, the CARE and ESEP budget cycles, but also the growing number of disconnections over the last several years, and I think it's obvious that, when the economy goes sour, then there's going to be more disconnections. But what you see in the data is a lot of CARE households being disconnected multiple times, and sometimes even multiple times of the year, so there's a lot of households for whom the CARE discount is enough, and there's a lot of households for whom it really isn't enough.

And so I think we may – if we're really concerned

about making sure that power is affordable, particularly as we go along some of these measures, I think first and foremost we've got to start at the system level, as Dave was mentioning, and look at where we are missing out on some of these overlaps that are going on and sort of paying twice for the same results.

But we also have to take a look at affordability of energy and I think we need to do it more often and I think we need to do it more comprehensively and I think we also need to really think about whether 200 percent of the Federal poverty level is really some kind of magic number because, if you're at 212 percent of the Federal poverty level, you're in rough shape and there's very little assistance available for you. And I think it's those households that are really going to get squeezed the most when it comes to looking at the incremental increases that we're looking at over the next 10-20 years.

COMMISSIONER DOUGLAS: I wanted to ask you if you are familiar with some of the programs that the Energy Commission has funded with various kinds of match and local participation under the Energy Upgrade California umbrella. I think that some of those programs target small business, for example, and have had some pretty good success at reaching minority-owned businesses.

You know, we've funded residential retrofit programs, as well, we've funded a program aimed at Downtown Oakland, commercial retrofits that should be very interesting, or will be very interesting to me in terms of successful ways of doing outreach to, say, for example, the Chinatown in Oakland and engaging people at that scale. I think there is a lot of potential in those programs, there is also a lot of potential to learn from them.

So, you know, we would definitely be interested in talking to you more about some of those program models and various ways of outreach that people have tried in different parts of the State with local government partners, community partners, with nonprofit partners, because I think there are lessons there in outreach and I'm sure that nobody is going to reach everyone and I think that the lower income residential customers probably are the hardest to reach with some of these programs. But, you know, we're very interested in looking at different ways of doing broad-based programs and even possibly developing a fact sheet of what kinds of efficiency measures you can take that will only cost $20.00 instead of $2,000 and, so, sort of helping people with limited means think about what the most effective thing to do with their $20.00 is could be helpful. So,

anyway, we would be very interested in hearing more from you on how we could achieve that.

MS. CHEN: Let's talk further about that. And I think that I would add to your comment, there are a lot of models that are going on in various locations, in various singular locations, that are not only being carried out by State agencies, but also by nonprofits, by utility companies, and I think there is probably a really good opportunity, and maybe now is exactly the time when we need to do it as part of this planning process, to bring all of those best practice examples together and really identify not only what has worked, but what hasn't worked, so we don't keep trying to do that again and again.

But I really like the idea that you mentioned about what can you do, what's the biggest bang for your twenty bucks you can get, if you can spend a hundred bucks, what would be the top ten most effective things you could do? I think those are the kinds of things that would really help to translate this to the customer perspective, now you're thinking like a customer.

COMMISSIONER DOUGLAS: Well, being a customer myself, sometimes I'm called upon to think like a customer, thank you. Those are my questions.

MS. CHEN: Thank you.

COMMISSIONER DOUGLAS: I think the only thing I'll add, just because I can't resist, is that your suggestion of the exercise of explaining to the person on the bus next to you or, for example, your husband, or your mom, what you do every day, and why it matters, is really valuable and I add to it my five-year-old; the two and a half year old, I don't think, is really able to grasp it yet, but the five-year-old occasionally sets me straight. So I agree that it's a really important exercise for all of us to do, just so that we don't get so lost in the world, the special language that some of us have learned to speak, that we lose the ability to communicate.

MS. RAITT: Okay, thank you. Our next speaker is Bonnie Holmes-Gen. Thank you.

MS. HOLMES-GEN: Good afternoon, Chairpersons and Commissioners, I'm Bonnie Holmes-Gen with the American Lung Association of California. I greatly appreciate the chance to participate in this very interactive discussion today, I think it's very valuable, and I'm going to try to move through my comments because I'm realizing that time is moving along here.

The American Lung Association in California has, of course, been a strong advocate for strategies to reduce air pollution and all the health impacts

associated with air pollution, asthma, and respiratory illnesses and other health impacts, and we have been a very strong supporter of AB 32. And we strongly support this effort to integrate the ARB, energy agencies, and CAISO planning efforts and actions to reach our State goals for reducing energy demand, boosting renewable energy, and electrifying the transportation sector.

And I guess I wanted to maybe just start off, just my first point is just framing it again, like there was a document that came out recently called *Health in All Policies*, and our energy policy is "health policy," so I just want to kind of think about that for a moment, that the energy policy goals that we're talking about here are critical to achieve many public health objectives, including reducing exposure to criteria pollutants, reducing our GHG emissions, increasing community resiliency and ability to adapt to climate change. And the public health burden of air pollution is, of course, placing a huge cost burden on society in addition to the public health emergencies and the tragedies that result. And there's been various efforts, of course, to place a price tag on the cost of the public health burden of air pollution. The Lung Association just did a report just focusing on what would be the avoided cost to society of just turning over our entire

fleet of vehicles to a mix of vehicles that includes a much greater emphasis on electric, plug-in electric, and advanced cleaner vehicles, and we found a savings of over $7 billion in avoided health and societal cost every year.

So I guess what I'm getting to is that we'd like to see more of a focus and highlight in this document on the public health impacts of energy policies, of the importance of not only achieving our greenhouse gas reduction goals, but also achieving our air pollution goals. And clearly, you know, just meeting our current criteria of air pollution standards is a huge challenge and we expect that we will have even tightened ozone standards coming out in the next few months, even. And all of that, the transportation and electricity sectors, of course, are significant contributors responsible for emissions that contribute to a range of respiratory and heart illnesses. And our efforts to retain our Federal Air Quality standards are really dependent in many ways on the strategies that we're developing to achieve a rapid transition to zero emission combustion technologies, especially in the South Coast and the San Joaquin Valley, I know many of you know all that, but I just wanted to put that out there because that's such an important issue to us and we think there could be greater

emphasis in the document on this aspect of how our energy policies are contributing to addressing these issues, and we would like to see some metrics also in the document to address air quality emissions, greenhouse gas emissions, and specifically we think we can translate some of those air quality emission reduction numbers into public health outcomes, also. So I just wanted to put that suggestion forward.

To the extent that we can measure the reduction in emissions from reducing conventional fossil power use, from increasing efficiency in Demand Response, replacing older power facilities with newer, more efficient facilities, increasing renewables, and those emission reductions can be translated into a positive benefit in terms of improved health outcomes. So we would like to suggest going in that direction, and we would be happy to sit down and talk about more specifically how we could do that. We think that you can demonstrate to the public, hey, by reducing our emissions through these policy means, we're actually reducing asthma attacks, respiratory impacts, heart attacks, and other health outcomes. So that's one focus I wanted to put out for you.

A second theme that's kind of following on a theme, and I won't spend a lot of time on it because it

has been discussed, is we are, of course, very supportive of all of the efforts to achieve our 33 percent renewable energy goal, and a long with that, we think it's important to track the reduction and the scaling down of fossil resources that should occur as the increase in renewables occurs, and we think it would actually be important to set a goal for reducing our fossil power resources, and that there should be a roadmap for how much fossil capacity is really needed and what type to support that renewable energy base by 2020, and a plan to scale our fossil to that level. So I think this is an important need. It's been discussed and we just want to agree that that's an important direction to go and that a tracking metric to track a reduced reliance on fossil and reduced reliance on coal would be a very valuable metric to include in the document.

So another key emphasis, I've got two more points I want to make, American Lung Association has been a very strong supporter, of course, of zero emission vehicles and plug-in electric. Another advanced technology is in the transportation sector and a focus on the 2050 GHG reduction goal requires, of course, a very strong emphasis on this goal and the need for coordination among your agencies to achieve the electrification of the transportation sector. And so I haven't read all the 200

pages in the Appendix from the documents that I read, this is certainly included, but we would certainly like to see a specific list of action items for agencies to integrate existing regulatory efforts to ensure that we reach our goals, and we applaud the million electric vehicle goal that is in the document and we think that, you know, making sure that we're integrating the strategies in the cap-and-trade regulation, the clean fuels outlet regulation, the LCFS, and other strategies, is really important to make sure they work together smoothly to incentivize the development of the necessary electric charging infrastructure. And we also agree with the importance of ensuring that the charging of vehicles is certainly done in a way to minimize the impact on the Grid. That's very important.

