INTEGRATED ENERGY POLICY REPORT STAFF WORKSHOP
BEFORE THE
CALIFORNIA ENERGY COMMISSION

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Energy Efficiency Program	)	Docket No.
Measurement and Attribution And	)	
Proposed 2010 Peak Forecast	)	
	)	

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

THURSDAY, MAY 21, 2009
9:00 A.M.

Reported by: Kent Andrews

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Chris Ann Dickerson, CAD Consulting
Tom Gorin, Demand Analysis Office
Mike Jaske, Electricity Supply Analysis Division
Chris Kavalec, Demand Analysis Office
Suzanne Korosec, IEPR Lead
Lynn Marshall, Electricity Supply Office
Don Schultz, Demand Analysis Office
Michael Wheeler, California PUC

ALSO PRESENT

Mike Messenger, ITRON

I N D E X

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P R O C E E D I N G S

9:00 A.M.

MS. KOROSEC: Good morning, everyone. I am Suzanne Korosec. I lead the Energy Commission's Integrated Energy Policy Report Unit. Welcome to today's Workshop on the Energy Commission's Demand Forecasting activities, which is being held under the direction of the Integrated Energy Policy Report Committee. Just a few housekeeping items before we get going, the restrooms are out the double doors and to your left; there is a snack room at the top of the stairs on the second floor under the white awning; and if there is an emergency and we need to evacuate the building, please follow the staff out the doors to the park that is diagonal to the building, and wait there for the all clear signal.

Today's workshop is being broadcast through our WebEx Conferencing System and please be aware that it is being recorded. Parties who are listening in on that system who would like to speak during the public comment period, we will be opening the phone lines during that time, and you can also ask a question at any time by sending a chat directly to the WebEx Operator.

Just a little bit of context. The Energy Commission is required to develop an Integrated Energy Policy Report, or IEPR, every two years. It provides an overview of major

energy trends and issues that are facing California, and also provides policy recommendations to help the state meet its energy goals. In the 2007 IEPR, we identified the need to improve how energy efficiency savings assumptions are measured in the Energy Commission's Electricity and Natural Gas Demand Forecast and, then, as a follow-up in the 2008 IEPR Update, we presented a plan for making these improvements. Today's workshop is going to discuss the progress made in implementing that plan, and a related issue will also be presenting the Staff Proposed 2010 Peak Demand Forecast that will serve as a reference case in the California Public Utilities Commission's 2010 Resource Adequacy Process.

We will have a number of presentations today, followed by opportunity for public comment later in the day. For parties in the room who wish to speak during the public comment period, we do ask that you fill out a blue card, they are on the table out in the lobby, you can give those to me throughout the day, with your name and affiliation. When you do come up to speak, it is also helpful if you can give the Court Reporter a business card, so we can make sure that your name is spelled correctly in the transcript. For folks using WebEx, as I said, you can send questions directly to the host, or wait until we open the phone lines, which we will do after we hear from the people in the room.

So with that very brief introduction, I will move on to Commissioners for opening remarks.

COMMISSIONER BYRON: Thank you, Ms. Korosec. Good morning, everyone, and welcome to a staff workshop, as Ms. Korosec indicated, on Energy Efficiency Program Measurement and Attribution, and also our Proposed 2010 Peak Demand Forecast. I would characterize this as the good, the bad, and the ugly, with all due respect to Clint Eastwood. The good is that energy efficiency is continuing to reduce overall usage and the staff, I believe, has made significant strides in better understanding energy efficiency measurement and also how to attribute for it, maybe most of all on how to communicate this. The bad is that we have been dealing with this issue at least for the last three IEPRs, and it is not easy, and will likely never be fully settled; it is complex, and because there is money involved, there is going to be continued dispute. And the ugly is that the peak forecasts for energy demand are down; of course, they are down because of the penetration of energy efficiency programs, but they are also down for another reason, the economy is in the proverbial toilet. I suppose the good side of that is that we also know that the demand is out there, and just because the economy is down, we have seen it rebound rather quickly when the economy returns.

I ran into some of the staff this morning. This is

a big day, as many of our IEPR Workshops are. This is one in a series of a number of workshops that are being used to provide input to the IEPR Committee, which consists of myself and Commissioner Boyd, who unfortunately is not here today, he is in Washington, D.C., but he is represented by his advisor, Kelly Birkinshaw. I would like to thank all the attendees for being here and, for those that are on the Web, and I would like to also welcome your input here today, particularly your written input; I believe June 1st is the deadline that we are looking for, for written comments. And if I am incorrect there, the staff will correct that date.

I have learned a great deal about this subject since I have been Chair of the IEPR Committee. I can tell you that energy efficiency is viewed quite differently by the regulator and the policy-makers, and the service providers, than the end-use customer. It has its own terminology and it is a very complicated subject, but it is the cornerstone of California's energy policy and the loading order.

So we have a couple of major challenges that we have to continually deal with, one is the measurement, and the second is the attribution to all the various sources, the utility programs, the market effects, building and appliance standards, and those naturally occurring sources of energy efficiency. I believe the staff does a very thorough and unbiased evaluation, but nevertheless, we welcome the

feedback on their methods and their forecasts, and that is why we are here today. I fully expect that we will have some disagreement, I suspect the staff recognizes that as well. And perhaps we will even have a little of that elusive commodity that we call "new insights" coming from today's workshop.

I think you also know that the results from this work is used in many places at the Public Utilities Commission in their Long-Term Procurement Proceedings, their Energy Efficiency Proceedings, it is used in our Transmission Planning, it is used in the Development Analysis of the Impacts of Energy Efficiency Strategies in the A.B. 32 Greenhouse Gas Emissions Reduction Proceedings, it is used in a number of places. And energy efficiency, broadly, as well as energy efficiency captured in our forecast, is fundamental to the goals and the responsibilities of the Energy Commission, the PUC, and the Air Resources Board. Our goals and our successes are intertwined in this process. And I look forward to hearing from those sister agencies here today, as well as staff, the investor on utilities, and hopefully some of the publicly owned utilities will be represented here today, and the progress and the needs in all these complimentary programs. I will stop there with my introductory remarks. I will ask if Mr. Birkinshaw has any on behalf of Commissioner Boyd.

MR. BIRKENSHAW: No, I do not believe so.

COMMISSIONER BYRON: Okay. So let's go ahead and proceed. Ms. Korosec, I see Dr. Jaske is up first.

MS. KOROSEC: Yes. First, we will hear from Dr. Jaske from the Energy Commission Staff.

DR. JASKE: Commissioner Byron, everyone in attendance, my name is Mike Jaske with the Commission Staff. My role today is to give some background and perspective. You have touched upon a number of the same points, so I will try not to repeat those, and add a little more detail where appropriate. And following me on the program is Michael Wheeler of the PUC Energy Division staff who will give also some comments. So I am going to basically do some background, how we got here, progress since the last formal event that brought us together, which was August 12th workshop as part of the '08 IEPR Update process, talk about mostly how energy efficiency is being treated in this forecast, which will be the majority of the presentations today, talk just a very little bit about plans for the incremental impacts project, and the schedule for all of this going forward.

So, as noted, the PUC's '06 LTTP proceedings surfaced these questions about how uncommitted energy efficiency that the PUC was requiring the IOU's to include in their portfolio analyses might duplicate what was already

embedded in the Energy Commission's demand forecast, and I think this is one of the first instances where this clash of perhaps policy and methodologies, you know, rose to the surface of policy-makers. That was sort of exacerbated by the fact that the Revised Demand Forecast in the '07 IEPR process surfaced quite late in that process, and there was not an opportunity to really discuss all of the energy efficiency analysis the staff had done and documented as part of that revised forecast. So those two threads resulted in the focus in the '08 IEPR Update process, workshops of March 11th and 12th that tried to frame the issues, put forward an approach, and to execute that approach as it was broadly embraced within the '08 IEPR Update.

But one of the key criticisms that was included in the '07 IEPR was the lack of transparency, and I think a good portion of that is not so much the lack of documentation, but rather the communication aspects of transparency, so stakeholders suggested that we form a working group, provide an opportunity to both communicate what staff is doing, and learn from others about their approaches. We took that effort to heart, we hired Chris Ann Dickerson to facilitate such a group, she is here today, she will give two different presentations about her efforts to foster this kind of communication. We have been meeting

periodically since December of last year.

One of the key dimensions of improving the staff's efforts in this area is to acquire energy efficiency program data, which seems obvious, well, why had we not had that before? But, really, to do the kind of in-depth analysis of potential double-counting, we needed to acquire data at a level beyond that which we had been used to doing, not just at the program level, but to sort of dive into the end-use and even measure level in some instances. Acquiring this data proved to be a lot more difficult than we anticipated, so, in fact, a number of the working group meetings sort of circled around various aspects of what is available, how consistent is it from one era of measurement and evaluation process to another, can we actually string together a consistent time series of the kind of data staff believed it needed.

I mention ITRON here because PUC was gracious in providing the resources of ITRON through an amendment to a major contract they have with ITRON to provide support to energy efficiency work at the PUC, so ITRON has directly benefited the staff's effort by helping to bring a core piece of data together and, more particularly, to help in this dissection down to the end-use and measure level.

Of course, one of the significant motivations the staff had, having acquired this kind of data, how can we

improve our models, not just make more transparent what is already in the models, and it had been obvious that the focus on lighting necessitated that lighting be treated more specifically and with more detail in the staff forecasting models. And at least the beginnings of that have been accomplished and Tom Gorin will get into the details of that later today.

There are some improvements in the treatment of lighting and the interaction between the focus on building standard requirements vs. utility program impacts that are part of commercial building forecasting models that also are a high priority, but have not yet been accomplished for the preliminary forecast. Staff is making plans to make changes in the future.

One of the key dimensions of what we are trying to do here is to bring together all of the threads of energy efficiency that you mentioned in your opening remarks -- standards, utility programs, customers' own responses through price, price elasticity, the traditional features of a lot of forecasting and econometric modeling, market effects that may be different than any of those other three, try to see how these things can be reconciled.

Let me turn now to the subject of incremental energy efficiency, and I think probably what I will say in these next few slides is about all that we will focus on in this

workshop, but our overall project and the deliverables that the PUC wants necessitates that we prepare incremental energy efficiency impact by the, well, in time that it can be used by the PUC in the 2010 LTTP proceeding. And the timing of the IEPR and the timing of the PUC's intended schedule for that process leads us to need to produce something at the staff level probably around the end of August, and to have a discussion in the IEPR forum in September, and I believe there is a scheduled workshop now somewhere around September 20th or so. One of the rationales for this focus is that, as documented in the 2008 IEPR update, the Energy Commission is continuing to rely upon this notion of a distinction between committed and uncommitted energy efficiency, but the PUC wants to use a managed forecast. So the PUC is going to be asking the IOU's when they do their resource portfolio assessment to be using the Energy Commission's Final 2009 IEPR Forecast decremented further for whatever impacts from uncommitted energy efficiency are truly incremental to the base Energy Commission forecast. We have clearly learned through the work of the last year that there is no way that incremental energy efficiency analyses, or the impact of uncommitted energy efficiency can be done in isolation from the base forecast, simply absolutely necessary that those two efforts be closely coordinated so that, whatever energy efficiency

is embedded in that base forecast is not double counted in estimates of what further potential or further goals is actually available. And so we are working with the same methodology that the PUC used in its 2008 Goal Study, using a model called SESAT that is also something developed by ITRON; we are going to adapt that input into SESAT to reconcile it to the Energy Commission's forecast, and run SESAT in at least two scenario modes with and without these specifications of the uncommitted scenario, and then that increment will be at least within the time frame and data we have of this cycle, the best estimate of incremental effects that we can get. We go back, then, to describe the two scenarios that we are intending. We are going to use two scenarios out of the 2008 Goal Study that the PUC ultimately adopted; we are going to use the High and Mid one, we will adapt those for whatever change has already happened, for example, at the time those scenarios were developed there were no 2009-11 program proposals, we now have those, the PUC is reviewing them. Some time in the summer, the plan is the PUC will make at least its preliminary decision on how to select between the proposals that have been submitted. We will need to be deducting those from the characterization of the Goal Study scenarios because they will already be within the base Energy Commission forecast.

Throughout this effort, both on improving what is in

the base forecast and trying to develop this incremental energy efficiency capability, we are using the Working Group to improve communication in both directions, both what staff is doing and try to learn from what IOUs and the larger POUs are doing. PUC staff has been intimately involved in this and this has been extremely helpful to sort of learn what processes are already underway, and how the historic EM&V processes can be adapted to serve the needs of forecasters. It is clear that the PUC staff had in mind some improvements to EM&V on a sort of going forward basis, to be implemented as part of the '09 to '11 process, but the forecasting world needs to have a firm understanding of the consequences of the programs that have already been run because the measures that have been introduced by those programs have lives that continue, well out into the future, and we need to really understand the impacts of those historic programs. And so adapting what had been the EM&V focus in earlier eras and supplementing it with additional analyses to provide the needs for forecasting is an ongoing process that we hope to benefit from, not only in the remainder of this cycle, but also going forward.

So let me conclude with a slide that gives the broad schedule. You can see at the top where we have already been; here we are in the '09 IEPR, the demand forecast, the preliminary demand forecast is about to be released, we will

have another workshop in June to talk about the specifics of it, we may talk about energy efficiency included there more, there is a schedule for a revised demand forecast and a revised demand forecast workshop and, then, as I indicated, the incremental impacts will be a subject of a workshop in September. At that point, we will sort of come to the close of this IEPR cycle, but that will not be the end of the story. As you indicated earlier, these are difficult subjects, we anticipate improvements that will be surfacing later in 2010, and perhaps even beyond. One of the fundamental issues of energy efficiency is that it is not really very well measured. It can be estimated, but it cannot be counted. It cannot be counted like power plants where we can name them, locate them, understand their characteristics. Energy efficiency and its positioning in the broader world of understanding consumption, sales by utility, loads provided by customers through self-generation technologies of various kind, all of that is a function of estimation and it is driven by the availability of data, analysis of data, reconciling various kinds of what seemingly are disparate data, so we will be endeavoring to improve upon all of those analytic dimensions, and rolling them into not only base forecasts, but estimates of the remaining potential for energy efficiency in 2010 and beyond.

With that, I am concluded. Are there any questions from the Committee? Thank you very much.

COMMISSIONER BYRON: Thank you, Dr. Jaske.

MS. KOROSEC: Next, we will hear from Michael Wheeler.

COMMISSIONER BYRON: Mr. Wheeler, as you are coming up, thank you very much for being here today. I forgot to mention that Commissioner Grueneich and Commissioner Bohn were very interested in being here at the workshop, unfortunately, there are only so many days on the calendar that we can schedule all these workshops. And they have a business meeting today, so they could not be here. I also failed to introduce my advisor, Laurie Ten Hope, who has joined us here. Sorry, Laurie.

MR. WHEELER: Well, good morning. My name is Michael Wheeler and I am pleased to be here. I am glad to see so many of the public and parties are here at this IEPR Committee meeting. I am lead staff on Residential Sector Programs for the Energy Efficiency Planning Section. And I apologize; I do not have a presentation today. I am here to report sort of the status of the adoption process for utility program portfolios, 2009-2011, and it is updating on almost a daily basis, so just bear with me for a moment for no presentation.

As you know, the portfolios have not been adopted

yet, and the assigned Commissioner is committed to a target date for portfolio adoption this August, likely late this August, but we recognize that these programs need to get out considering that it is the 2009-11 portfolio cycle, and here we are nearly half-way through 2009. These portfolios that we are currently reviewing are a re-file. They were re-filed in March, March 2nd, and the re-file included both a mandated scenario and a preferred scenario, the mandated scenario being programs in a portfolio in accordance with all of our current policy rules; the preferred scenario, we invited utilities to propose policy adjustments that would make it easier to implement the California Energy Efficiency Strategic Plan, and they applied those policy scenario adjustments to their proposed scenario -- about 10 proposals for policy adjustments.

Staff completed its initial review in the first week of April and we received comments from parties and held a workshop on the topic, on some of the topics that have been brought up. I should say that neither the mandated scenario nor the proposed scenario is acceptable to staff as currently filed; we see something in between the two being the likely final product. This is because the mandated scenario focuses on -- necessarily focuses on more short-term savings, and is a little lighter on strategic planning activities. This is in order to achieve our cumulative

goals from 2004 through 2011. The proposed scenario, which takes into account some adjustments to cumulative savings goals and other attribution methodologies is much stronger on Strategic Planning activities, but it also -- it proposes some liberal changes to attribution and shareholder earning decisions, past decisions on attribution and shareholder earnings. And so, again, staff sees something sort of in between the mandated and the proposed scenario being the final product. The process ahead of us is to work with parties and with the utilities to decide what from both portfolios should be in that final product.

In total, though, the two portfolios represent a suite of programs which, I would say, from my own personal perspective, rise to the challenge of implementing most of the strategies within the California Energy Efficiency Strategic Plan. They scale down upstream CFL Program dependency and it significantly increased the savings from HVAC systems and generally represents a shift from the programs implemented in 2004 and 2005, and then the 2006 through 2008 cycle; however, many of the programs representing this significant shift, they are dubbed non-resource programs. And that, such as workforce development and program infrastructure building efforts, and these are unlikely to generate much savings during the 2009-11 period, but they prepare for a more market transformation focused

portfolio in 2012.

I can give you some high-level portfolio details. The total budget for the mandated scenario was proposed for all four utilities at $4.2 billion, with PG&E coming in at about 43 percent of that, $1.8 billion, Edison - 32 percent of that, $1.3 billion, and then Sempra, the SPG&E and the gas company representing about a billion dollars, or a quarter of the total. And then, in conclusion, I just wanted to say that the Energy Division is extremely interested in coordinating the program logic and the implementation plans within these IOU portfolios, the final IOU portfolios, with the program logic and the implementation plans that are within the State Energy Program, the Weatherization Assistance Program, and the various Workforce Development Programs, and the Energy Efficiency and Conservation Block Grant Programs, and all of the programs really that are receiving funding from the American Recovery and Reinvestment Act; it is really leveraging somewhere between $3.5 and $4.2 billion that we plan on spending in 2009 through 2011 with these millions of dollars coming from the ARRA funds, a coordinated approach to making sure that those programs work together is really the best path forward for energy efficiency in California, and impacting these load forecasts as significantly as we can. Thank you. If you have any questions from the

Committee, I would be happy to take them.

COMMISSIONER BYRON: No. Thank you very much. But if I may comment, clearly, California is the U.S. leader in this regard and I agree with you, the ARRA funds are going to add enormously to the spending that we are going to do on energy efficiency, so it is incumbent upon us to spend this money well and be very successful in how it is done. Will you be with us for the day, Mr. Wheeler?

MR. WHEELER: I will.

COMMISSIONER BYRON: Good. Thank you. We look for further input from you.

MR. WHEELER: Thank you.

MR. KAVALEC: Good morning, I am Chris Kavalec from the Demand Office at the Energy Commission. I am going to give a brief presentation on our Draft Forecast basically to put the energy efficiency impacts that we are going to be discussing today in perspective relative to total consumption in the state, and also to provide some background for Lynn Marshall's 2010 Peak presentation.

Some notable dates. The three forecasts that Mike Jaske talked about, preliminary, revised, and uncommitted or incremental forecasts -- the preliminary forecast, we will have a workshop on June 26th; for the revised, the workshop will be on August 17th; and for the incremental forecast, released at the beginning of September, and a workshop on

the 21st.

So, as I mentioned, this is only to provide some background for our later presentations. On June 26th, we are going to go in-depth into the forecasts. But today we want to focus on the energy efficiency impacts we have estimated, with the exception of Lynn Marshall's peak presentation. These are not final numbers by any means, our estimates of energy efficiency impacts. And we want to hear suggestions and comments that we can incorporate in the revised forecast today.

Okay, Changes in the Demand Forecast. Statewide projected electricity consumption in the draft forecast is down almost 10 percent by 2018, compared to the previous forecasts. And not surprisingly, this is due mainly to the economy, both in the short run, the current recession, and slow or long-term growth predicted by Economy.com who provides our economic projections. In addition, efficiency impacts are higher relative to previous forecasts, as we will discuss. This is what it looks like. The black dashed line shows the previous forecast, and the blue line under that shows the 2009 Preliminary Forecast. And note the pattern you see there, an initial drop due to the current recession, slower long-term growth in consumption -- you notice the blue line is flatter, slightly, than the black line.

So the economic inputs that are driving these results -- projected real personal income from Economy.com is down almost 6 percent relative to the last forecast by 2018; the same with projected total employment, and as I mentioned, key economic indicators show a short-term drop followed by slower long-term growth.

And this is what personal income looks like, down 6 percent by 2018, by almost 5 percent by 2010, compared to the forecast that was used for the 2007 IEPR.

Similarly, for statewide employment, it drops to over 4 percent below the previous forecast for employment by 2010, as I mentioned 6 percent by 2018. Okay, so that is the situation, that is the summary for our econ demo data.

Turning to Efficiency Program Impacts. What we set out to do for this forecast was to re-estimate both historical electricity savings from utility programs, as well as to measure the impacts from the '09 to '11 program plans, the idea here being to incorporate program savings that had not been previously included in our forecast. ITRON provided valuable assistance that fed into our staff work, supplemented by the Demand Forecasting Energy Efficiency Quantification Working Group, and we will hear more about both of these efforts later today.

So upcoming presentations will delve into staff and ITRON work and the role of the working group. To handle

these new estimates, some were incorporated in the model, others through post-processing, which means subtracting directly from model output. A couple of disclaimers -- as I mentioned, these are preliminary estimates. Most of the time spent on this so far has been just gathering the data itself, and putting it in a coherent form that was useful, and further examination of the numbers could change these results. And, as Michael Wheeler just mentioned, the 2009 to 2011 programs are not finalized, so what we are presenting today represents our best guess, given the information that we have now. Not surprisingly, the impact of the -- oh, and one other thing here, the efficiency program impacts, we have only estimated thus far for the IOUs, we have not done the POUs yet. So the impact of the IOU utility programs reaches a maximum by 2011, the end of the three-year cycle, and then declines as the effects decay. The reason for this is we do not go beyond the 2011 programs because our forecasts include only committed impacts, that is, funded and/or implemented. So there is nothing beyond 2011 beside the decay from measures already in place. And the biggest difference in impacts relative to the previous forecast happens in 2008 and beyond.

This next graph is meant to show the impact of the Energy Efficiency Impacts that we estimated on the forecasts. The black line is meant to show what the

forecast would have looked like, had we not added additional energy efficiency impacts to this forecast. In other words, if we had used the same energy efficiency impacts that we used last time, the forecast would have looked like the black line. So the difference between the black line and the bottom line represents additional energy efficiency impacts from programs for this forecast.

The 2007 forecast at the top, the top green line, is scaled, I should mention, to this actual historical 2007 value so we could start at the same point. There are, of course, other impacts on the forecast, economic, as I mentioned. Additional lighting savings beyond what was estimated for the programs. We assumed that folks continued to purchase CFL lighting beyond the '09-'11 program period. We felt that this was more realistic, particularly given the Energy Act of 2007. We also assumed a higher rate of compliance for commercial lighting standards for existing buildings, and we will talk about that more on June 26th.

So this next graph attempts to put all these impacts in perspective, to give you relative magnitudes. Starting from the bottom, our current draft forecast, the black line above that, what the forecast would have looked like had we not added additional energy efficiency impacts; that was on the previous graph. The red line above that shows what the forecast would have looked like had we not added the

additional efficiency impacts plus the additional residential savings that we assumed from CFLs. The blue line above that shows what the forecast would have looked like without the energy efficiency impacts, additional savings and increased commercial compliance rate assumed. The purpose of this graph is to show the impact of the economic projections vs. the efficiency impacts. By 2010, roughly 65 percent of the difference between the old forecast and the new forecast comes from the economic projections, and by 2018 that percentage goes up to 80 percent, as the impacts from the energy efficiency programs decay away.

And a couple things about the Revised Forecast. We are continuing to refine these energy efficiency program estimates and how they impact the forecast; in other words, the amount of, or whether there is overlap with other savings impacts already included in the forecast like standards and market and price effects. And given the huge importance of the economy that is obvious in its impact on the forecast, we are going to do our best to look at scenarios using different economic projections for the revised forecast. Economy.com provides, I think, five scenarios. We are currently using what the call the base case, but they have everything from what they call complete collapse of the economy all the way up to their most

optimistic forecast. Okay, and that concludes my presentation. Are there any questions from the Committee?

COMMISSIONER BYRON: Yes, Mr. Kavalec. Thank you very much. I know we have discussed some of these things before, there is a lot of dependence upon Economy.com. I have done a little research on them and they are, of course, it seems, the predominant source of information these days in U.S. economic forecasting. But do we look at other forecasts, particularly for California?

MR. KAVALEC: We have recently purchased Global Insight's forecast, as well. They provide forecasts for California and they also provide different scenarios. There is also a UCLA forecast, but they have not done a long-run forecast in the last year, so they are sort of behind the curve on what is going on right now.

COMMISSIONER BYRON: And I would like to emphasize, of course, that your slide 7 and 8 are not Energy Commission forecasts for personal income and employment, but those certainly are depressing, particularly that one, to see the reduced slope on employment. And of course, my understanding is that is the primary input to your electric consumption forecast on slide 5. This is not very optimistic, this is pretty depressing given that I would expect some rebound of the economy to take us back up a little bit. But be that as it may, this is the ugly part,

of course, I think, of what we are presenting here today. A couple of questions, on slide 10, why haven't we done energy efficiency program impacts for the POUs yet?

MR. KAVALEK: This, as I mentioned, we, at start, we went into this naive about the data and what form it was in, so most of our effort -- it took us most of the time just to put together impacts for IOUs, so we have not even gotten to the POUs yet. And it was basically a matter of resources and time.

COMMISSIONER BYRON: And when will you be able to get to that?

MR. KAVALEK: For the Revised Forecast, we will make it our initial attempt.

COMMISSIONER BYRON: And, of course, as we heard from Mr. Wheeler, and as you indicated at the bottom of that slide, the '09 to '11 programs are still in the approval process. Can you give me a sense of what the impact of this delay is on your analysis for the efficiency program penetration?

MR. KAVALEK: Well, I guess I am not sure -- in what sense?

COMMISSIONER BYRON: Well, because it is delayed and you only included committed programs, you have had -- I think you said you had to make some sort of estimate or guesstimate as to the impact that that has on your forecast.

So I am just trying to get a sense of how significant that delay is.

MR. KAVALEK: Well, I think we have a pretty good sense, in general, of what the programs are going to look like. Unfortunately, we will not be able to refine it, it looks like, by the time of the Revised Forecast. I mean, most of -- I mean, these programs are in, you know, in the rough form they are going to be in finally, but there are still details to be worked out, which -- so, in other words, what is in the revised forecast is going to be an approximation, unfortunately, without more -- without the final approval process being complete.