And to that end, I'm sure Eileen will talk maybe to some extent about this, but we do think it would be important to have more close coordination of this effort with the Plug-In Electric Vehicle Collaborative. And that role of the Collaborative could certainly be discussed, I would think, in the plan, in the documents that you're putting forward.

The next point is a point about Environmental Justice and I'd like to recommend inclusion of a section on the interaction of climate justice issues and energy

policy and, again, this theme has come up here, but wanted to put this out, clearly it seems to be missing, to me, from the documents and the slides and the discussion today. It is certainly important to identify in this state policy the importance of initiating and expanding programs or projects that would ensure emission reductions, improve energy efficiency, and production of renewable energy in disadvantaged communities to mitigate health impacts associated with air pollution and climate change and, of course, to improve the health and economic vitality of these communities, and I think that's an important addition that should be highlighted, and I think that you should think about a metric to go along with this. I have been thinking a little bit, but need a little more time to address this, but certainly we could talk about a metric to measure reductions in greenhouse gases and air pollution in disadvantaged communities or talk about the dollars committed to energy efficiency and other programs in disadvantaged communities. So I think that would be important.

I also wanted to mention the importance, of course, of a VMT reduction, reducing Vehicle Miles Traveled and our whole effort that's going on to reduce our dependence on single occupant vehicles as another component of our State's energy strategy, and I'd like to

see that highlighted.

So, finally, I think, as was said earlier, having metrics that are simple and easily understandable by the public is really important and we think that if you present metrics clearly to the public, they're easily understandable, accessible, it could be really helpful in promoting public investment in a personal way and buy-in to the State effort, and we hope that you can work hard as we discuss a little bit about making these metrics and this material very clear, easily understandable to the public, and available. Thank you very much for the time to discuss this and look forward to working with you as we move forward. Thank you.

CHAIR WEISENMILLER: Thank you.

MR. EGGERT: Maybe just a quick question, and thanks, Bonnie. I guess this might also be similar to a question I would have for Eileen, as well, obviously the ALA has had recent success with publicizing some of their monitoring and measurement data on city compliance with air quality standards and such, and I guess my question relates to the health-related metrics. Should we be just sort of referencing existing measurement efforts that are already underway, rather than trying to recreate them within this process? And if so, do you have any suggestions along those lines?

MS. HOLMES-GEN: Well, I was kind of thinking, as there was a lot of discussion about grades, that we're really good at giving grades, as some of you know, with our State of the Air Report, but it is somewhat difficult to develop a whole new grading system. I guess my focus was, at a minimum, that we should be able to put out to the public specific information on metrics that people understand, reduce greenhouse gas emissions, reduce pollution emissions, reduce emissions of particulates, and other pollutants that harm public health, and specifically if we could translate that into specific health outcomes, reduced respiratory illnesses and asthma attacks, those sorts of things, that's something very easy for the public to understand and grasp, and see if there is progress being made by our energy policies that affects my health, and I think that's very important to our State goals and to getting public buy-in. I'm certainly happy to discuss new ways of grading, or evaluating buildings, or providing some way to better measure success in other ways on public health, but I guess I was thinking mainly of just getting that very basic information out there that we can calculate as a first step.

MS. RAITT: Thank you. Before I move on to our next speaker, since we are running late on time here, I

would ask the remaining speakers to focus your comments on the metrics and, for any more detailed comments, if you could be so kind as to put it in your written comments to us, that would be appreciated. So our next speaker is Carl Zichella.

MR. ZICHELLA: Good afternoon, everyone. I'm Carl Zichella. I'm the Director of Western Transmission for the Natural Resources Defense Council, testifying today on behalf of our organization and our whole team of people working on renewable energy issues in the State, not just transmission.

I'll try to only touch upon things that are related to elements that we have intended to focus on, and not necessarily things that we overtly support, a lot of that is happening, so maybe we can get through this a little more quickly, and we do plan to submit detailed written comments.

A lot of questions were asked of everyone and a lot of interesting work has gone into this. I have to say that this is a very exciting refreshment, if you will, of this whole energy future process. Leading off, and I should say – before I begin, I just want to say parenthetically, I began my career almost 30 years ago doing low income energy programs for a community-based organization, so I just wanted to say what Stephanie

suggested about outreach going through community-based organizations is a terrific suggestion, they're always hurting for resources, but they really do have their finger on the pulse of the communities in which they operate. So I want to second that on a personal level.

Back to NRDC comments. We think, I'm just going to jump right in here, that we ought to ensure that the scope of the goals focus on the bill savings to consumers as opposed to just focusing on rates.

We think that high environmental performance absolutely needs to be incorporated, but, as Bonnie mentioned, it's not limited to greenhouse gas emissions. We obviously strongly support ambitious renewable energy requirements in the 33 percent RPS Standard and support the proposed update in the energy plan to reflect this requirement. I have to say that an RPS, though, is not the ultimate goal, climate mitigation is our ultimate goal, and if we needed another wake-up call, we just recently got it from National Research Council's America's Climate Challenge Report, which if you haven't seen it, I really suggest you take a look at it, there's not a lot new in it, it's a lot of continued bad news, frankly, about challenge that we face, and it isn't getting easier. We do have a really urgent need to get this done and at scale quickly. There is an equity issue

here for future generations that we have an obligation to consider now, too. And the RPS is a floor, not a ceiling, and climate mitigation is the goal. And in order to reach that goal, we're going to need both distributed generation, as well as central station renewable plants. There's no easy way to do this, all the pieces that we have talked about today are necessary. I realize we don't want to pay for duplicative services, but it's difficult to comprehend over-procurement when we have a need to de-carbonize the largest economy in the industrial world.

We want to second the notion about ensuring that Senate Bill 1368, the Clean Power Plants Law is fully enforced and tracked going to your point there, Mr. Weisenmiller, as part of the Governor's plan. It's not clear that it is being part of that plan right now, and we think that the Energy Commission and the PUC should analyze potential investments that power plants currently own by or are under contract to California utilities that don't meet the standard, and only allow new long term investments in the plants that will meet the standard.

And as far as fossil fuels go, we have an opportunity to re-purpose our natural gas fleet somewhat and, as we do retrofits, to look at retrofitting characteristics of new plants that benefit integration of

renewables. I don't think anyone that I know in my organization says we're going to get off fossil fuels tomorrow, that's obviously not going to happen. But if we can replace some of these Korean war vintage plants with plants that ramp faster, and reduce emissions by up to 90 percent, now we're talking and we need to be considering some of those things, and I'm aware some of the retrofits of once-through cooling plants that are contemplating that in the business plans of some of the companies involved, and that needs to be commended.

We generally support the proposed metrics with some specific recommendations and to follow additional recommendations in our written comments, and we fully support designing these metrics to align with and reinforce the prioritization of the Energy Action Plan. NRDC recommends the State avoid significant changes or long term extensions to the Water Board's policy on once-through cooling and to schedule a phase-out of such facilities. The ISO, the Energy Commission, and the PUC should work together and with other balancing authorities to consider how to minimize the need for fossil coastal plants through better coordination of new and existing resources, and replacement with cleaner alternatives.

NRDC supports the stated metric for electric vehicles, but also recommends that the Clean Energy

Future Plan also account for a more comprehensive set of transportation metrics, including progress towards implementing California's Low Carbon Fuel standard, and the Clean Cars Campaign. Some quick additional comments on metrics. On greenhouse gas emissions, it was earlier said, we wanted to track the trajectory of emissions, and we second that idea. On the System Average Rate, this metric should be modified to reflect what customers truly care about, bills, not necessarily rates, and that the Public Utilities Commission and publicly-owned utility boards focus on minimizing the total revenue requirement over time vs. just trying to keep rates low to minimize the total bill impact, and therefore economic burden on customers. We therefore recommend modifying the metric to be a) average annual bills, and/or b) the total, not average, revenue requirement.