COMMISSIONER BYRON - I will give you a sense of where I am coming from in all of this. Having been on the receiving end, or on the end-use consumer side of this process and IOU service territory about four years ago, and looking for these programs to be funded so that the funding could be committed, and then going to Management within our companies to get a budget approval, this slows things down significantly and I think, as policy makers, and as regulators, we really do not take that into effect. So it adds to a great deal of the uncertainty, I would think, as to when these programs are committed, when they are implemented, when we begin seeing the efficiency improvements from them. And I do not expect you to have all

the answers to that, but I was just trying to get a sense from your forecasting and modeling how much it affects you, how much it affects your thinking. I am not sure that you can really answer; my guess is that you are probably a little more optimistic as a result than those delays really -- than the impact of those delays in reality.

MR. KAVALEK: Well, in the realm of uncertainties related to efficiency impacts, this does not bother me as much as other uncertainties, I guess.

COMMISSIONER BYRON: Very good. All right, thank you, Mr. Kavalec. Okay, next up is Lynn Marshall, who is going to present the Proposed Staff 2010 Peak Forecasts for the Resource Adequacy Process.

MS. MARSHALL: Hi, I am Lynn Marshall and I am responsible for implementing the Resource Adequacy Load Forecasting Process jointly with the PUC and the ISO. So, annually, we collect from the PUC jurisdictions their proposed load forecasts for the following year, monthly peak demand forecasts. And we go through a review and adjustment process where we adjust some of those forecasts to within 1 percent of the Energy Commission Peak Demand Forecast for each of the IOU service areas. So to implement that process, we need to establish the 2010 Monthly Peak Demand Forecast. Earlier this year, because the ISO was working on its Local Capacity Requirement Study last winter, and we saw

because of the economic situation that the demand forecast would likely be coming down, we made a limited adjustment to the Edison Forecast for the purposes of that study. But we said at that time that we would use the draft forecast prepared for the IEPR to establish the 2010 system requirements. So that is why we are here talking about the 2010 Peak Demand Forecast, even though the IEPR Forecast is really still a work in progress.

So we will establish for each of the PUC jurisdictions monthly peak demand forecasts for next year, it is used in several contexts; first, it is used in their year of Fall showing that they have got 90 percent of their year ahead resources, it also would be used for calculating load shares for import allocations, then in their monthly compliance filings, it is used in their monthly resource adequacy showings, and now under MRTU, their corresponding non-coincident peak forecast also serves as, in effect, an upper bound on the amount of congestion revenue rights they can request in the ISO's monthly CRR process. So it has a number of implications for what they are required to do next year.

So generally, I guess we have to get our comment dates scheduled. I had for this aspect of the materials we are presenting today, I have proposed accepting comments up until June 5th just to give us additional time. We have

already started having some back-and-forth with the utilities, which is always very useful. We may do some revised results between now and then, so I guess we will have to decide on that. Following comments, staff will decide what adjustments we may want to make. We have already got some suggestions from the utilities of some improved data we want to incorporate, for example, and we would take that to our mid-June Business Meeting for adoption, complete the revised adjusted forecasts by the end of June when they need to go to the ISO and the PUC, and the PUC takes those and we compile their Demand Response Allocations, as well. And that has to go out by mid-July. So that is the general schedule.

Okay, I am using here -- you saw Chris Kavalec presented the Statewide Energy Consumption Forecast and you saw the depressing economic forecasts, and the energy efficiency impacts, so those are the two big effects in talking about our 2010 forecast, of what is going on here. Here is the big picture at a control area level. Out in 2010, we are down -- different areas are down between 5 and 10 percent, and I am going to go through the IOU areas each in more detail, but this is just the big picture. And also, we have for the rest of the state, these are the non-ISO balancing authorities, and similarly, down quite a bit, I notice LADWP is not down that much, I think Economy.com has

always had a depressing forecast for L.A., so not as much change there.

So now this table represents -- you saw in Chris' presentation, he had backed out the various efficiency effects out of the statewide consumption forecast to show the increment to the forecast from programs and the increased Title 24 compliance. So this is the peak version of those numbers, broken down for the IOUs. And these are not out of the peak model, these are estimates, but they should be, I think, right order of magnitude and reflect the approximate impacts. So, for example, in PG&E, all of those additional efficiency adjustments we are making are lowering the forecast by 2.6 percent compared to what the forecast would be without those additional effects.

So overall, and as Chris said, I think about one-third -- it is about two-thirds economic impact and one-third efficiency -- that varies a lot by utility, the effect is somewhat bigger in PG&E in terms of a bigger proportionate effect of the efficiency programs. It is more than one-third.

So here is our end-use peak demand forecast by sector and the major sectors. So you can see the two big impacts on the residential and commercial sector, in 2010, both of those peaks are down about 7.5 percent, about 2,000 megawatts each. So that is the combined effect of the

economic impacts, additional standards, and efficiency assumptions.

So now I will turn to the individual utility area forecast results and I will talk about San Diego first. And this graph has a number of things going on with it, we have the upper line showing our 2007 IEPR forecast, and you notice on there a red dot, and maybe on your print-outs, that is not labeled, but that red dot is our estimate of weather-adjusted 2008. So actual, it was cool in San Diego the summer of 2008, so the weather-adjusted is quite a bit higher. So if you look at the starting point of our forecast in '09, it is more than 3.5 percent below that weather-adjusted 2008. So the combined effects of the DSM and the economic situation are contributing to a big drop in '09 demand. And we have also shown on the blue line there with the DSM effects backed out, so that would shift it up a bit. Also on there, in the middle, we have got the forecasts that San Diego submitted in our 2009 IEPR process. That was submitted in April, so it is a fairly current forecast from them. And we have pretty similar growth rates in the short-term, they have got a higher growth rate in the long-term, but in the '09-'10 timeframe, both of us are forecasting less than 1 percent growth. So the big discrepancy or disagreement is in the impacts -- the DSM and econ impacts in 2009. So --

COMMISSIONER BYRON: Ms. Marshall?

MS. MARSHALL: Yes.

COMMISSIONER BYRON: Sorry to interrupt, but it looks as though your slide is more current than the ones than I have.

MS. MARSHALL: Well, it is the same slide. I noticed in the print-outs that the label for the weather-adjusted 2008 did not, so I just re-pasted it so that, on here, it is the same slide.

COMMISSIONER BYRON: Okay, thank you.

MS. MARSHALL: But we lost one of the labels there, so that red dot is not labeled on your print-out, I think. All right, so to evaluate whether -- that is a drop in 2009, okay, the second quarter of 2009. We took a look at the loads in ISO for each of the transmission access areas. This is San Diego, so what we have here is the daily peaks, daily afternoon peaks, and this particular scatter plot is April and like the first two weeks of May, or pretty close to date, against the daily maximum temperature statistic that we used for San Diego, which is a three-day weighted moving average. So the purple stars there are 2009 loads, and you can see they are generally in that 60-70 degree timeframe, they do appear a bit lower. And I estimated a weather-adjusted peak for each month for January through April, and the average was about down 1 percent. On the

other hand, we did have one hot day if you look up in the upper right-hand quadrant, there are a couple of purple stars up there where it got above 80, and one day above 90, and those points do not appear to be a lot lower than comparable days in 2008, the red blocks. So while it seems like maybe there is some base load drop, it is not obvious that the temperature sensitive part of load is really declining. And at some point I hope we will hear maybe from San Diego and each of the utilities on their perspective on what kind of trends and current loads they are seeing. In fact, do we want to have -- I could ask if San Diego, who may be online wants to comment at this point? Or we could wait -- would you like to do that? Okay, do you want to see if someone from San Diego is on, either Tim Vonder or Greg Katsapis? See if they made it. They were unable to get flights that worked out for them.

COMMISSIONER BYRON: Are you going to request similar feedback from Southern California PG&E?

MS. MARSHALL: Oh, yeah. And we have shared the initial numbers and I already had some initial discussions with each of them. We can come back if --

COMMISSIONER BYRON: We can go ahead and proceed and you have given them notice, and if they are there, we can come back.

MS. MARSHALL: Yeah, I will just keep going and then

we will come back when they get that worked out, we will come back and do all the comments. Okay.

So we will move on to the Edison Planning Area and because of the more severe economic forecast, I think, this drop is larger even than the San Diego, so again we have our previous forecast from the 2007 IEPR, and I have on there as -- I wish I had a pointer -- the purple diamond represents our estimate of the 2008 weather-adjusted peak. So, again, it was a mild summer, so the actual point for 2008 is quite low, but we need to adjust that up to one and two conditions. So taking that into account, our forecast for 2009 is 5.5 percent below 2008 weather normalized. Again, a pretty big drop. We have on there, the green line is the forecast that Edison submitted in our IEPR process, and I think they prepared that in January, I believe they are preparing an updated forecast, but we have not seen that yet. So we are now below that Edison forecast and, again, our growth rates for the 2009-10 timeframe are very similar, nobody is forecasting much rebound in 2010. After that, I think there are some different views. So again, the big discrepancy between our forecasts is the magnitude of the drop in 2009. And this graph is of our Edison Planning Area which does not exactly match the ISO Edison TAC area, so we take our planning area and break it down, and add DWR in Pasadena, that is a normal part of our forecast tables

process. So here are the Edison TAC area loads, and again we have the purple stars on the bottom, and you can see that the trend, the load temperature relationship of the 2009 loads is really noticeably lower than 2008, and certainly 2007. That looks like about a 580-megawatt drop in base load for April and I estimated a weather-adjusted decline year-over-year of about 3.7 percent. So that is a big drop, it is not quite as large as the drop we have at our forecast, but then this is the second quarter, so I think that is something for us to think about as we try to finalize these numbers and get input from the utilities on this.

And then I will talk about PG&E Planning Area Forecasts. Now, I only have a dot for the aggregated PG&E forecast because not all of the utilities in our PG&E planning areas submit 10-year forecasts, and our PG&E planning area includes a lot of POUs that are not in the ISO, so I am going to focus on a comparison at the PG&E service area, so we have our service area forecast and what they submitted in 2009 IEPR. And the red dot, which is our estimate of weather-adjusted 2008, and I think actually the value I have there for actual 2008 is sort of a model output, so it is probably not accurate, but we can refine that. So once again, this is comparable to the Edison area. The 2009 forecast is 5.5 percent over 1,000 megawatts lower

than our estimate of 2008 weather-adjusted load. I think PG&E has a higher estimate of weather normalized 2008, which means it is even a bigger drop. But, again, not a big discrepancy in the growth rates.

Okay, so here are loads and temperatures for the PG&E transmission access area, and it does again look like 2009 we are seeing actual loads down. There was no much temperature variation, so for even in April it was very difficult to get a real good weather normalized estimate. But it seems clear that base load, I estimated, was 500 megawatts lower, which is maybe 2.5 percent. So, again, what we are seeing here in the second quarter is not as big a drop as we have in our forecast.

COMMISSIONER BYRON: Ms. Marshall, when was PG&E's forecast? Do you recall?

MS. MARSHALL: Is it a spring -- early -- what is the vintage of your 2009 IEPR forecast?

MR. KAVALEC: January 2009.

MS. MARSHALL: January 2009.

COMMISSIONER BYRON: Thank you.

MS. MARSHALL: All right. So I will just circle back to what the implications of this are in our Resource Adequacy Process and then we will go to the utilities. So we take our monthly peak forecasts and we are estimating a monthly weather normalized load shape, and to come up with

our monthly service area peaks, and the red line is our staff draft, the blue line above it is the sum of all the forecasts that were submitted to us for the 2010 Resource Adequacy process. So as it stands, this would imply some pretty significant adjustments downwards because we have to prorate -- adjust everyone's down. So it would be on the order of a 10 percent reduction in PG&E, this would be for the August peak, and 6-8 percent in the South.

So I think I will open it up to the utilities now, to get their comments. So who wants to go first? Okay, Jacqueline Jones from Southern California Edison.

MS. JONES: Good morning, Commissioners, CEC staff, and the audience. As everybody probably knows, Art Canning is our expert on demand forecasting at Southern California Edison, but unfortunately he could not be here today, so they sent me. He did provide me with information to provide today, so hopefully I will do okay. One of the things is that we have taken a preliminary look at the information, we still have more detailed work to do and, actually, as I speak, I am going to request more information in different areas.

As Ms. Marshall was saying, we agree with the fact that the 2008 planning area peak seems a little low. And that starting point being low would affect the entire forecast after that. So we think that is something that

could be looked into with a bit more detail. Also, on -- can you flip to page 10? It has a statement of the forecasted demand being 5.6 percent below the weather-adjusted peak of 2008; I believe that this is from a July kind of timeframe, but if you look at what is on page 12, the average between January and April is 3.7 percent, and between July and April, that seems like a really large reduction. So we believe that is something that could be looked at, as well. In talking about the decline, we suspect that daily energy is declined on an average basis of about two percent, and that is what they are using. They are currently preparing a forecast for June, so we expect to have more data in a month or so. And also, we would be interested in getting more information on what was used for the long-term energy efficiency assumptions. We only have what was provided through 2010, and so understanding more detail on what the incremental or uncommitted forecast that was used would be very helpful. And that is all I have. Thank you.

MS. MARSHALL: Okay.

MR. ASLIN: I have a couple of questions.

MS. MARSHALL: Okay.

MR. ASLIN: Hello, my name is Richard Aslin. I work for the Pacific Gas and Electric Company. And I had a couple questions and then maybe a couple of comments. And I

had one question for Chris, too, but I guess I will ask that -- can I ask that first? It was a pretty straightforward question. For the Draft Long-Term Energy Demand, what year is it that projected energy demand crosses over and is higher than it was in 2008?

MR. KAVALEC: Are you asking what year projected consumption increases above 2008 levels?

MR. ASLIN: Yes, that is the question. Because I am looking at slide 14, and it looks like it is 2010.

MR. KAVALEC: Yes.

MR. ASLIN: It is 2010?

MR. KAVALEC: Yeah, not having the actual numbers, I am guessing based on this graph, but it is either 2009 or 2010.

MR. ASLIN: That it is above 2008 levels.

MR. KAVALEC: Right.

MR. ASLIN: So we get a dip in 2009, get a rebound in 2010, and then 2010-2011, it is pretty much above the level of energy consumption that we observe in 2008?

MR. KAVALEC: Yes.

MR. ASLIN: Okay. And Lynn, can I ask you that same question on the Peak Demand Forecast?

MS. MARSHALL: Well, it looks much farther out.

MR. ASLIN: Yeah, I would submit to you that it is never -- it does not. And that is something to think about.

There does seem to be a very big inconsistency between the Energy Forecast in the longer term and the Peak Demand Forecast in the longer term, and I understand this is a draft, and your focus was more on 2010, but --

MS. MARSHALL: No, this is the same -- the model output -- our peak models run with that energy. One issue is that graph is statewide, and here we are looking specifically at PG&E. So --

MR. ASLIN: Right. If you look at the statewide, I think you see the same exact thing. I think it is even exacerbated because the Southern California Edison decline is more than the PG&E decline, it is more than the San Diego Gas and Electric decline, and it keeps declining further and further and further. I am just saying that is a big comment that I have after just reviewing this overnight. I did not quite understand the slide that said additional energy efficiency.

MS. MARSHALL: Okay, this is the parallel -- Chris had a slide where he was backing out the programs and commercial compliance out of the forecast, so if you back those out, it shifts the forecasts up. These are the megawatt version of that delta.

MR. ASLIN: Okay. And the question is, if we go to the total, let's just say PG&E, so 2008, it says 301, 2009, it says 455, 2010, it says 595, do you see that?

MS. MARSHALL: Yeah.

MR. ASLIN: Are those cumulative numbers?

MS. MARSHALL: Yeah, so 2008 is an incremental value, that is first year, but the 2010 is cumulative, 8, 9 10.

MR. ASLIN: So if I was to look at the difference between 2008 and 2009, for example, so it is roughly 155 megawatts, is that the amount that is not already captured within the models? Or what is that? Is that the --

MS. MARSHALL: That represents adjustments that were made relative to the last forecast, so in the 2007 IEPR Forecast, there were 9-11 programs and we had lower compliance with Title 24, so these are the incremental effects of making those changes to the model in this.

MR. ASLIN: Okay, thanks. I was not quite clear on what that was. In terms of just feedback from PG&E on what we have experienced in our own, looking at loads, because we are also very concerned about the economic decline and its impact on our customers, what we have seen is very similar to, I think, what Edison talked about. So we have seen, in terms of billed energy sales, we have seen that our sales are down by approximately 1 percent through the end of April. But really, an interesting feature of it, though, is that residential sales are actually up by approximately 1.5 percent, commercial sales are pretty much flat, and

industrial sales are down by 5 percent, so it is very interesting. I think it is one thing to think about here is, Lynn, you had broken out the peak demand forecast by sector, and I think what you showed was that the peak demand model is showing a pretty severe decrease in residential peak use. And I am just wondering if that will actually play out that way because, if you think about it, if more people are unemployed, there are more people at home, it is very likely that they are going to use more energy. So, for example, just as a thought sort of experiment here, if we all decided that, as a reaction to the economic downturn, we were all going to take Wednesdays off, would that lead to higher energy consumption, the same energy consumption, or lower energy consumption? And then I would submit that it would be at least the same or higher.

COMMISSIONER BYRON: Well, isn't the per capita energy use for Californians much higher in the commercial and industrial sectors that it is in the residential sector, meaning, if they are home, they are going to use a lot less energy than they would at work?

MR. ASLIN: Well, they are going to use more energy for space cooling and space heating than they would when they are at work because it is more efficient for people to be in an office building and to be cooled there, than to be cooled in individual sites where, you know, everybody has

1,500 square feet that they need to cool. So I agree with the production part of it to the extent that California was sort of a highly energy-intensive economy than the sort of drops that are being projected might be realistic. But because California's economy really is not in a highly energy intensive economy, you know, I am of the mind, just like Edison, that the drop is too severe. I just do not see how you can get that kind of a drop that is associated with the type of economic downturn that we are seeing now. I think you could get it if this economic downturn lasted for, you know, another 12 months, if it lasted for another 18 months or 24 months, because where you really start to see those impacts is when people start to leave, when they start to leave a state, then you start to see really big impacts in the peak usage.

COMMISSIONER BYRON: Well, do you develop your own economic forecasts for your service territory? Or do you depend on others?

MR. ASLIN: We also use Economy.com, but we also subscribe to Global Insight, to UCLA Anderson School forecasts, as well.

COMMISSIONER BYRON: That is why those organizations exist.

MR. ASLIN: Yes, well, they do a really good job. We used to do it in-house, we had a staff of many many

people who took the U.S. Macro forecasts that were produced and tried to parse them out into our counties, but we found that to be less effective than having a group of highly educated economists to study the regional economies and have a very complicated -- not complicated, but very sophisticated model that does it. So -- but I do think it is good to look at various points of view on the economy because there is a lot of uncertainty as to what is the structure of the recovery, whether we come out of it quickly, or whether we come out of it slowly, and that has very big implications for energy demand.

COMMISSIONER BYRON: Sure.

MR. ASLIN: But just this sharp decline, to me, it seems inconsistent with the idea of the California economy, in general.

COMMISSIONER BYRON: Mr. Aslin, could you explain a couple of things you said as to why you do not think -- as to why you think both peak demand and the overall demand -- let me try to state it correctly -- why is it that you think the peak demand has to eventually return back to 2008 is one question; and why is it that you do not think peak demand -- why is it that you think peak demand and normal demand cannot -- both have to be consistent?

MR. ASLIN: I will take the first question. The reason is because, over this period of the forecast horizon,

so from 2008 to 2015, in PG&E service territory, our projection is that we will add an additional half a million households and that the underlying economy will product an additional $100 billion in real output.

COMMISSIONER BYRON: One hundred billion?

MR. ASLIN: One hundred billion dollars in real output, that is PG&E service territory. I do not see how that can be accomplished without --

COMMISSIONER BYRON: So it is all predicated upon what you expect the economy is going to do.

MR. ASLIN: Yeah.

COMMISSIONER BYRON: Because my emphasis here is that the programs that we are implementing along the lines of energy efficiency and DSM do not necessarily require we have to return to the same levels of peak demand.

MR. ASLIN: I agree with that completely. But even after you net out aggressive energy efficiency programs, I do not think that you get to the situation where you have absolutely no growth in the peak over a 10 year period. We have never experienced that in the past. I think it is a good vision, but I just do not see it as being a realistic forecast. And that is how I am approaching it. The other thing I wanted to also say, like San Diego, and Lynn mentioned this earlier, we also -- what we saw was that our temperature-normalized April peak when we had that little

mini heat storm in April. That actually did exceed our 2008 peak on a temperature-normalized basis. And I will be the first to admit, the temperature normalization, it is not a hard science, so there is a lot of part to that, but I think the notion that, even if the base load is lower, that if you experience warm temperatures you could get peaks that are nearly as high as they were in 2008 by the end of the summer, is something that we do need to give a lot of consideration to, because we had that one experience and it seems like, for San Diego Gas & Electric, it zoomed up on a hot day; for PG&E, it zoomed up on a hot day. And I am not sure what happened with Edison, but… So that is kind of the comments I have right now. I actually did prepare a brief presentation, so I am hoping maybe at 3:30 I could go through that.

COMMISSIONER BYRON: All right.

MR. ASLIN: Thanks very much for letting me have this input. And did you have any additional questions? All right, thanks.

MS. MARSHALL: Can we see if San Diego is available?

MR. VONDER: Can anyone hear me?

MS. MARSHALL: Yes, Tim.

MR. VONDER: Okay, good. I tried to respond to your request earlier, but I do not think anyone could hear me. Anyway --

COMMISSIONER BYRON: Could you identify yourself, please?

MR. VONDER: Oh, I am sorry. This is Tim Vonder with San Diego Gas & Electric. And Lynn's presentation for our service area was pretty much on. We do have a few concerns, though, and that is with regard to the economic scenarios that were used by the CEC staff to procure their forecast. Our understanding is, you know, Economy.com was the primary and really the only economic forecast that was included in the forecast, and our concern is that Global Insights at UCLA, now, they also provide other views, and I think in this case, at the time that CEC was doing their forecasts, we were doing our forecasts, the Economy.com was actually the low ball in the mix; the others were a bit higher. And so I guess the concern is that, in the revised forecast, maybe there is a possibility of looking at the Global Insights in UCLA and maybe giving them a little weight, and including them in the econ demos. So that is one suggestion for revised forecasts. And like Rick pointed out, the chart that was on page 9 of Lynn's presentation did show that, on warm days, our system responded, or our demand responded like it did in 2008 and 2007, so I think that is pretty important to take into consideration, too. So those are our comments.

MS. MARSHALL: Okay, any other questions or

comments?

COMMISSIONER BYRON: Ms. Marshall, do you care to respond to any of those?

MS. MARSHALL: Well, I think we are going to continue to look at the data and review the assumptions we are using to validate the results we are getting, and we have gotten some good -- you know, San Diego suggested some of the historic data we are using needs to be revised, so we will continue to look at these issues. But any additional -- because I am in a tight timeframe, any additional -- I did not hear you say a lot about the specific megawatt impacts of the efficiency program, so if they have additional reactions to those, or assessments, that would be useful because we are continuing -- as Chris said, those are somewhat of a work in process, so we are continuing to look at our own results.

COMMISSIONER BYRON: Are you looking for responses now or in writing --

MS. MARSHALL: Any time over the next several weeks.

COMMISSIONER BYRON: Well, I think we got some good comments there. It is certainly, I mean, we know the housing market, residential housing market, has been depressed for a while, fewer housing starts, but to see an increase in residential housing load would certainly indicate that more people are home, and dissecting that and

whether or not it is a significant part of the load is important to compare to the downturn on the industrial and commercial side. But there are some other good points, too, that I think we need to look at as well on the data side. Again, we will welcome the written comments to staff. Those are very important. And let's see if we can clear up the discrepancy on the date. I took the June 1 date for comments right out of the meeting notice.

MS. MARSHALL: Yeah, and that was probably my fault because I was not looking at what Chris was requesting for the larger energy efficiency process, and looking at it in terms of the specific resource adequacy peak. I was hoping to give additional time for us to kind of hash things out before we wrapped things up.

COMMISSIONER BYRON: All right, we will let Ms. Korosec settle all that for us. Thank you, Ms. Marshall.

MR. KAVALEC: Okay, through the tireless efforts of Mike Jaske, we have put together this Efficiency Working Group that he discussed, that includes the utilities, CEC staff, CPUC, ARB, NRDC, and we have been delving into various efficiency-related issues, and we were lucky enough to get as our coordinator for these activities Chris Ann Dickerson from CAD Consulting, and she will now discuss the role of the working group, what we have accomplished and what we hope to accomplish. So Chris Ann.

COMMISSIONER BYRON: Welcome, Ms. Dickerson. We are way ahead of schedule, so do not feel rushed in any way.

MS. DICKERSON: Thank you. And thank you, Chris. Well, I have been introduced. My name is Chris Ann Dickerson, and it is a pleasure to be here. I would also like to note that I have been hired through the Aspen Environmental Group Technical Support Contract, and I would like to acknowledge that mechanism. And I would also like to acknowledge the Demand Forecast Team with whom I work, they are really an exceptional set of individuals and it has been quite a pleasure. As Chris was saying, we have put together the Demand Forecast Energy Efficiency Quantification Project Working Group. And it is a fabulous group, the only complaint I ever receive is a complaint about our acronym, it is unpronounceable.

COMMISSIONER BYRON: No, not an acronysm.

MS. DICKERSON: Or, I am sorry, an acronym, thank you. We have had most people be tattooed, so we are not likely to change it soon. All right, so just a little bit of background and I think Mike Jaske went through some of this, this morning. The issues about quantifying energy efficiency, in particular, the uncommitted energy efficiency in the forecast, have percolating up through proceedings for a couple of years, and we have made progress at several different steps. In the 2007 IEPR, the Energy Commission

proposed a process to delineate the assumptions more clearly, and in the 2008 IEPR Update, several workshops were held in preparation for development of the working group, and here for the 2009 IEPR Update, we have had our working group fully active.

I will tell you what this slide says. This slide is a simple one, and it just shows that we have had several workshops and several working group meetings, and we meet about every six weeks or so, the group gets together.

COMMISSIONER BYRON: Just because we are having problems with the presentation, let me just check on a couple of things with Ms. Korosec. Is this going out over the WebEx, as well, so the people are having this difficulty seeing this?

MS. KOROSEC: It looks like it is, yes.

COMMISSIONER BYRON: Okay, and most people in the audience, do you have the hard copy of this from the back table? Okay, Ms. Dickerson, you will just have to be a little more descriptive on each slide, but that is okay, we have the time.