Another metric on energy efficiency, this one is tricky, as was mentioned earlier, to ensure that energy efficiency is sufficiently incorporated into all relevant portions of the plan, as it is the State's top priority resource and should be reflected as such in the Governor's Clean Energy Future Plan.

There have clearly been disputes about how we measure energy savings, however, even the most conservative estimates of impacts, particularly with

regard to assumptions of whether the savings would have happened anyway, show hundreds of millions of dollars in net benefits to utility customers. NRDC strongly supports evaluated savings to determine the amount of energy efficiency we can rely on for clean energy future goals, but we highlight here that there are numerous outstanding disputes over the values determined by the 2006-2009 Investor-Owned Utilities Energy Savings Evaluation that need to be resolved before using these metrics to accurately account for the energy efficiency we are receiving and will achieve.

In addition, the State should track progress of both energy efficiency program and Codes and Standards, since both provide critical cost-effective savings and the two policies are closely linked.

With regard to transmission, in addition to the proposed metrics, NRDC strongly supports considering how policy and process improvements can assist with meeting State goals, as well as adding a metric that identifies and prioritizes system upgrades that facilitate renewable energy integration, opens opportunities to utilize degraded lands for generation and transmission, and maximize system flexibility. There’s a number of these that I think we can get into, but one general point I’d like to make is that these things can save quite a bit of

money for customers, we can get more out of the system, take more benefit from the renewables to help balance resources, and affirm and shape renewables using other renewables, it gives us an opportunity to use the same ability that we would use for in-state shaping to help address variability of imported resources, as well.

I think the point that was made earlier, I'm going to streamline here so we can get through this a little more quickly, the idea about streamlining, how the agencies interact is critically important, it is difficult for people to participate when you have so many different parts of transmission planning being considered in separate venues. I appreciate and NRDC appreciates the efforts to coordinate that we're seeing, I think we can do better, I think we may need some institutional changes to make that happen in a single process, would be very welcome in terms of transmission planning, so we can actually have more effective planning, we can have more effective participation.

There is a metric on this, the metric that is needed about the increased ability to take advantage of flexibility in the system, I think, you know, an example of this would be the proposed Midway to Greg Transmission line in the Central Valley, that line would open up renewable energy development on contaminated, drainage

impaired, or otherwise retired agricultural lands, provide multiple in-state and regional balancing opportunities, and expand the utilization of the Helms Pump Storage Project. Under the metrics that you have for transmission, it wouldn't even appear because it isn't an approved line, it isn't a line that has gone through a certain level of review, and its handicap is mainly that the development interest in this area was late coming, it was one of the last zones to be established in the RETI process, for example, the CTPG has not prioritized this line, but I would argue that this line is of critical value to California consumers and through our goals because we'll get so much more out of the system if we were to make this improvement, we would get access to a lot more resources that we wouldn't be able to get at with lower environmental land use constraints than in other parts of the state. And we would get better value out of the storage resource right now that we can only take advantage of in a very limited way. So, I think we need a metric that addresses the system efficiencies that go into it, and maybe it's a checklist of criteria, if a line isn't on the existing chart of metrics, it isn't identified using those, does a line provide enhanced reliability benefits, enhanced ability to benefit between balancing area authorities in

California, an enhanced ability to use greater access to pump storage, and a greater ability to balance outside of the state, which some of these lines have a greater value for than others. So I think these kinds of lines are overlooked right now in the metrics that you've established here and we should come up with one that actually would value and prioritize such lines in the future.

The question on distributed generation, I think it's a really important point. I think the more important point is let's pick one. I almost don't care what it is, it's going to affect very greatly the planning that is happening across the rest of the Western United States, if not the entire country, that are looking at how we're going to address this issue, as a stakeholder in the Western Electricity Coordinating Council transmission planning process, and the demand side management and distributed generation assumptions that we're using in those processes, having the same exact problem, I think California taking a step to affirmatively define distributed generation would really be of very great value across the board to have an apples and apples ability to plan, and have common assumptions about how much distributed generation we can expect, not only in our own state, but the rest of the markets in the

Western interconnection. I think I'll stop there and we can certainly address many of the other questions that were posed in our written comments, and I'm happy to take some questions right now, and we can come back and address some of these other issues that were raised in testimony this afternoon, in our written comments.

CHAIR WEISENMILLER: Great. Thank you for being here.

COMMISSIONER DOUGLAS: I just have a brief comment. I appreciated your reference to system efficiencies and it sounded to me quite similar to what Mr. White was saying about solving for multiple problems at one time, and thinking more broadly than the one problem that, you know, statutorily we might be here to solve. And so I would appreciate your help as we go forward and try to do that sometimes if it's not always a matter of habit, it helps if people point out those opportunities, you know, in the planning effort around the Desert Renewable Energy Conservation Plan, where we're working with the PUC and the ISO and the Federal agencies, BLM, Fish & Wildlife Service, and around an effort to identify the lower conflict areas for development in the desert and the land use side, working with the local governments to ensure that those are appropriate and acceptable, work with stakeholders,

provide easier permitting in those areas, lower the costs of environmental mitigation, lower the cost of conflict going forward over proposals that otherwise might appear in higher conflict areas, you know, this sort of approach is a savings, but it’s not easy and it’s very different than the typical way of doing things and so people sometimes need to have help understanding how those savings occur and thinking about things differently, and that’s just one example that’s not, I’m sure, the only example, or even the example that those of you around the table who brought up System Efficiencies would jump to first. So, I think it’s a great point. I think it will help us a lot to have stakeholders engaged in helping us see those opportunities.

MR. ZICHELLA: Yeah, just one quick comment on that. I think the electric industry has really emerged and developed as a very siloed industry, to serve compact areas initially, and sort of like adding rooms to the mansion, to create the grid that we have today, as opposed to designing a system to serve broad areas, and it’s understandable why that happened, but it really creates a siloed view of what is needed. Everybody looks at the reliability of their own system, not the reliability of the overall Grid, and the efficiencies that can go along with that. There is a lot less

transmission we would need to build if we operated the Grid in a much more coordinated way. If we are able to get all the balancing areas, our five balancing area authorities in California, to coordinate better, it's just amazing to me that LADWP isn't connected to CAISO. The ability to get more out of balancing these resources, we would need less fossil back-up, the costs are to go down and down and down for consumers because you avoid duplicative transmission, duplicative generation, you're able to integrate more resources with fewer new generation sources, and you're able to integrate innovation into the system better, whether you're using Demand Response as a tool to help integrate distributed generation, well, that's also pretty useful for bulk electricity integration, as well. I think we need to think bigger than our silos and it's not -– you know, we've talk about having the agencies cooperate, but balancing areas authorities need to be given encouragement and even told to do so at times, to do more coordination. And in the west, California is lucky, we have a regional transmission organization called the ISO, the rest of the West does not. So this silo problem really is an issue for us, and the ability to use geographically distributed resources to aggregate variability and decrease the cost of renewable

integration is a huge opportunity we could miss if we're not careful.

COMMISSIONER WEISENMILLER: That was very good. I know one of the things I've been talking to the Governor's Office on is pushing the various balancing authorities to go to intra-hour scheduling on the ties as a way we could try to move forward more quickly than some of the more regional global solutions.

MR. ZICHELLA: Yeah, absolutely. And FERC is going to require that, I believe, soon. We should go to 15-minute scheduling for dispatch, you know, I think California has actually led the way. We have an energy and balance market within our state, there is now one proposed to cross the entire Western interconnection and that, if we were to help participate in, we could really drive a much more efficient system that would economically benefit us, take more carbon out of the system west-wide, which we would otherwise have no control over, or very little control over, and again we're getting more and more and more benefits from looking at this thing as the broader system, and as a participant in a broader energy market and a broader system across the west.

MS. RAITT: Okay, if we could go to Eileen Wenger Tutt, she has a time constraint.