MS. DICKERSON: Okay. So let me just back up a slide, then. This slide, it is a simple slide and it just shows that we have had two workshops in 2008, we had two full working group meetings in 2008, and we have had four and we have another meeting planned in 2009. So this slide

is just showing that the working group has been initiated and we have been meeting.

The next slide mentions some of the members of the working group. We, of course, have a number of Energy Commission staff. We have PUC staff. What is interesting is that we have a group of people here who come from different areas of the picture, so we have energy efficiency people, people from procurement, and from DRA, in terms of the PUC staff. We also have some CPUC consultants, both from the Energy Efficiency Goals types of projects, as well as from the Energy Efficiency EM&V data, that is Evaluation and Measurement Data types of projects. From the IOUs, we have members both from the Energy Efficiency side of the house and the Forecasts side of the house. From the POUs, we have members who actually tend to come from forecasting, but blend skill sets in, both energy efficiency and forecasting. ARB is a member and NRDC. And we have some membership from Lawrence Berkeley National Lab, as well as TURN. And I put those two in parentheses because they do not attend quite as often, but they have let me know that they are monitoring activities and that they are interested in the group.

So we have about -- I believe I had 50 or so people on the mailing list who have requested to receive information about our group, and we regularly have maybe 25

to 30 people attending each meeting, so it is a fairly large group. And as I mentioned, most of these people have come to me and requested that their name be added to the list, so we have people actively participating.

Okay, this next slide talks about working group topics. Since this slide is hard to see, I will just run through the topics quickly. And what is interesting about this group, and I believe the reason why so many people are interested, is that we tend to cover such a wide variety of topics, and in particular we cover the relationship between topics that are frequently addressed in disparate ways in this -- what we like to call the soloed environment. So we are really about crossing silos here. So what the slide says for those of you who might not be able to see it is that we cover forecasting issues, including demand forecasting, energy efficiency program impacts, standards impacts, the effects of the energy efficiency goals, topics related to committed and uncommitted energy efficiency, and that is something we spoke about a little bit earlier, there is a distinction made in the demand forecast between those two types of efficiency. We also cover the role of energy efficiency in the procurement process. We talk about both IOU goals and POC goals and policies, and in particular there are data and there are energy efficiency data. We talk about the AB 32 goals for energy efficiency. We cover,

of necessity, topics related to evaluation, measurement and verification, inasmuch as we need to use data and output from those kinds of studies in order to input the information into our forecasts. And we are also working on developing a Taxonomy of Terms that are commonly used between all these fields. And as we will see later, those terms are not always used the same way in the different fields.

MS. TEN HOPE: Chris, can you clarify the relevance of the goals since this is principally on measurement and attribution, I would think it was looking back and then you can clarify the goal aspect?

MS. DICKERSON: Yes, well, we are doing the forecasts going forward and into the future. And the amount of energy efficiency that we are identifying as likely to occur becomes relevant in the context of the CPUC goals because those goals are also likely to occur, or expected to occur, but they are coming from a slightly different regulatory angle, so we are sort of monitoring the intersection between those two issues. Something I should also say and that I will get to later, but since the question arose, there is an issue that we have talked about in our group about whether or not such goals as the CPUC policy goals should be included in the forecasts. So, for example, the IOUs and the POUs interpret some of the

regulatory mandates to achieve goals to mean that those goals should be incorporated into their demand forecasts. And that is something that we have been talking about in our group, and the Energy Commission has a different take on how that process should unfold. And it is matter of concern because, in some cases, the utilities are not sure that they can meet those goals. And that can be one issue of concern. And for the bodies who are attempting to promote the goals, it is not clear how helpful it is to have forecasts that include goals of a necessity because that is perceived to be a regulatory requirement if in fact the goals might not be met, when the policy-makers may be looking to those forecasts to see whether the goals will be met. So there is a little bit of an issue of circularity.

All right, so the first slide talks about some of the activities -- this next set of slides talks about some of the activities that we are undertaking in the group. And our very first task has been to assemble the Energy Efficiency Program Accomplishments Data, as well as other studies and information that have been undertaken around the programs over time. And you have heard this issue come up in several presentations, and I would like to emphasize it here. It certainly has proven to be a challenge to assemble this accomplishments data over time. And some of the reasons for that are that there are multiple iterations of

the CPUC program data for each program cycle. So the IOUs file information with their program accomplishments. Those tallies are revised on several occasions throughout the year. Later, there is an EM&V process where the results are evaluated, and those evaluations tend to be conducted at different levels of aggregation than the program reporting is done. And so, as a result, the results are spread out in a number of reports that accumulate over time. And these reports are indeed available, but assembling the pieces, the information from the reports, and tracking that back to the initial reported program accomplishments is a very challenging task, indeed. The Energy Commission staff, with some assistance from ITRON, assembled data for the 2009 IEPR Preliminary Report and they did a wonderful job, but we can certainly see that there are improvements to be made in this system going forward, and that is something that we would like to do. And I think an excellent outcome from this working group process is that we have had involvement from all of the stakeholders, looking at this situation. And, in fact, it is very helpful for the PUC and the ED staff to see how some of these data can be used for forecasting purposes, and they have a much better idea going forward of some of the formatting issues and reporting requirements that will be useful to have for the EM&V Data. An activity that we have done through this working group is to work through the

California Measurement Advisory Council, that is the group called CALMAC, that is a stakeholder group for the Evaluation Measurement and Verification activities underway in the state. And we have a project there underway to improve the reporting processes to achieve more consistency, so that the evaluation data can be used in the forecasts. Another big step that we have undertaken in CALMAC is to expand membership of the group beyond just the IOUs and their regulators, to include the POUs. So that is an important step forward for evaluation in that we hope to be achieving greater consistency of evaluation results going forward. And CALMAC has traditionally addressed only the evaluation of energy efficiency for the IOUs and now CALMAC has agreed to start looking at addressing issues related to evaluating load impacts from distributed gen and demand response, as well as efficiency. And as a result, we can start getting all of these sort of demand-side load impacts on the same footing as our hope, so that these results can be included more effectively into the forecasts.

A second line of action that we have engaged in for this group is development of a taxonomy of terms. And this is an activity that is a follow-on from work done by ITRON for the Public Utilities Commission, for Michael Wheeler, who spoke earlier this morning. And as part of comparing the ways some different forecasting models worked, it became

clear that there are a number of terms used in sort of the interstitial territory between energy efficiency, energy efficiency evaluation, measurement and verification, and forecasting, where the same terms are used by the people in these different groups, but they are not necessarily used with the same meaning. And in some cases, there were some new terms that needed to be developed. So we have -- ITRON did a first draft of this Taxonomy of Terms and now the DFEEQP Group has taken over development of this draft. Some examples of the terms where consistency is important, especially for communicating with Regulators would be market effects and price effects, are actually very different concepts, and we found that some of our models were using the same terms to describe them. So, for example, in some cases price effects has to do with rate increases, and in some cases price effects can have to do with the pricing differences in the purchase of energy efficiency goods and services. So it is very important to get those kinds of things clear. Market effects is another example, where in some cases market effects have to do with changes in prices, and in energy efficiency EM&V, market effects tends to have to do with stocking and distribution practices and the actual market share of goods and services that are being provided. We have ex ante and ex post. Those are terms of art used in energy efficiency evaluation. "Ex ante"

assessments are sort of the preliminary estimates of program savings, and "ex post" estimates have to do with measurements that come after evaluation has been conducted. And those terms were not necessarily completely familiar to the forecasters, but has very much to do with the energy efficiency data that can be used in the forecast. So this is another example of the kinds of terms that we are going to be including. And "futures growth" is an example of a new term that had not previously existed explicitly in the terminologies and dictionaries that were being used, it is more of a forecasting term that the EM&V people are not really aware of, used to describe situations, for example, when we have energy efficiency occurring; an example would be that refrigerators become, in fact, more efficient over time, but the units that are being sold have more features, or are larger than the prior units, so you have a combination of growth in energy use, and additional efficiency at the same time. So we need to have ways to talk about that type of change in energy use and change in efficiency.

So the progress on development of the Taxonomy of Terms, as we said, ITRON prepared the initial draft. The DFEEQP Working Group put together a special committee who is interested in working on this topic, and we reviewed the draft and had several meetings. There was a point of

reassessment when the Energy Commission and the Public Utilities Commission staff made a determination that they would actually be interested in moving this activity forward, they found it to be very useful, and so we have designated now an Energy Commission Lead Author and a PUC Lead Author, so this will be a joint staff product when it is finished. And the idea is that we could begin to include these definitions in existing documents as they revise; for example, the Public Utilities Commission Evaluation Protocols and some other types of documents where definitions tend to reside.

And probably the third primary activity that we have undertaken in this group is to do a comparison of the forecasting methods for all of the stakeholders who are at the table, so this includes the IOUs, the Energy Commission staff, and the POUs, and we asked members of the group if they would put together some high level information about the way they construct their demand forecasts. And in particular, how they go about incorporating energy efficiency impacts into their own forecasts. And we had several meetings on this topic, and we were able to do sort of cross-wise comparisons, across the different stakeholders, and it certainly proved to be very interesting to observe the similarities and differences in methods, and then to share ideas. So here, this slide talks about the

meetings that we had. And I wanted to acknowledge the work that the stakeholders put into preparing these presentations, and we noticed a number of issues with the forecasts where the different entities are using slightly different styles and approaches, and actually that will be coming up in a later presentation this afternoon. But as a result, there has been some interest expressed by some of the utilities in developing a common forecasting methodology, and possibly sharing some data to reduce the labor burden on the utilities in producing individual forecasts. So that is another activity that we will be examining in this group.

So some of the benefits of the DFEEQP Group. I think the biggest benefit is the transparency. The inclusion of energy efficiency in the demand forecasts is certainly a high priority issue and with this stakeholder group, people are very active, and there is a great deal of discussion and sharing of information about how the Energy Commission is planning to include impacts into their demand forecasts, and also, as I mentioned, sharing about how the utilities include energy efficiency in their own forecasts. And I think it has been a very productive group. I get a great deal of positive feedback about the group. And something I should say is that, you know, the material that we discuss at each meeting tends to be very technical and

very challenging, and I am always a little surprised and certainly pleased, people -- we have 25 or 30 people who stay for a day long, a full day to address these topics, and even by the end of the day, you know, people are still very engaged and very interested. And it is just gratifying to see and I think it speaks to the fact that there are not quite enough opportunities to talk about issues that relate to all of these topics at the same time. And this is a very effective way to do that.

Some of the ideas for our next steps. We are still working on -- well, the Energy Commission staff is still working on their revised forecasts, and then development of a forecast for the incremental energy efficiency, so those are two steps where this group will be involved. Certainly, there is a great deal of interest in both the revised forecasts, but in particular, the uncommitted energy efficiency and the methodology for capturing those uncommitted effects.

We feel like we have made a lot of progress for the 2009 IEPR cycle, but we certainly se that there is plenty of work to do in this arena, and are planning to continue the working group beyond the 2009 cycle. We are working to monitor and effect developments in energy efficiency program reporting at the PUC for the IOUs and also for the POUs, so that over time we can get, as I mentioned, better

consistency in reporting of these results, and in a manner that facilitates forecasts.

We are looking at possibly conducting a project to reconcile some of the historic energy efficiency program impacts over time at the PUC. So, in other words, program accomplishments earlier than about 2004 are very difficult to identify any other than the most aggregate level for the PUC programs, so there could be value in going back to assemble that information in a more consistent format over time; it does exist, it is just not easily accessible. So, as I mentioned, we are interested in possibly developing a common forecasting methodology and we are going to continue development of the Taxonomy of Terms. Thank you very much.

COMMISSIONER BYRON: Thank you, Ms. Dickerson. I hear periodically about the DFEEQP from staff and I appreciate your assessment. As I was listening to some of your presentation, a couple of questions came to mind, in particular, back on slide 9 where you were talking about the staff determined additional attention to this issue could be beneficial, and the co-authors have been selected for this Taxonomy Report. Have definitional problems contributed to inaccuracy of the measurement or the attribution in the past?

MS. DICKERSON: I do not think so. Well, I do not know. Chris, may I ask you a question about price effects.

COMMISSIONER BYRON: Have definitional problems in all these terms that we use contributed to inaccuracy of measurement or attribution in the past?

MS. DICKERSON: Actually, you can maybe help you. My guess is that I do not think so.

MR. KAVALEC: Yes, I was just going to say that the idea for a Taxonomy of Terms came from the last IEPR process where staff had a lot of trouble communicating with the committee and others at the workshop all of these concepts and how they were measured because people had different definitions of the concepts sometimes.

COMMISSIONER BYRON: Sure. And I appreciate it for that reason, but I am just wondering, you know, as this group has met, has it become pretty clear that has contributed to some of the inaccuracies associated with the attribution and measurement?

MR. KAVALEC: The measurement, no. It is more of a communication problem.

COMMISSIONER BYRON: Thank you. And Ms. Dickerson, you also talked a lot about the membership and the benefits of the DFEEQP, and you identified the organizations, but are some of the same members of this -- I will use the acronym again -- DFEEQP Group represented here today, particularly from the investor-owned utilities?

MS. DICKERSON: Yes.

COMMISSIONER BYRON: Okay, so we have consistency amongst our workshop participants and members of this organization?

MS. DICKERSON: Yes.

COMMISSIONER BYRON: Good. Let's open it up, there is plenty of time. Any other questions from anyone else in the audience or on the WebEx?

MS. GEORGE: I have a question.