MS. WENGER TUTT: Thank you. I'm Eileen Wenger Tutt, I'm the Executive Director of the California Electric Transportation Coalition and we are an organization that's committed to the successful early introduction and large scale deployment of electric vehicles. Right now, that tends to be our focus, but we really have had a long history of support for electric transportation in everything from trains to lawn mower equipment to Ports. So, with that, I'm going to focus my comments and make them very brief and very focused on really the plug-in electric vehicle component of this document. And I want to say first that it's oddly familiar sitting in this seat. It's comfortable, somehow. So it's very nice to be here and I thank you for inviting me.

What I'd like to say about the electric vehicle world is there are a lot of hopes and dreams around what electric vehicles can do for the Grid and for the safety, reliability and efficiency of the Grid, and I think we need to be very careful as we go forward, I like the simplicity of the metrics that are outlined here, although I'm going to make a little comment because I didn't understand One, but I do think that, as we go forward, I mean, there's all kinds of distributed generation benefits and renewables, everybody has their

ideas about how electric vehicles can meet the desires of whatever organization you're talking to, and I think as we develop metrics with this purpose right now, we do need to keep them relatively simple and I think the cumulative number of plug-in electric vehicles sold is a very strong and metric that is based on information that we already collect, it is easy to find, and it's going to be very useful for an organization like myself to Chairman Weisenmiller's point, what do we need.

This idea of the infrastructure, and I agree with Steve, I don't know that there's a metric here, it's sort of like there is a target and the infrastructure operational capabilities necessarily to absorb one million fully electric and plug-in hybrid electric vehicles by 2020, that's a target. I think that the metric that you use to measure progress towards goal is completely unknown at this point and I can't remember who said most of these vehicles need to be charged at home, but that is really one of the key findings of both our organization and the Plug-In Electric Vehicle Collaborative, of which we are a member and strong supporter. So I don't know how to measure that one, I would put that one aside because I think you can measure the number of chargers that are publicly available and there's an App for that, but I don't know how you would

measure necessarily who puts in home chargers, that might be a little trickier and a lot of people won't even put in chargers, they'll just plug in. So, that one I would kind of set aside for a little while, but one that I think is very very important is how much electricity do these vehicles use and, you know, that's going to be a key part and we aren't actually going to be able to capture all that for the most part because, like I said, people are going to plug in to 120 chargers when they go to grandma's house or girlfriend's house, they're not always going to charge in a way that's separately metered. But we are, in the context of the LCFS Proceeding, looking at how to measure how much electricity these vehicles use and that's how I would measure it in terms of rather, again, trying to build upon and keep this as simple as possible. I would use whatever measurement methodology we come up with in the context of that proceeding and that will be probably some direct metered and some estimation data, but that is an important goal and it is an important measurement metric for this particular effort, given its focus on electricity specifically.

So, then I also had a question about –- I don't know, but I know that we're looking at electricity here,

but natural gas vehicles also have –- I don’t know if that’s an issue that you want to think about, I don’t know that they necessarily fit in here or if this is just simply electricity, but they are an alternative fuel vehicle that has an impact on the availability of a certain kind of energy, although I don’t think it’s quite as significant as electric vehicles, perhaps.

Then, I guess what I would say, finally, is that when Dr. Weisenmiller asked about what do we need in terms of for stakeholders and for those of us who are trying to successfully transform a particular market, I just want to sort of echo what Bonnie said and I listened to a story this morning and Gina McCarthy from USEPA was quoted as defending the USEPA efforts to clean up the environment in many ways, and they’ve taken on this idea of monetizing the benefits associated with different programs. And to the degree that is possible, and I think Bonnie’s organization did a fabulous job when it comes to zero emission transportation, that is an incredibly powerful metric -– to Stephanie’s point -- people can relate to children and adults with asthma and the impacts on the elderly of air pollution, and the impacts of greenhouse gases.

And so those kinds of numbers are very powerful and, to the degree that we can do it without going

overboard, and I'm going to quote my friend who is now gone, but Stephen Schneider, who once said to Mark Delucchi, the famous Monetizer, he said, "Damn it, you've monetized the world and you've determined that it's not worth saving." So, you know, we do have to be careful, I do think, at least in my history, that those kinds of assessments where you look at the damages to people's health and the costs associated with those damages, they touch people in ways that terawatts or all these numbers don't. So, with that, I really again thank you and I am going to look at this more carefully and provide some written comments, as well.

CHAIR WEISENMILLER: Thanks for your comments. I think one thing we've struggled with is that certainly the Air Board has a lot of those metrics in its website, or certainly I think the PUC and its website has a lot of the metrics on reliability or safety, and the question part is how much do we pull those in here and, so, it's good to get the feedback, but, I mean, that is the struggle between what some of the agencies are tracking and how much to pull that in. I'm sure the ISO has its own sets of things that it's tracking.

MS. WENGER TUTT: Well, and if I could just respond for a minute because Deputy Secretary Eggert asked me a similar question and I think, on some level,

there are metrics that organizations like myself, my organization and other organizations, are tracking, and I, at least with regards to plug-in electric vehicles, I think we kind of need to be careful about what metrics you need for this particular process and not over collect on some level, so that's kind of a concern that I have in that, yes, we are as an organization collecting quite a bit of information, but I'm not sure it's very valuable for our members, but I'm not sure how much it's valuable for this effort. And then there's also often sensitivities around certain data that I know you're familiar with.

MR. EGGERT: Actually, I think you made my point and CEC is also collecting through the ARRA sponsored Infrastructure grants, and that's an enormous amount of data that is required as a component of that funding. And I think what we hope to gain from that is at least a better understanding of what types of things we likely will need to know to assure that these things are having a positive impact on the Grid. So I think we're going to learn a lot more through that data collection, which is fine grained and detailed, and at a much finer level of detail that would be necessary for this effort.

CHAIR NICHOLS: I think we've identified attention that exists between the kinds of data that the

agencies need for their own purposes and the kind of data that it might be actually useful or relevant to the public that is trying to evaluate what's going on in the State of California, we're all looking for ways to simplify and do more with less, so creating a new website, or a new publication, or a new set of data, that involves taking stuff that already exists and repackaging it, or repurposing it, brings with it both opportunities for error and also opportunities for expending money on something that might later not be judged to be all that useful. And, you know, that's really one of the main reasons for engaging this group and others as we go forward, we are committed to -– I think I speak for everybody on the panel and those who had to leave -– to improving the integration of our efforts through things that we track and measure internally, and you've given us a lot of good suggestions, I think, just for that purpose, as well, ways in which we have not necessarily really been properly capturing or measuring things that we need to know to do a better job of that. But that always immediately, at least in our organization, leads people to say, "Oh, boy, a new website!" And new opportunities to publish more data. And I think we want to be cautious as we venture into that realm because there are many many opportunities to generate new kinds

of reports that might look good for a while, but then either turn out not to be very useful and then very difficult to stop because you did it once, or twice, and now you've got a data series that you're changing, you know? And also difficult to measure how the public is really utilizing them. So, just know that this is information that I hope we're going to take in and do some more processing around before we just jump into creating some new tool.

MS. RAITT: All right, thank you. Our next speaker is Valerie J. Winn.

MS. WINN: Hi, I'm Valerie Winn with PG&E and I'm their Manager for Renewable Energy Policy and Planning, so I've been focused a lot the last few years on how do we get more renewables on line. But I think, today, what actually I'll do is channel my colleague from Greenlining and ask the question of, you know, we have about 11 different metrics here, and people have proposed additional metrics, but if I had to say to my neighbor, to my mother, "What is California's clean energy future?" Do I have five words for what that is? Is it reduced greenhouse gas emissions? Is it more renewable energy? You know, we have a lot of different programs, but what are they all contributing towards? And I think actually helping to focus that message for customers would be

really helpful.

There are many good things in the presentation that was given today with respect to how can we measure progress on individual goals, and it certainly can't be a static process, as we were saying, this is going to be changing often as we get new legislation, as we get more ideas about how can we achieve these goals and how can we do it at a reasonable cost for customers.

So a few things just to add to the discussion, certainly simplicity, you know, what is our goal and, then, how are we tracking things to get to it. But more importantly, and I think my colleague from IEP mentioned this, are we dedicating the right resources to the program so that we can achieve the goals? We've made a lot of progress over the last few years with the Desert Renewable Energy Conservation Plan, and that's been a great stakeholder process trying to identify all the different environmental constraints to developing in the Mojave and the Colorado Deserts, how can we expand that so that we can give more certainty to developers, that they'll be able to get their projects built and help lead to this clean energy future.