COMMISSIONER BYRON: Please come forward and identify yourself.

MS. GEORGE: Yes, my name is Barbara George and I am with Women's Energy Matters. I was in the procurement proceeding in 2007 where some of these issues were discussed, and where the Commission ended up only counting 20 percent of the goals because there was so much in the future procurement, in other words, that only 20 percent of energy efficiency was available to reduce the demand because there was so much confusion about what the attribution of the savings between CEC's codes and standards vs. the IOU Energy Efficiency Programs, that was one of the issues. But then the second issue was how much was embedded in the forecast rather than visible, as a resource. And there was a misunderstanding, apparently, or the models did not fully take into account, at least in the testimony in that proceeding, that the problem was that the CPUC and CEC had

agreed that only committed savings would be buried, embedded, in the demand forecast, and then future programs would not be there because they would -- because there was no certainty about what the amount of them was going to be, they could be higher, they could be lower; and so it also enables the resource planners to look at energy efficiency as one resource out of a number of resources that could fill that particular hole. So what I was wondering, and I asked Lynn Marshall in the hallway, but I am still not quite satisfied with the answer is, Chris Kavalec's testimony said that they had only included the committed savings through 2011; of course, those actually are not committed yet either, but what I am wondering is why isn't there a bump up in the energy after 2011, which would represent the impacts of the energy efficiency programs? I mean, they are not visible. Now, Lynn's answer was that there are ongoing impacts from the past programs -- you stick a light bulb in the socket and it lasts for a certain number of years, well, unfortunately those years in the commercial setting, they only last for a year and a half, and so you would fall off a cliff in the middle of the program cycle, you do not even get to the end. And in residential, they are claiming nine years, I do not think that is really true. And CFL's are about half of the savings from the program, that is why CFL's are so important. So anyway, I think there are

questions that I am having about what are their assumptions about decay. The assumptions that the Energy Commission has made in terms of customers replacing light bulbs after the first one burns out are different from the CPUC assumptions. The CPUC said we are only going to count the first bulb, the one that was incented by the program. In this case, from Lynn's decision, she said -- and I think this was mentioned here -- that the CFL's were assumed to be replaced by the customer, going forward. And the question I have is whether there is, you know, is there evidence for that? Maybe yes, somewhat, but certainly not 100 percent. So anyway, you know, my major question is why doesn't the graph show a little bump up after 2011? Or don't the IOU programs make much of a difference?

COMMISSIONER BYRON: I do not know that Ms. Dickerson is the right one to answer that. Are you?

MS. GEORGE: Well, I assumed we were able to ask questions off of the whole morning presentation, so --

COMMISSIONER BYRON: So let us look to staff for an answer.

MS. GEORGE: Yeah, okay.

MR. GORIN: I am Tom Gorin from the Energy Commission staff and this might be dealt with a little bit in my presentation of how we developed the lighting you receive -- the lighting end-use for the residential

forecast, and it may go to some of the attribution problems that you were talking about. In some cases, there is a bump up for savings that we decayed from the utility programs that are not in the models, that we subtracted after the fact from the models. In the case of lighting, there are -- in the residential sector, we made assumptions which I will go into -- after 2011, there is the federal standards which effectively prohibit incandescents from being sold after 2012 or 2013, and the Huffman Bill, which requires that residential lighting be 50 percent of a 2007 value by 2018, which we did not fully incorporate, but figured at some point in time we are going to have to start getting to that level of detail, that level of lighting reduction. In the commercial sector, there are existing standards for lighting which could conceivably overlap with utility programs, and that is a aggregation problem that we are going to have to deal with for the Revised Forecast, where retrofit lighting has to conform to existing, more restrictive building standards, which we discounted in the 2007 IEPR, but increased the compliance rate for the current draft forecast. So there could be conceivably an overlap or, when the utility programs go away, they are going to be replaced by a similar measure which meets the building standard. So that is why there is not a specific bump-up for lighting after 2011.

MS. GEORGE: So you are assuming that there is a greater compliance? Or you said a different program. Whose program was that?

MR. GORIN: It is -- I would say that, in some cases, with the changing rules at the Public Utilities Commission and credits that the utilities get for standards and codes compliance, there could be a significant overlap between -- a utility could help commercial customers comply with the code and so, at some point in time, the program savings goes away, but the code savings stays, and it is the same energy use over that longer period of time, and that is something that we are still wrestling to just aggregate, whether it is a program savings or a codes and standards savings, it cannot -- they are not additive.

COMMISSIONER BYRON: Well, and if I can interrupt for a moment, Ms. George, I want to make sure we try and answer your question. If he has, great, but it is kind of interesting, you have not seen his presentation yet. My guess is your question relates back to one of the presentations that you saw earlier this morning. Was it Mr. Kavalec's presentation?

MS. GEORGE: Yes, it was. Well, there were a couple of remarks this morning that had to do with this issue. I mean, this is what I came to hear and I have thought about it a lot and talked to other people, so I understand some of

what Tom is saying, even though I have not seen his presentation yet.

COMMISSIONER BYRON: So we will get into some more detail there. I am wondering, was it a specific slide that you were looking back in the earlier presentation, and then we could get to it a little bit --

MS. GEORGE: I do not know if it was actually in a slide. I was making notes and, you know, it went by me, and that was what I was waiting to hear, you know, what were they doing in terms of whether they were embedding things in the model in the future, which they were supposedly not going to do, except that the codes and standards are still embedded. I mean, the CEC work is still embedded in the forecast, and I guess whatever you want to call "natural effects," you know, is embedded in the forecast.

COMMISSIONER BYRON: Correct.

MS. GEORGE: But the IOU programs are supposed to be broken out after 2011 and so I was interested in seeing, you know, well, does 2011 -- there are no impacts of losing the IOU programs, that is kind of an amazing thing for the CPUC to understand, is that they have no impacts, apparently -- according to those graphs, unless I am not understanding what has been done, or it is not fine enough detail to see whatever the impacts are.

COMMISSIONER BYRON: Okay, let's give Mr. Kavalec an

opportunity to respond and then maybe this will come up again later in Mr. Gorin's presentation.

MS. GEORGE: Okay.

COMMISSIONER BYRON: I am sorry, Chris, I said your name incorrectly -- Mr. Kavalec.

MR. KAVALEK: Thanks. One of the points that I attempted to make was that the impacts of energy efficiency, although they have an impact on the change in the forecast relative to the 2007, their absolute impact is relatively small. So you are not going to see a big rebound in consumption as soon as the 2011 programs end. But there is -- and you mentioned it is in the minutiae, I do not know if you can see it here or not, but once 2011 ends, notice there is a small bump, and then the line flattens out. Hopefully I am not just imagining this.

MS. GEORGE: I guess I could sort of -- now that I know that you say it, I think I could kind of see it.

MR. KAVALEK: Yeah, so that is basically what it looks like, and it is relatively small, but it is there. It is relatively small because of the decay of the accumulation of previous programs, so it does not all go away at once.

COMMISSIONER BYRON: Good. It may not have been what you expected, but it looks like it is there.

MS. GEORGE: Okay, thank you. And what number slide is that?

COMMISSIONER BYRON: It is number 5.

MR. KAVALEK: Number 5, yeah.

COMMISSIONER BYRON: Ms. Ten Hope, I know you indicated you had some questions, please.

MS. TEN HOPE: I just have one question for Chris Dickerson, and Mike Jaske made the same comment, that there is a different perspective from the Energy Commission and the PUC, and whether to incorporate the policy goals in the forecast or stick with a more traditional committed vs. uncommitted, and if you could discuss a little bit more the underlying differences there and what the implication would be, that would be helpful.

MS. DICKERSON: I think I could do that. And perhaps the question also could go to some of the Utilities, themselves, but I will do the best I can to answer. So we have heard from several of the Utilities that they believe that they have been ordered in regulatory proceedings to incorporate the effects of the energy efficiency policy goals from the PUC into their demand forecasts. So as they are making their forecasts, after 2012, their forecasts, then, includes the effects of the goals from those programs, and that is opposed to, for example, forecast effects of programs based on prior program experience. So that could be -- so those things could be the same, or they could be different, but the point is that they are including a goal,

rather than an assumption about what might actually occur, although, to be fair, those two concepts are presumed to be converging -- what might be expected to occur is assumed to be the PUC's goal, but that is an issue about incorporating a policy goal as a demand forecast. We have heard similar lines of thought from the POUs, where they have goals from AB 2021 or from their own boards, and the forecasters wrestle with whether or not they should be including those goals in their actual demand forecasts going forward, particularly in instances where they feel that, from the forecast perspective, those goals may or may not be achievable.

MS. TEN HOPE: And regardless of whether they are achievable, they may or may not be achieved, so those are sort of different --

MS. DICKERSON: Yes. Now, Energy Commission staff, I think, have determined that that is not the appropriate path to take for the IEPR and for the Demand Forecasts, so that is not the path that the Energy Commission follows.

COMMISSIONER BYRON: Good, thank you. Are there any other questions from audience members or on the WebEx? Please come forward.

MR. ASLIN: My name is Richard Aslin and I work for the Pacific Gas and Electric Company. And one thing is I would just like to have a comment on the working group, and

that is that I think it has been very very useful. And one of the things that I think has come out of it that has been very important is something that I think a lot of us might take for granted in forecasting, but is absolutely the single most important thing, and that is to have a consistent and a well-documented history. And that is one of the things that has been lacking for trying to incorporate the different trend in the future of energy efficiency savings vs. the history. So I think that has been a really critical component of the working group. The other thing I would like to comment on is -- was it Barbara? I would like to say that Barbara did hit on something and I do not think we should let that go quite so easily because, since the 2003 IEPR, and in the 2005 IEPR, and the 2007 IEPR, and again, now in the Draft Forecast for the 2009 IEPR, I think all the IOUs have exactly that same observation -- where is the hockey stick. Where is the hockey stick in the forecast? Because there should be a hockey stick in this forecast at 2011. Energy efficiency programs are offsetting about half of the growth in energy demand and in peak demand. So the growth rate in these forecasts should be twice as high after 2011 as it is before 2011. But we never see that in these forecasts, and that is the very reason why, in the last long-term procurement plan, this issue came up about there must be a tremendous amount

of embedded energy efficiency in the forecast, just in the models themselves. That was the very genesis of the whole issue, that this working group was put together to answer. And that is still a question. I still do not see that. When I look at the peak load forecast, it is a lot easier to see in the peak load. So PG&E's energy efficiency programs are designed to offset in the period 2009 to 2011 roughly 250 to 350 megawatts of peak demand. And according to the Energy Commission's, you know, modeling, none of that is included after 2011 -- yet. We do not see an increase in the growth rate and peak demand after 2011. How can that be? I still do not understand that. And it has never really been fully explained, and that is why we have the controversy, and why, we said, it must be 100 percent. That is the only logical explanation, you know, not knowing the models, not having access to the models, the end use modeling being sort of a black box is still an issue. But if you just look at it logically, it must be the case that a very very high proportion of the energy efficiency savings are included in the models in some fashion because, otherwise, you would see this differential growth rate after 2011. And I would like to have that explained further, why we never see that. The third thing was that PG&E does support the notion that, in order for the IEPR forecast to be usable in planning exercises such as procurement planning

and transmission planning, that it needs to incorporate as committed the current goals that flow from the potential studies and are adopted by the Public Utilities Commission, and for which the IOUs are ordered by Commission decision to include in their long-term planning forecasts. And what has happened in the long-term procurement plan is that, somehow, a decision was made in the scoping memo that said that, in the long-term procurement plan, we will use the CEC's IEPR forecast. That had a lot of logic to it -- it is a statewide forecast, it is an integrated forecast, you know, it does all three IOUs at the same time, so on and so forth, so there was a lot of reason to think of that as a logical thing to do, but where it started to fall apart was that there is a difference in this definition of what is committed energy efficiency savings vs. uncommitted. So from PG&E's point of view, and something that we have been saying for a while, is that we think that the base case IEPR forecast should include as committed the current CPUC adopted goals and, if there is anything above that level that is achievable, then there should be a scenario that says, you know, "Here is the uncommitted energy efficiency, the amount of energy efficiency that is achievable, that is above the current targets, and the current targets being set based on the potential studies." So, I think -- I thought I saw in somebody's presentation that I looked at, that that

is something that the staff is considering. So I would hope that they would follow through on that. And that is all the comments I have.

COMMISSIONER BYRON: Good. I would like to hear from staff on some of these points that Mr. Aslin brought up, please.

MR. KAVALEC: On the hockey stock issue, I think that is very very pertinent, this has come up before, and it is hard to deal with that now, looking at statewide results. I think what would be useful for the preliminary forecast is to take a -- to focus in on 2011 and beyond to show exactly what is happening, and what it is that are causing the different effects, and where that hockey stick is. So it is a matter of presentation, then, and we will work on that for the preliminary forecast workshop.

COMMISSIONER BYRON: I am not sure that answers it. I know you have got statewide data up there, but I believe Mr. Aslin said we should see significant growth beyond the 2011 in the forecast. And, of course, IOU service territories are about 75 percent of the statewide, so we should see that effect there. So are we properly accounting for it is the ultimate question.

MR. KAVALEK: Well, yeah, I mean, the proper accounting has to do with what you assume after 2011, the useful lifetime of the measures and the decay rates, and so

on, which we are going to talk about more this afternoon.

COMMISSIONER BYRON: Okay, what about the other point, the base case IEPR forecast should include the CPUC goals for -- I believe you said -- both committed and uncommitted energy efficiency programs?

MR. KAVALEK: We want to keep the distinction because we think it is important between committed and uncommitted, but we are also providing, as we mentioned before, an uncommitted forecast after the revised forecast. And in future IEPR cycles, probably not this one, we want to look into what Richard was talking about, potential savings beyond the goals.

COMMISSIONER BYRON: Okay, any other comments, questions?

MS. TEN HOPE: Well, I am still trying to understand. So the reasons you do not see a significant rebound or that some of the programs from 2009 and 2011, the impacts are continuing into the future, so you do not see an immediate hockey stick, it is more gradual? And I think a second that I have heard you mention before was that some of the efficiency measures that were covered in programs would be purchased in the market and reflected in market effects, and so you would not see a dramatic increase? Are those the two principal --

MR. KAVALEK: Yeah, I guess there are three things.

We are looking at a macro level, the effects die off gradually, and there are additional savings that continue in the residential sector, beyond the programs that are reflected in the consumption. I mean, it is a combination of those three factors, and I think breaking it out and focusing in and showing what effect each one has for the next workshop would be very helpful to understand what is going on here.

COMMISSIONER BYRON: Please.

MR. ASLIN: So, for me, the biggest question of all that I would like to have answered at the end of this process, of the 2008 IEPR flowing into the 2009 IEPR, I think this is the same thing that the Public Utility Commission would like to have answered, is exactly how much of the currently adopted CPUC goals are captured in the base case forecast? That is really what we want to know, and we want to know that very clearly -- how much is in there, and how much additional adjustment will we need to make in order to get to the goals? Because the goals are not just utility programs.

MR. KAVALEK: And that is exactly our goal, too. And that is -- and why we are spending so much time on these committed effects, so that we are able to then break out the incremental part of the uncommitted, having a much better handle on what is in the forecast in the first place.

MR. ASLIN: And -- okay, so we have the same goal, but what is the probability of achieving the goal, in your opinion, by the time we get to the end of this cycle?

MR. KAVALEK: Well, I guess that -- if defining the goal is an estimate of the incremental portion of the goals, then, I mean, there is 100 percent probability. How accurately, how precisely we can do it is another question.

MR. ASLIN: Okay, fair enough. Thanks.

COMMISSIONER BYRON: Perhaps that was going to be his next question. Thank you, Mr. Aslin. Anymore questions? Do we need to ask WebEx, or do they pop up and you will be able to tell me? Okay.

MR. KAVALEK: Okay, so we are a little bit ahead of schedule, so I think we will put in our first presentation after lunch, a 15-minute presentation. We will have that now, and then we will take an early lunch.

COMMISSIONER BYRON: All right.

MR. KAVALEK: So, as I mentioned before, the way we incorporated these efficiency impacts was through the models themselves, and through post-processing of the model output. And Tom Gorin is going to talk about what we did in the modeling arena with regards to energy efficiency, so Tom?

MR. GORIN: I am going to talk about the types of refinements that we are currently in the process of implementing and the first is developing a new end use from

existing model end uses, where we are splitting lighting out of the current miscellaneous residential end use. That has had a fairly major impact on the residential output, residential model, which I will go through. Other refinements are looking and reexamining historical forecast end use inputs from saturations from the recent RASS, and starting to look at saturations in commercial end uses, and both unit energy consumption estimates from the RASS surveys and the EUI estimates from the commercial surveys --

COMMISSIONER BYRON: Mr. Gorin, I am going to ask you, I am sure everybody here is familiar with the residential survey and, of course, you turned the acronym into a word, but if you will just state it out the first time so that way everybody will know what you are talking about.

MR. GORIN: The Residential Appliance Saturation Survey is the RASS Survey, the Commercial End Use survey is the CEU Survey. When we talk about unit energy consumption, it is Residential Use Per Clients, it is a UEC, in the commercial sector it is Energy Utilization Index, EUI, is used per square foot. Estimating both saturation and energy use components from these surveys is a little bit like weather adjustment, it is a highly sophisticated art from, buried in econometric analysis. Using different individuals or different people can look at the same data

and come up with different results. Prior to restructuring from the residential standpoint, the utilities were in charge of developing their own surveys, and we had a much larger sample size from the IOU utilities in the '90s than we currently have at a statewide level, so there is some differences in precision estimates between old surveys and the newer surveys. So we are in a sense trying to get a consistent history of usage patterns from those surveys. Another refinement is trying to develop DSM savings, or efficiency savings, Demand Side Management savings, to eliminate all the double-counting and some of the double-counting, maybe Mr. Aslin was talking about. And deciding whether to subtract whether a program can be conceivably counted as being captured within the model, or not captured within the model and needs to be subtracted exogenously. One example is the lighting was never in the residential model, it was part of miscellaneous, "miscellaneous" was developed based on income, household size, and electricity price. There was never any reductions for incremental lighting efficiency. In the commercial model, there is a specific lighting end use, both exterior and interior, and those decreased over time due to various standards; now, to the extent that there is double-counting between the standards and the programs, we have to make a determination how large that is, so that has become a question.

I guess I am going to try and explain what we did with residential lighting and it may cause more questions than answers, but… It was previously part of miscellaneous, we essentially subtracted it out prior to 2004 for miscellaneous so that the summation of lighting and miscellaneous energy use prior to 2004 is the same as the old miscellaneous end use was. We chose 2004 as the base year because that was what ITRON based the Goals Study and asset runs on for their lighting end uses. The UEC values for lighting that we used were based on data supplied from ITRON from various sources. They went back to early or mid-'80s in citing their sources. We made some adjustments to their analysis in the older years to fit the assumptions we had on miscellaneous use in the model at those times. For the 2005-to-2011 programs, we essentially took the utility reported savings in program plans and put those into the model as reported. We also made the assumption -- and this may go to some of the hockey stick question -- that lighting levels would remain at the 2011 level throughout the forecast. We did not make the assumption that, once the CFL burns out, it was going to be replaced by an incandescent because there are different legislation and laws in the works that would preclude that from happening. There is also legislation that would incrementally lower lighting levels after 2011, and those are going to be determined to

be uncommitted savings currently because there is not in place yet an enforcement mechanism for those lower lighting levels. From 2004 on, the lighting levels were subtracted from our previously calculated miscellaneous UEC from the 2007 value -- I mean the miscellaneous UEC that was developed in the 2007 forecast. We used as a starting point for lighting which, I think, is consistent with what ITRON uses in their studies, which is in the ballpark of other estimates currently, of 1,800 kilowatt-hours per year for a single-family house, and 1,000 kilowatt-hours per year for a multi-family house. We reduced those levels back to 1980 because of smaller houses and older homes, and our back cast goes back through 1980. The 2005-to-2011 programs were from the utility program submittals and the base submittals for the 2009-to-2011 programs. This is a normalized value of lighting over the history in the forecast period. You can see that it is one in 2004, there is a big drop to 2011, and the values past 2011 are held constant. I guess my question is whether the utilities would think that the values after 2011 should go back up towards one. I think there is enough -- there are other arguments that would mark a transformation, that maybe the 2011 value that we are using for the forecast period should remain constant. This is the annual lighting UECs that result from these assumptions, so you can see from 2004 and 2012, it goes from 1,800 to 1,323.

They are different for utility programs, they are different by utility because of differing assumptions on the 2009-to-2011 programs that the utilities are providing for CFLs. This has a basic reduction and use per household compared to their 2007 forecast of, for PG&E, about 500 kilowatt-hours per household in single-family, and 265 for multi-family, about 600 in Edison for single-family, and 300 kilowatt-hours a year per household in San Diego. And this effectively drops use per household about 5 percent for the forecast, which is a large part of the drop in residential forecasts.

For future considerations, we are going to look at additional lighting surveys. Some of the newer lighting surveys may provide differing answers to some of the inputs that we have used. There is a new lighting survey that should be out next year, it is not going to be available in time for this forecast; both the PUC and the Energy Commission are conducting lighting surveys. There is a new RASS that is in the field right now that we are asking a bunch of lighting questions about, that will be available for future analysis. Some of the difficulty of the existing surveys is that they are done on a statewide level and we would try to do some of this work, look at impacts, by utility and housing type. And if you have 800 participants state-wide, it is hard to look at something like mobile

homes in San Diego County because there are maybe three or four of them represented in the survey. Another item that we are going to examine more for the revised forecast is to try and account better for overlap between utility programs and federal and state building standards, and existing legislation to try and eliminate double-counting of savings where possible. So that is it. If you have any questions…

COMMISSIONER BYRON: Do we have any questions from audience members?

MS. JONES: This is Jacqueline Jones again with Southern California Edison. I just wanted to ask about your last statement about the refined interaction among standards -- have you done any work at all, or have any detailed plans on what you are going to do with respect to that?

MR. GORIN: We are going to look at in the commercial sector the continued reduction of lighting EUIs and how that would be maybe double-counted with existing utility programs, and probably in the residential sector we would do that also. That is kind of an attribution problem.

MS. JONES: Yeah, which is kind of the meat of the problem.

MR. GORIN: The crux of the matter. If, as we increase the compliance rate with the commercial lighting standards which covers all retrofit buildings, or remodel applications, it is conceivable to me that the utility

intervention with the people doing the remodel could be accounting for the same savings that you would get from the standards, but the way the accounting is now, the utility gets credit for those codes and standards compliance. What we want to do is try to make sure that we are not counting that savings twice from a forecasting perspective. And we are going to have to do some greater in-depth analysis that we have yet to determine that.

MS. JONES: No kind of time frame?

MR. GORIN: We expect to get that done by the Revised Forecast.

MS. JONES: Oh, well, I will definitely be interested. Are you going to be working with stakeholder groups, the DFEEQP?

COMMISSIONER BYRON: The working group.

MR. GORIN: We will solicit comments from all the stakeholders on this. And that will probably be a topic in the June 26th workshop, I would guess.

MS. JONES: Thank you.

COMMISSIONER BYRON: Ms. Jones, before you leave, maybe you or Mr. Gorin know why is it that Southern California Edison seems to do so much better in savings from these lighting programs?

MS. JONES: We are very efficient.

COMMISSIONER BYRON: You mean your customers are

very efficient? Any idea? Tom?

MR. GORIN: Not really, but it would seem to me that they put more emphasis on their savings from their CFL program than the other utilities. I mean, this is -- to my knowledge -- is based on the programs as filed with the PUC now for the 2009-to-2011 anticipated programs, and those savings are based on the savings for CFLs that are derived by those programs.

COMMISSIONER BYRON: Uh huh, well, that is good. And, of course, it applies to SCE, as well as all the other utilities whether or not the assumption that you make in your analysis that those lighting levels will remain constant after 2011, whether or not that is true will remain to be seen. Yes, Ms. Jones? Thank you, Ms. Jones.

MS. TEN HOPE: Could you explain the relationship between slide 8 to slide 9? Slide 8 has the annual lighting UEC per household, and then slide 9 is the reduction from the 2007 forecast. So is the slide 8 before or after the adjustments that you made to the 2007?

MR. GORIN: Slide 8 is after the adjustments. Slide 9 is the --

MS. TEN HOPE: Isn't slide 9 the subtractions that you made from the assumptions in 2007, and then that resulted in the numbers that you show in slide 8?

MR. GORIN: Yeah, these are the current lighting use

per household numbers that we were using, that we are using in the current forecast. This is a -- this represents the reduction from the 2007 forecast in use per household because of more efficient lighting, so we are assuming from 2011 on that every single family household and PG&E is going to use 477 kilowatt-hours a year less than they did in our 2007 forecast, because of the proliferation of CFLs.

MS. TEN HOPE: But you have numbers going back to 2005, so aren't -- these are adjustments made based on --

MR. GORIN: Based on analysis of the 2005-to-2008 program filings that were not included in the 2007 IEPR forecast.

MS. TEN HOPE: Okay, it is getting muddier, but I will stop there.

MR. MESSENGER: Mike Messenger with ITRON. I just have a quick question for Tom and then a general point about the DFEEQ with respect to that question. On slides 5 and 6, you refer to lighting levels and I am assuming that the words "lighting levels" means UECs. Is that correct? Because I got lost -- to me, lighting levels means something different, so…

MR. GORIN: In slide which?

MR. MESSENGER: Slides 5 and it says, "It assumed that lighting levels will remain at 2011 levels through 2020."

MR. GORIN: Probably since I did not go through the Taxonomy paper, but…

MR. MESSENGER: My next point is going to be related to the Taxonomy paper precisely for this reason.

MR. GORIN: I assumed that the UEC is basically constant after 2011, which is -- you are saying is different than lighting levels.

MR. MESSENGER: Yeah. Commissioner, earlier you had asked the question, do some of these differences in definition make any difference in terms of the bottom line of the forecast or the accuracy, and I think -- and unfortunately maybe I am a minority opinion, I think in some cases it does because people use terms differently and this is just a good example -- I am not trying to pick on you, Tom -- but if I were in a different audience and I was talking about lighting levels over time, they would assume things like the level of fixtures in the house, or the amount of --

COMMISSIONER BYRON: Lumens.