Another issue we might want to consider is, do we have all the agencies involved who can help us achieve that future? Certainly, the Department of Fish and Game,

Fish and Wildlife Services, Federal agencies, are all part of how we get to this clean energy future, and how are we collaborating with them upfront so that we can put more streamlined processes in place and reduce duplication. Those are just some of the thoughts that I have today; we'll be submitting more comments next week.

On the specific metrics, some have commented already on the system average rate and I think what might be a more meaningful metric there is not the system average rate, but maybe looking at it more along the lines of our rate design that we have in place today. No one of our customers actually pays our system average rate, so that's perhaps not the most meaningful metric there might be. And with that, if you have any questions, I'll be happy to respond.

CHAIR WEISENMILLER: No questions, thank you.

MS. WINN: Thank you.

MS. RAITT: Thank you. Our next speaker is Mark Joseph.

MR. JOSEPH: Thank you. And thank you for the invitation to address you at the very near end of the day. I'll pick up on the suggestion to look at the rate of change and trying to keep going, the rate of change and the length of the comments, so my comments will be fairly short.

I'm here on behalf of the California Unions for Reliable Energy, which is a coalition of three Unions who will be heavily involved in actually building much of what the California Clean Energy Future plans. In its campaign, Governor Brown did not have a Clean Energy Plan, he had a Clean Energy Jobs Plan, and yet there is on metric proposed here that's in any way related to measuring the jobs impact of the plan. Governor Brown said investments in Clean Energy produce two to three times as many jobs per dollar as gas, oil, or coal, and dollars invested in clean energy tend to stay in California instead of going to other states or other countries. On his campaign website, then Attorney General Brown said, "Brown's plan sets a goal of 20,000 megawatts of renewable energy, as well as key investments in innovative efficiency technologies by 2020, which will create close to half a million jobs." Well, maybe he was right, but we'll never know if we don't measure it.

And measuring jobs is a benefit that is much much easier to monetize than measuring much of the other things. There's huge potential, and I'm sure you all know this, there is huge potential in renewable power plants for creating jobs. One quick example, the one renewable utility-scale power plant currently under construction, the Ivanpah Plant, right now, today, this

week, there are 335 construction workers out there, on the way ramping up to 1,200 workers for two years. We're looking at a construction payroll -– just construction payroll –- of $250 million, and four million hours of work, and that's all for a plant that's less than 400 megawatts. You know, do the arithmetic, stretch that out to 8,000 megawatts, and we're talking enormous potential.

Same story in energy efficiency; done right, it requires high skilled craft workers, electricians, air-conditioning mechanics, sheet metal workers, huge potential, it's very labor intensive. Carbon capture and sequestration, it requires lots of high skill construction workers, building a gasification plant and a power plant, tremendous potential. The natural gas plants, the high efficiency natural gas plants we will need to support renewables, again, lots of jobs there. And the transmission lines that we're going to need to integrate all of this, lots of work for high skilled, highly trained people. And yet, of course, the plan doesn't have any systematic look at which of the various policies will create more jobs and gives no consideration at all, of course, of what the quality of the jobs are that will be created. Not all jobs are created equal. Not all jobs are career enhancing, some of them are just one-shot jobs.

Many of these jobs, we hope and expect, will be Union jobs for high skilled mechanical crafts, where people will have middle class wages and they'll have health care, and they'll have a pension, and as important as all that is, for the State's purposes, they'll be training people for careers. When you train to be a career electrician, you're not just learning how to snap a PV panel onto a rack and move on and snap the next panel onto the rack, you're actually learning a skill and a skilled work force is the basis for future prosperity for the State.

Now, it's important to measure these things and important to focus on these things, and important to be sure that these things happen because there are those in the industry whose business model is taking people off the street, paying them $10.00 an hour, giving them no benefits, very minimal training, and trumpeting all the green jobs they're creating. The State should care about whether we're creating good jobs or we're creating Wal-Mart jobs, it makes a difference. We want high road jobs, we should be less interested in low road jobs.

So we need a metric, or a set of metrics to measure job quantity and job quality that we're creating. Lord Kelvin was right, it's the only way we're going to have any hope of focusing on getting it right is if we

measure it. Obviously, it's the right thing to do, to focus on jobs for many reasons, there's nothing more important that you can do for someone than to give them a good job. And there's nothing more important to helping the State Budget crisis, which I know all of you have to be focused on all the time, than creating a lot more people with good paying job, who will be paying income taxes, and property taxes, and sales taxes, and having the huge multiplier effect when they go out and buy things. We have this potential, the money is going to come in, it's going to be mostly private capital, it's going to be doing this investment, and we can harness this and do it right and get the most bang for our buck if we measure it and focus on it.

And beyond all those reasons, focusing on job quality and quantity creates a political constituency for this very aggressive agenda. You know, it's not just what the plan costs, it's what we get from it that will help determine whether this is successful or not. And it's important not just for California to achieve all the things that are set out in this plan, it's important for us to set an example for other states who are less progressive and who don't have this in mind. You know, every state wants its Silicon Valley, and they don't want it just because high tech is cool, they want it because

Silicon Valley is a tremendous economic growth engine. This is exactly the same thing over again, we can do this right, we can create a huge economic growth engine that all of the other states want to emulate, whether or not they believe in global warming, whether or not they care about air pollution, they don't have to care about any of that, everybody wants jobs. And if we focus on that, we will achieve much more than just doing this for California, we'll be doing it as an example that other people emulate.

And with that, I will wrap up with one small note, I'm sorry she had to leave, there are actually three apps for finding chargers, and all of them agree, there is not a single public electric vehicle charger within walking distance of the Capitol, so far we're batting zero.

CHAIR WEISENMILLER: Just trying to figure out if the apps were made in California or not. Thanks, Mark. While you came at the end, you really did cut to the fundamental or the basic questions, and so we do need to figure out a way on tracking the jobs. So, obviously, we're trying to do training programs, too, so that's the other element of things we need to be tracking.

MR. JOSEPH: It's really not that hard. We can track job years created, we can track number of jobs

which are at prevailing rates, and we can track apprentices in State certified apprentice training programs, all that data exists, it's not hard to get, it's not ambiguous or uncertain, it's all straightforward and available.

CHAIR WEISENMILLER: Well, and certainly, I'm sure if the staff have further questions, they can contact you for some data sources.

MR. JOSEPH: Absolutely.

COMMISSIONER DOUGLAS: Just a brief comment. I also appreciate your comment, of course we need to be tracking jobs. We've actually got some experience with some of that, given the breadth of Recovery Act programs that we're administering and the job reporting obligations that come with it, although I think that I can guess already that, you know, we'll look at it and we'll think that, in some cases, the tracking was appropriate, and in other cases, you know, we might have used a Federal formula that actually is off by some amount given conditions on the ground in California, so we'll want to be able to true that up and, to the degree we can, we will. And then, the question of job quality is going to be relatively easy maybe in some cases and relatively challenging to get in other cases, especially if we look at, for example, activity that might have been

directly or indirectly generated by a program, and so not all of this is straightforward, but it's very important. So, you know, certainly we really appreciate your help in thinking through how to reflect jobs created and types of jobs created. I guess from the vantage point of looking at approaches on the Recovery Act reporting, in some cases it's very straightforward and, in other cases, it's not as straightforward, it's not as easy, but important.

MR. JOSEPH: But probably easier than measuring the effectiveness of energy efficiency measures.

COMMISSIONER DOUGLAS: Well, it hasn't been litigated to the same degree. But, you know, at times projections and assumptions need to be made, and so that always gets a little bit sticky.

MR. EGGERT: Just a quick -– this is a great discussion and a very important one, and it made me think of another more of a macro-economic measure that I know the group NexTen tracks, which is the amount of gross state product per unit of energy in which California competes quite well. Those are two also very easily accessible metrics and, I believe if I'm remembering correctly, California is about 70 percent above the national average on that one. Another one to consider on that one.

COMMISSIONER DOUGLAS: That's a good point. And

obviously the State has had longstanding goals to displace petroleum and to move to alternative fuels, as well as the goals we're articulating here to move towards a clean energy system and the different elements that that involves, so certainly displacement of traditional fossil fuels with either efficiency or different forms of energy, whether it be sort of some of the bioenergy options, or the solar and wind and other forms of renewable energy, those, as you said, have the effect of keeping investment in state and keeping some of this production in state, so that, I think, is a way of understanding the broader benefit of some of these programs.

CHAIR WEISENMILLER: Yeah, I would note, I think it was today, the Energy Information Administration noted that renewables have bypassed oil in the U.S. and particularly pointing to having said that it's the general on how much California is also pushing forward on the renewable front. Everybody is starting to change the needle in many respects.

MS. RAITT: All right. The next speaker is Carl Silsbee. Thank you.

MR. SILSBEE: Thank you. And thank you for your persistence. Let me start by offering my support for the efforts that the agencies have taken in attempting to

collaborate in the CCEF. I tend to be a quiet speaker, so I'm trying to talk loud, but hopefully it all works.

We get pulled in a lot of different directions by different agencies and it's very meaningful for us to see the agencies trying to work together to collaborate on what is the right overall strategy, so we don't get pulled in incompatible ways. We're also very supportive and pleased to see you initiate a stakeholder process. And despite the length of the input that you've received today, I hope you will continue to look for stakeholder input through the development of refinements to the CCEF. I guess you can treat today as pent up demand.

At a broad level, it's important to recognize that the CCEF roadmap needs to be a vision document, and not an effort to implement any form of centralized planning. There are way too many significant interactions in these different goals to simply adopt rigid trajectories and then pursue them without regard for the interaction and consequences. And I had a quote from page 2 of the CCEF, but in the interest of time, I won't quote it, but if you look there, there's this recognition of these interactions and the risk of failing if we aren't flexible in implementation.

And let me give three examples because I think it's important to understand what I mean by these

interactions. We're seeing that the deployment of solar generation technologies over the next few years appears to be shifting the peak reliability period from the mid-afternoon to later in the afternoon or into the evening because of the heavy contribution of solar at times when the air-conditioning peaks. This has consequences for the value potential for traditional forms of Demand Response because many of these programs target air-conditioning. So you have two potentially incompatible goals set up in these various metrics.

Another one is the CEC efforts to reduce parasitic plug loads from electric chargers, and the movement to the solid state chargers. Well, that reduces –- it's a great program, it reduces a lot of off-peak load, which lowers the value proposition that wind energy provides because wind tends to produce more in the night time hours, and may contribute in the future to wind curtailment and undermine some of the RPS objectives.

A third one is the increased vehicle electrification. If we don't get appropriate cross sector attribution of the impacts, it could result in shifting additional compliance burden to the electricity sector. Again, a conflict between two of the different goals that have been set up in the metrics.

So with all due respect to Lord Kelvin, it's not

just simply a matter of tracking the data, but I think it's equally important for us to understand as best we can the equations that connect these different pieces of data, so we understand those interactions. Any rigid adherence to proposed goals, no matter how thoughtfully we develop them at the outset, is going to be doomed to failure.

So, I'm not suggesting that we not track metrics, I think they're an important building block, but what we have to understand is it's important for the affected State agencies to recognize that there are three fundamental goals to resource planning: reliability, reasonable cost, and environmental sensitivity. And that the specific targets that the agencies would develop need to be subordinated to a balanced approach to address all three of those resource planning objectives. A key thing is to use the metrics to create a dialogue amongst the agencies, to encourage interagency compromise, and to create paths into the future that make sense for all of us.

Let me turn to two specific things, energy storage and GHG. There's a proposal in the CCEF for 1,000 megawatts of energy storage. Well, energy storage may very well prove to be an extremely valuable tool for addressing renewable intermittency, and resolving some of

the renewable integration problems that we are projecting over the next five to 10 years. But it may very well be that the appropriate performance metric isn't megawatts, but the ramping rate or its flexibility. If you adopt a goal based on megawatts, you're going to encourage the least cost dollar per megawatt solutions, which may not be cost-effective, or particularly useful for solving the problems that storage is there to solve.

One of the things that we've advocated is to impose the cost of renewable integration on the renewable technologies that are causing the integration needs. This isn't being anti-renewable, it is trying to create accountability at the point of the project developer, so the developer has the incentive to find the most reasonable way to address renewable intermittency and has incentives aligned and consistent with what's of best interest for the State. This is an instance of what I call "Demand Pull," not "Supply Push." I will note that the CCEF Overview does endorse dispatchable renewables and the idea of imposing costs on those who cause the problem is a good way to get there.

Let me turn to GHG. First of all, I'd like to applaud the recent delay in cap-and-trade implementation, which I view as ensuring there's enough time to get it right. This is not something that we want to rush into

and not get right out of the box. Having said that, I'm very concerned with the GHG metrics that are being proposed in the CCEF because they all target the electricity sector. As I mentioned a minute ago, there's an interaction between other sectors such as transportation fuels and the electricity sector, and if all we do is focus on the electricity sector, we're going to miss the broader public purpose objectives of AB 32. Let's say that electric sector GHG goes up and it goes up substantially because the electrification goals vastly exceed what's in the CCEF; I would argue that's not a bad outcome, and yet it's adverse to the way the metrics have been constructed.

Finally, let me observe that the performance metrics that you've suggested are all, by their nature, lagging indicators. The reason for this is that the actions we take today are going to take five to 15 years to come to fruition. It makes sense to look at the metrics in an overall policy context, not in a sense of "did we hit them this year?" I also think that the IEPR, or some process like that, that occurs on a bi-annual basis, and has a policy focus, is the right way to periodically revisit the metrics, not simply to say, "Did we get there?" But I think the dashed lines on the charts are probably more important than the solid lines

in that they're a statement of where we expect the future to be. So I would encourage you to think in that manner.

Finally, what's important to us is that this process that the agencies have undertaken be performed with some reasonable level of transparency. We'd like to see some kind of stakeholder communication plan described and articulated that lays out what the work plan is for moving forward, gives us an idea of when we can make appropriate input into the process, and gives us some insight into the agency's thinking as the CCEF evolves. So, with that, thank you very much for the opportunity to address you.

CHAIR WEISENMILLER: Thanks, Carl. You've raised a number of interesting issues. I think the first one I was going to say, when this process started, certainly before I was here, and probably would attribute a lot of the initial impetus to Yakut and Mary, trying to pull this together, and certainly given that combination, the CAISO, as you know, very focused on electricity, so this whole effort was very much around electricity or things that affect the Grid, and people have noted there's really not much on natural gas, there's not much on a lot of the broader transportation issues, and we've sort of struggled with that. But, again, in terms of the four agencies we have actively involved at this stage, it

tends to be very electricity focused. Now, we may also develop different venues for a different set, or we're struggling, but we realize it has that specific focus.

The other thing, on the fundamental part, obviously you're more Southern California electric utility focused, I guess one of the messages that really has hit all of us in Northern California, is that safety is important, you know, and so that's, again, in terms of how we keep track of that is an issue, but in terms of fundamental sort of why we regulate, it's not only reliability, but safety.

MR. SILSBEE: And I agree with that.

CHAIR WEISENMILLER: Yeah. The last thing I was going to mention was just I think the other thing that comes out from this, although, again, we're trying to deal with the things one could measure, but the other things we're struggling with is trying to figure out what are the things that are very fundamental in terms of having fundamental impacts on the system, as opposed to the things we can easily measure. And so, to some extent storage could be a real game changer in terms of the whole electric utility system, if we can figure out how to do that in the right way and, again, struggling a little bit as we go through what we're tracking or trying to do to try to keep track of also what's really

fundamental, as opposed to things which are important, but not as much of a game changer for this industry.

CHAIR NICHOLS: I would agree with that, although I think I heard something a little bit different, at least at the beginning of the testimony, which I would like to ask if I understood it correctly, which is a suggestion that, you know, in addition to whatever we may be measuring for our purposes of evaluation of programs and progress, and so forth, that we really need a kind of a overarching set of things that we're measuring that directly relate to the big goals of the California Energy future document, and that would be the way to integrate. And so I guess in the world that I come from, there was a fad a number of years ago, which has kind of gotten pushed aside recently for environmental indicators, but the concept, rather than just measuring your progress against an emissions standard, or even an air quality standard, would be to look at what is the state of the environment that we would like to achieve, and then what are going to be the things that we measure to see whether we got there or not. So, I'm seeing some head nodding with recognition there, but are you in a way sort of asking us to do a better job of developing some indicators or metrics of how we're doing, as against our larger goals for our energy system?

MR. SILSBEE: No, it's a slightly different sense than that. If I look at the CAISO, they are statutorily obligated to achieve grid reliability and the PUC is obligated to assure reasonable rates.

CHAIR NICHOLS: Right.

MR. SILSBEE: The two agencies by virtue of that charter have different perspectives on this balanced nature of resource planning. They'll argue, you know, in the absence of the other, for tilting the triangle, if you will, towards what is important for them to carry out. And what I'm saying is this collaboration process needs to recognize that there are some checks and balances here and it's important for the agencies to work together to find that balance point among the interests of the individual agencies, not that I'd want to go out and measure reliability or cost per se, but that we need to understand that we all walk into this room with different objectives. And what we need to come out of this room with is a plan to get to the right place.

CHAIR NICHOLS: Right. Well, that's another also very interesting point.

COMMISSIONER DOUGLAS: Although I guess I would say that's probably why we're here, because we do have different, as you say, different primary mandates in some of the different agencies here, so you've got the ISO

responsibility, the PUC with the responsibility over the costs, and the ARB with a very strong climate and air quality responsibility, and the Energy Commission with reliability and environment and policy, and so I think the fact that we are all here and that we have decided that it is important to invest scarce time and resources in developing a plan for how we're going to work together to achieve California's energy goals is a reflection of the fact that we believe that, left to our own devices and our own silos, we will, if not frustrate each other, at least not help each other enough to get there. So, I appreciate that point and I think that's why we're here.

I did want to quibble, if I might, with your battery charger example. I really appreciate the support of the utilities in much of the Energy Commission standards work, but I would say that every bit of electricity that's not drawn by wasteful devices ought to just be off the system and that's our first priority, and if it means that the wind power is not being uselessly, but safely, discharged through wasteful devices at night, that's all the more reason to move forward with storage and I think that you will agree with that. But I did want to –

MR. SILSBEE: Yeah, I certainly do, it's just that it's the interaction point that, if we have an RPS

Standard to achieve, it becomes harder for us to achieve that with the wind because of the lower night time lows and it's just a conflict between the metrics. And I fully agree, taking wasted electricity out of the system has got to be the number one priority.

COMMISSIONER DOUGLAS: Right, and I appreciate that. And I do know that the metrics interact in sometimes interesting ways, and my first thought is that lowering the amount of electricity used helps us directly and immediately with achieving the Renewable Portfolio Standard; you're raising an interesting wrinkle, which is that if we waste less electricity at night, then that could change the equation for wind, but I guess I will express the firm hope and desire that we're far enough ahead of the game with storage and other measures at that point that we put that wind power to great and effective use.

Let's see, your comments did, to me, underscore the importance of flexibility and underscore the importance of us having a forum where we hear from stakeholders together, so that we can talk about how we would respond if we meet all our energy goals, but, whoops, we're so far ahead in electrification that load has grown, so, you know, ARB, what does that look like in terms of electricity vs. other sectors? And, you know, I

think that all of us are willing and able to have that discussion should that very positive scenario emerge. So, anyway, I guess the only thing I have to add is that you have an interesting point in terms of raising the fact that many of our indicators are lagging indicators, and certainly the Recovery Act work and reporting we do has made me acutely aware of the pain of lagging indicators, so I don't know if there is anything to be done about that. There are good reasons for measuring the effectiveness of an approach after that approach has been carried out, but if there are ways of hedging that to some degree with some real time indicators, you know, I think that some of us would be receptive in terms of thinking through what that might be. So, thank you.

MR. EGGERT: I'll just briefly build on that. I thought that was a really interesting point with respect to how do we account for the fact that we're generally looking in the past, but one of the charts that was used that I believe was coming out of the DRA Report on the RPS contracts has this interesting differentiation by basically defining certain milestones that are achieved to allow you to both look at, you know, what the anticipated growth and renewables generation might be, and where those things are at in their approval process, all within a single chart, which I thought was a really

nice way of pulling forward some of that information in time.

And I just also wanted to make a comment about your GHG reference and I think that you are correct in that, you know, if there is potentially a shift for the vehicles from petroleum to electric, that is a benefit to our GHG goals and that's fully recognized within the policies like Low Carbon Fuel Standard. And I think it might be worth, if we haven't already, sort of differentiating where the GHG dotted line is really just a projection based on information vs. a specific target for that particular sector, there isn't one that I'm aware of, and so I think there is still value in tracking the sectors specifically in terms of its GHG performance, but it's different than, say, the absolute greenhouse gas goal that we have under the totality of all sectors within AB 32.

CHAIR WEISENMILLER: Great.

MS. KOROSEC: All right, I would like to give an opportunity for those who have hung in here throughout the day to make any public comments. If there is anybody who would like to speak, please just line up here at the mic and we'll take you one at a time. Please state your name and affiliation.

MR. PINGLE: Thank you. Hello. My name is Ray

Pingle with Sierra Club California. I've got a few just brief comments. One is on the Renewable Energy Report, we would request and recommend that that also have a section reporting progress of targets by program, so how is the SB 32 program doing vs. the RAM (phonetic) Program, vs. CSI, and so on. And that way, target which ones are doing well, which aren't, and which ones need some help. Secondly, on the report on OTC, we would recommend broadening that, re-titling it to something like "Changes in Non-Renewable Supply," so then, under that, you could have "OTC: What's Happening with the Repowering or Replacement…" of those. You could have "What's Happening with Coal," "What's Happening with Nuclear," "What's Happening with Retirement, Repowering of Other Natural Gas Plants," that type of thing. And then, another thing is, if one of the objectives of this whole process is to identify where things are failing, so that you can take early mid-course corrections, I think we need to have something in the report about what's going wrong, why those things are going wrong, and what can we do about it. And two areas that might help in that is to look at a project failure rate, what generation projects have been proposed, but failed? And why have they failed? And I know the PUC does track some of that, but to give that visibility into this report.

And then, one last thing is in that area and this would be a little more difficult to create, but a “Removing Barriers to Generation Report,” and that could be, you know, you could take pieces out of the SB 17 Smart Grid process to look at what is the percentage of substations that can support two-way electricity flow vs. a target, for example. Or you could take some of the key things out of the Re-Deck (phonetic) Report, just high level reports for this level, of what’s the status, how long is the interconnection queue, some basic things like that. So those are my brief comments and, again, I think this is a wonderful effort and you’re doing very well to all work together in an integrative way. Thank you.

CHAIR WEISENMILLER: Thank you.

MR. WHITE: Thank you very much. Chuck White with Waste Management. I had about an hour and a half of things I wanted to discuss, but I’ll try to boil it down to two minutes. Waste Management is involved in developing biomass energy, we’ve got about 100 megawatts that we’ve developed in California so far, and there’s a lot more potential out there. We’ve also developed 13,000 gallons a day of renewable natural gas from landfill gas. These are the lowest carbon fuel sources you can get from biomass. And my point today was, I was really surprised in reviewing the documents, including

the existing Implementation Plan, I did a search on how many times waste biomass is referenced and it's less than 10 times, only around one paragraph related to wastewater treatment plants. Bioenergy is used once in the entire report, with a brief reference to the Bioenergy Action Plan, and biomass isn't mentioned at all. So, I guess what I would ask is that, as a metric, you give consideration to tracking biomass energy sources. The Energy Commission does have a Bioenergy Action Plan, it calls for 20 percent of renewable energy to be provided by biomass. As this gentleman here indicated, I'm not looking necessarily for strict adherence to 20 percent, but it would be good to make sure that this plan recognizes that there is a commitment that California has made in the Bioenergy Action Plan, to get as close to 20 percent as you can, and it's helpful to monitor that as part of an overall energy framework, to really show how we're doing in approaching and maintaining that 20 percent of the renewable, and there's a variety of reasons related to that. Right now, the existing biomass plants are under extreme fire from the investor-owned utilities in terms of the rates that they're willing to get. If you put a new renewable energy plant in, you can get $.10, or $.11 a kilowatt hour. Somebody's existing biomass plants are being offered only $.5 a kilowatt hour

because they're in chances of shutting down, and thereby further reducing. And the reason you want to include, I think, biomass energy is they are a good baseload demand source of energy that you can basically adjust and move around where other sources of renewables are not necessarily quite so flexible as biomass. So, again, I would just urge that there be some kind of metric in the overall plan, looking at biomass energy resources. California is only using about eight percent of its technically available biomass potential from municipal solid waste, from agriculture, and from forest. And there's a bunch of secondary and tertiary benefits. From municipal waste, you make maximum efficient use of it, you reduce the reliance on landfills; from agricultural waste, you reduce water quality impacts, from agricultural waste, if you're able to convert that into energy; and forest waste, you maintain the health of the forest by getting rid of burnable materials that are waste materials in the forest if you do it in an environmentally sensitive way. So I'm just saying, there is a whole bunch of collateral benefits on really focusing in on biomass energy and I think it should have a role to play in this overall Clean Energy Future framework you're developing. Thank you very much.

CHAIR WEISENMILLER: Thank you.

MR. COHEN: Hi, my name is Ted Cohen. Thanks for the opportunity to speak with you on this topic. I'm sorry, I'm from the Clean Coalition and we're a nonprofit advocacy group focused on local clean energy projects. My first comment on this, and I'll try to keep these quick also, is before we get into the metrics on the report, the loading order as it is expressed in the report already has a bit of a flaw in it in terms of how it defines DG, so, at the moment, the loading order is expressed as energy efficiency, renewable energy, and DG, suggesting that DG is not renewable energy. And the renewable energy is assumed to be the large-scale stuff. Then, wholesale DG is actually placed in the Energy Demand section of the Clean Energy Futures Report, rather than the Energy Supply section, where it actually is more appropriately placed in the Energy Supply section, and compared against large central station. So, in terms of just framing your priority loading order in your decisions about -- your strategy for your portfolio, wholesale DG, the system side of the meter vs. retail DG, is an important distinction that should actually be corrected, I think, in the loading order before we even talk about metrics, about how we're measuring where we're going. Then, the next distinction I would like to make in this discussion today is a lot of the discussion today

was about simplifying metrics for the purpose of being able to communicate them and make them very accessible to people. The other goal of the metrics, though, was metrics that are actually useful for knowing when you need to course correct, which may be a different set of metrics than the ones that are more communicable. And so, to that point, about the ones you need to understand, to know whether or not you need to course correct from a policy point of view, I think there are three major areas in which the current metrics are lacking in that particular area. The first one is a measure of risk, and the idea of, if we look, as people said here on the panel, the portfolio of energy solutions for our future is a portfolio, and it’s an investment portfolio that we are investing our time and money as California citizens in, and the agencies are, in effect, Portfolio Managers, managing where this money is getting invested. I could ask my Fidelity Portfolio Manager any time what my risk profile is of my portfolio investments, and at the moment in the RPS, and in the way we’re doing our energy future, I can’t ask that question. I can’t get a good answer on what is the risk in the investments we’ve made. And to the credit of the DRA with that report about the milestones of the portfolio, that’s one way of characterizing the risk of the current portfolio, but it

isn't a very accurate way of telling you how likely you are to actually get the energy that you've invested these contracts in. And a good example of a metric that is available for that, as the utilities have already said, the IOUs have already stated, they actually measure that risk assessment on their projects internally on almost a monthly basis, so they understand where their contracts are going. So if that information was available to everybody, then we could all see the risk portfolio for what we're investing in. The second important thing that is missing in here is also the process risk, or the process issues of what we're investing in today, also, so if it's metrics around, for example, interconnection, and this was mentioned also before. If we were measuring interconnection and the processes, how much time it takes, and the risks involved, with interconnection of our investments right now, I think you would say we need a mid-course correction right now. You would already know that that needs to be fixed from a policy point of view. And the third thing which was also brought up by Mark Joseph also on the economic benefits, not just the jobs created, but also the market maturity. So, as an investment in California, as a California citizen, I'm investing in the market maturity of the clean energy market in our state, and the development of the market

and jobs and companies in state manufacturing and those kind of metrics also, and whether or not we're actually investing in a way that's actually bringing costs down over time, so are we investing in a way that is bringing down our energy costs in the future, so metrics around that would also be really useful to me as a ratepayer and as a citizen, also, and it should be also tracked in order to understand whether or not we're actually making the right investments and whether we need to change course. My last comment on this is just there are a lot of questions around DG, about definition of DG, and I think there is actually a really easy definition of DG, and it's a definition of DG that is useful for policy. Whether that's the right definition doesn't matter as much as whether it's useful for policy. And that really comes down to jurisdiction, so from our point of view, and in terms of policy where we do, DG is – the definition of DG vs. Central Station is really based on CAISO vs. the utilities and who owns the Grid, where they connect, and wholesale vs. retail, which is which side of the meter. And then that's relatively clear, relatively straightforward in understanding like the metrics for each of those different market segments. Thank you.

CHAIR WEISENMILLER: Thank you. Any other comments?

MS. KOROSEC: We have nothing online or on the phone.

CHAIR WEISENMILLER: Okay. So closing comments. And it will be very very brief, no 45-page slides on this. I certainly would like to thank everyone for their participation today. I think one of the things we were trying to do is, obviously this document came out last fall, it reflected a lot of work on the part of a lot of people in the agencies, and I think it was a very good step forward in terms of, as we said, trying to take the existing policies and provide some benchmarks we could look at how they're doing. And so this was the next step, I thought, in terms of reaffirming the commitment and interest in the agencies to keep this going; obviously, it's a living document, it's evolving, and I think as we go forward we'll find out ways it needs to be modified, but certainly appreciate people's thoughtful comments, well, actually certainly very much appreciate the staff's effort in trying to flesh out some of the metrics, to get those out for comments, and also appreciate everyone's thoughtful reaction back on those, and suggestions on how we might improve those.

CHAIR NICHOLS: I agree. I have to admit that, when you first proposed this workshop, I was a little dubious about how much interest there would be, so I was

pleasantly surprised by the number and the quality of the thought and input that has gone into this. I do believe that it vindicates not only your idea for having a stakeholder workshop, but also the idea that this process has value not just for us, but for the broader public that watches what we're doing. And I'm really appreciative of the people who gave us thoughts about how we can turn this into a tool that accomplishes even more of the goals that the Governor has set for us, it's clear that we've done something positive in terms of engaging with each other and, frankly, taking some risk, I think, in exposing the potential for actual conflict –- and we knew that when we started, that we do come from different mandates, that we have different specific legislative mandates, different overseers and, in some instances, also very different audiences for the work we do. And combining our efforts in a public way, I think, is not just a good faith gesture, but really an opportunity for all of us to kind of move to a whole new level in the way we go about doing our work. So I think this is just a first step and I'm looking forward to seeing where it all leads. Thank you.

COMMISSIONER DOUGLAS: All of us don't actually need to make closing comments, but I will thank -- I'll join my colleagues in thanking everybody for

participating, thanking you for your thoughtful comments. When we have workshops like this go to nearly 6:00 in the evening, that says to me that we probably ought to do more of them because it's really that valuable and just sitting here, it has helped me think about this document and this effort, and so I see it has helped others, so thank you.

MR. EGGERT: Okay, I'll be really brief. Yeah, I guess, you know, as an engineer, I love measurement, so this has been quite fascinating and illuminating, and I think also provides a little bit of humility. I can't remember who said it, but really we need to have the recognition that, within the State agencies, you know, we're just really writing the rules and in some cases we might provide a little small amount of seed funding, but it's the companies and the workers who are doing the real work to actually turn these metrics into real megawatts on the ground, jobs in the California economy, and to make sure that what we're providing, both in terms of information and how we us that information in formulating our policies, is really important and I certainly came away with a much stronger appreciation for the significance of this effort, and I just want to thank everybody for their input.

CHAIR WEISENMILLER: Okay, this meeting is

adjourned. Thanks.

(Adjourned at 5:26 p.m.)