MR. MESSENGER: -- lumens that fall on a different task, and that type of thing. So "lighting levels" would be seen as an indicator of structural growth. Here, Tom is using levels as the total usage per household, which is the sum of structural growth and any changes in efficiency that happen over time. So the bottom line point is that, because

we have different terms that we use loosely, I think people misunderstand what is in the Energy Commission's forecast and the thing to me that is the most important thing to weigh as a policy maker for the lighting UEC, paradoxically, is not what is the future penetration CFLs, it is whether the observed increase in fixtures per household over the last 20 years, which has gone from something like 15 to 40, whether that huge increase in the number of fixtures in a typical house is going to increase post-2012, or whether it is going to saturate, whether -- I think the current figures are something like 48 fixtures per house on average for a new single-family home in California, whether that is sort of the limit and we are not going to continue to see growth in the number of fixtures or not. So I would suggest that it is important to separate out these terms so that you know, if you are interested in finding out things like attribution and overlap, to what extent our forecasts have increased growth in things like the size of the house or the number of fixtures of both, and how much is there a change in energy efficiency. This, also, is I think the key to the answer of the hockey stock question. I think the reason that you do not see any hockey stick is because the economic growth effects are swamping the energy efficiency effects in that period, 2010, 2011, 2012. And depending on what you assume about how fast the economic recovery is going to

happen, you will either see a hockey stick, or you will not, because the economic effects are bigger in magnitude than the energy efficiency effects at the margin. So if you had an indication of exactly what the structure of growth was there vs. how much changes in efficiency, you would be able to figure out whether the sought-after hockey puck factor, or the hockey stick effect, exists or not. But we cannot tell with the existing data because we do not have, I would think, a common set of terms that we are using to define the problem. So that is just my suggestion.

COMMISSIONER BYRON: That is good. Mr. Gorin, do you want to respond? I will take that as a no? And it may be that the economic effects -- the economic recovery, or lack thereof in our forecasting, is really swamping a lot of this hockey stick effect that we are looking for.

MR. GORIN: Well --

COMMISSIONER BYRON: Oh, going to respond?

MR. GORIN: The question of whether the growth after 2011 would be -- would overwhelm the increased efficiency of new light bulbs is not one that is easily dissected. Because I notice now, when you go to Costco, there are LEDs on the shelf, which are purportedly more efficient than CFLs, so the going from 15 to 48 fixtures and, you know, if fixtures continue to increase in houses, you would have to assume that the increase is at a disproportionate rate to

the efficiency of the new lighting that is available to get a higher number after 2012.

COMMISSIONER BYRON: Shall we move on?

MS. GEORGE: Yeah. Barbara George from Women's Energy Matters. My question was what factors are you using for the compliance with codes and standards. Do you use a across-the-board figure, or do you divide that up in any way?

MR. GORIN: Not currently. We assume that the penetration level of lighting would be consistent with the number of CFLs in lighting fixtures that the utilities provided in their programs. There is still discussion over how we are going to attribute the new -- the lighting codes and standards.

MS. GEORGE: I see, okay, I actually was thinking in terms of the other side, the CEC side, not just the IOU program side, in fact, take the IOU programs away. And you just, you know, you have got state and federal standards. Are you assuming 100 percent compliance with those standards?

MR. GORIN: Not currently.

MS. GEORGE: What is your factor?

MR. GORIN: I do not think we can currently calculate it to the way this is derived. I mean, basically the factor we are using is these factors here from 2011,

which would be maybe, for residential, it would be what? Twenty to 30 percent compliance?

MS. GEORGE: And you are looking at this chart here?

MR. GORIN: Yes.

MS. GEORGE: Well, there are other -- I mean, lighting is certainly a big part of it, but what about other codes and standards?

MR. GORIN: Other codes and standards, we are assuming 75 to 85 percent compliance.

MS. GEORGE: Okay. But you cannot come up with an answer on that for lighting because there is so much that is broken up in so many ways?

MR. GORIN: Compliance is a hard thing to define, especially for lighting.

MS. GEORGE: Yeah.

MR. GORIN: Customers have the ability to change their lighting fixtures after the inspector gets there.

MS. GEORGE: That is true.

COMMISSIONER BYRON: And does the RASS, the Residential Survey Data, really limit our understanding of that, as a result?

MR. GORIN: The previous RASS did not ask very specific lighting questions, the current RASS asks the number of CFLs and incandescents by room type, so it should give us a better inclination of what is currently out there,

along with some of the more recent studies that are being done by consultants for the PUC, and consultants for the Energy Commission through the analysis of the Huffman Bill.

COMMISSIONER BYRON: All right. And if there are no other questions at this time --

MS. KOROSEC: Actually, Commission, we do have a question on the WebEx.

COMMISSIONER BYRON: Go right ahead.

MS. KOROSEC: So we will open up the line.

COMMISSIONER BYRON: On the WebEx, can you identify yourself and ask the question? Are you there?

UNIDENTIFIED SPEAKER FROM WEBEX: Oh, am I on the WebEx here? Okay. I was going to ask --

COMMISSIOENR BYRON: Excuse me, would you please identify yourself?

UNIDENTIFIED SPEAKER FROM WEBEX: Oh, I am sorry. [Inaudible] I was wondering if the staff had factored in the findings, the preliminary findings, from the CADMUS Study that pertain to the effects of the nationwide Energy Star'd partners' CFL Program.

MR. GORIN: Not currently.

COMMISSIONER BYRON: All right. Mr. Gorin, you have gone ahead and put us back on time, I see. So Ms. Korosec, I think we are going to take a break at this point. Do you need to add anything else?

MS. KOROSEC: No, I think let us go ahead and break for lunch and return here at 1:00 by the clock in the room.

COMMISSIONER BYRON: Okay, thank you.

[Noon recess.]

[Back at 1:00]

MS. KOROSEC: Before we start with the next presentation, we did have one last question on the WebEx that we did not get to, just before we broke for lunch, and I will read that real quickly and then have Chris answer that. From Mohan Niroula, "Will the CEC need further forecast data submission from the IOUs or POUs for the Preliminary Forecast that will be released on June 12th, or the Revised Forecast that will be released on August 3rd?"

MR. KAVALEC: The answer to that is no, we are not requiring any further forecast submissions. But to the extent that the utilities revise their forecasts from what they presented us back in March, we will certainly be talking to them about their results and comparing them to our results.

Okay, as we discussed a little earlier, this putting together of the data was a long process, involving a lot of people, and to put together final numbers in a cohesive fashion that we could use in the forecast, we relied on Don Schultz and Nick Fugate, and Don will now discuss the work that they did to give us final numbers, or at least

preliminary numbers that we are using in our draft forecasts. So, Don.

MR. SCHULTZ: Good afternoon, Commissioner. I cannot resist one first and final déjà vu, it was about 25 years ago when I was in this room, or involved here at the Commission at the same office, doing similar kinds of things, and then came back, as you may know, as retired last fall, and taking a fresh look at stuff from a 21st Century perspective, recognizing that the huge difference, of course, is of the consequences of the treatment of energy efficiency and the demand forecasts now are much greater, much more important than they were back in the day.

Okay, Chris did indicate that Nick Fugate is helping me with this presentation and my agreement with him is that he will have a chance to take the mike if and when I falter, but I do not plan on faltering, so…

All right, let's see here. Okay, just in general here, I think these numbers are correct because we kept adding a few things here and there, but the first three, just going to show generally the results of the treatment of energy efficiency just from the IOU programs, as was mentioned earlier in terms of their impact on the 2009 Preliminary Demand Forecast and, again, this is on a statewide basis, so although there are a few slides later back that will show some utility specific data and, in the

future, we hope to develop utility specific data for all of the slides and numeric presentations that we have, but we do not have those available at the moment. Slide 5, then. Later, we will start to show, in terms of the energy efficiency IOU programs, in terms of the impact for each of the three major IOUs, that is the one slide I said that had some utility-specific data. Six through 12 gets into the media things, in terms of trying to communicate, if you will, to try to describe the process by which we took the estimates for reductions from various sources, and then applied our own series of adjustment factors so that we felt that they fit into the overall demand forecasting modeling exercise in a manner that will reduce the potential for either bad results, or misleading, or inconclusive results, or double-counting, some of the other evils that we are always trying to avoid. And the final slide, then, has a few next steps in terms of what we are hoping to do in terms of improving our treatment. This slide, some of you may recall from various forms. This is a general overview going back to some earlier things this morning in terms of the hockey stick, or the blip, or what happens to our definition of committed vs. uncommitted, and then there is a trailing effect of -- there is this blue stripe here -- in previous demand forecasts, that would have been fairly flat in terms of the IOUs, similar scale relative to the price effects or

to the other types of effects that are captured in our models. This is considerably larger, this bump here does reflect our definitional treatment of committed in the sense that, after 2011, there is assumed known additional funding for the IOU programs. The reason why it does not drop off back to zero is for reasons which were mentioned before, is lingering effects from the measures installed in these programs here in this time period with -- lights off, again, but anyway, there is a lingering effect as we apply, or you see the results of the decay function as we have characterized it here, so they are continuing into the forecast period. That is, again, why you do not see until you start looking at it closer, which is where we are moving now, the kind of things that you were looking at, at the larger level, or at the higher aggregated level.

This, again, is a blown-up version of that blue stripe from the previous slide. And this suggests that there basically were four types of reported effects, "reported" meaning utility reported to the utilities, and some of them we captured in different ways through the approach that we used this time to try to minimize double-counting, and to accurately estimate the impact on demand that we are seeing with, again -- and if you look at -- the reason why there is a big jump, of course, is because, as we have talked about, as everybody knows, there is a big jump

in funding for most of the utilities for the '09, '10, or '11 period. This is a little bit, well, I do not know, I am getting into details, too much, at one time; but the point is that there are four strata here that are represented in terms of cumulative energy effects from these different types of different aspects of the utility programs, this one being those that are subtracted in the summary model, and this is the post-processing part that was talked about before. This stripe in here are those that we feel are incorporated in the sector models and that we tried to capture in terms of changes in UECs, the important ones. This rather ominous-looking one here that says "Deferred Treatment", I will explain that a little bit later, but it basically means that we are going to -- we did not know quite what to do with it, but we think those impacts -- which we will talk about later, exactly what fits into those -- is probably captured in the models, but, you know, it is going to require some further analysis in terms of better understanding what the programs were, as well as how they interact with participation, if you will, interacts with the programs or with the models.

COMMISSIONER BYRON: Mr. Schultz, before you go on, this may have to do with definitions and Taxonomy, but I do not know what all these categories are. Can you go into a little bit more detail and describe what these are?

MR. SCHULTZ: These here?

COMMISSIONER BYRON: Well, you have got the four categories on Figure 4.

MR. SCHULTZ: Here?

COMMISSIONER BYRON: Yes.

MR. SCHULTZ: Yes, that is what I was trying to say. Okay, we are going to come to these a little bit later, but I can start off here now. This first one here, this top bar, or this shaded area, it is identified there in a rather cryptic fashion, says it is the results of the application of the results of, the application of stats realization rate to the IOU reported data; in other words, utilities report their information to the PUC on a regular basis, and that is sort of the raw data that we have been looking at, they have done that on an annual basis for quite some time, but it is reported in a different form and a different time and everything else. But one of the things that we are doing now is applying a realization rate to some of that -- to all of that data, and we will talk about what those realization rates were. The effect is to reduce the reported utility impacts down to something more what we believe is reasonable. And just as an example, and will see later, for many of the program years, in recent years, we used a realization rate of .85, which means that 15 percent of the reported first-year load impacts -- that is another term we

will get to -- was discounted, if you will. And so it was reduced. In the years prior to 2009, we used a .75, I think, discount rate, or realization rate. And, again, we will see -- so that the data that the reductions in demand that are reflected in here, is the results of the application of that CEC staff factor, if you will, to reduce the impacts on the demand forecast.

COMMISSIONER BYRON: So that is what you used throughout there, then, now, is 85 percent realization?

MR. SCHULTZ: For these three program years. You will see some other charts that show that we use a .75 for -- .7 or .75, I forgot which, for the previous years?

MR. FUGATE: .7.

MR. SCHULTZ: .7, thank you.

COMMISSIONER BYRON: Well, of course, I am curious as to why the utilities might be over-reporting this data, but --

MR. SCHULTZ: Yeah, well, that gets into a long part of the story of what we did to develop this whole approach, and that is that what we were doing is we reviewed recent studies, actual load-impact studies -- is another term of art -- that actually goes in and takes a look at utility reported participation and looked at actually how much was realized as opposed to what was expected when they reported their first year, or when they reported their targets, or

whatever; and there were a number of factors that go into the realization rate, and those factors, as you will see later on, we want to refine and apply them on an end use basis, we had to take some general shortcuts for lack of time. The general idea was that there seemed to be recorded data from post-implementation studies, in other words, a year or two or more after a program was implemented. And then got people to participate, but consultants were hired by the Energy Division at the PUC, they went back and looked critically at the results to see how much of it was realized, how much of those reported savings. And that is sort of the conceptual origins of the concept of the realization rate. It seemed to be, to us, based upon our review of those many many studies that were done over four program years, covering this time period, I believe, here, led us to believe that it is unlikely to be as -- they are not unlikely to get what they, "they" meaning the utilities, are unlikely to get in terms of realized reductions in demand from the programs relative to what was reported.

COMMISSIONER BYRON: And does the Public Utilities Commission -- do they accept those utilization rates? Or is this an area of dispute?

MR. SCHULTZ: The realization rates --

COMMISSIONER BYRON: Realization rates.

MR. SCHULTZ: Conceptual, I think it has been --

well, this is a matter of dispute, quite frankly, as I understand it, between the Energy Division staff and some Commissioners. I do not know, Michael, if you want to elaborate on that at some point -- you do not want to elaborate? And a lot of this -- well, I mean, we can get into that if you want to later in terms of what, at least from an outsider -- I used to be an insider over there, but now I am an outsider -- anyway, in terms of what is involved with that dispute. It is one of the reasons why, I think I can say objectively, there has been a delay in the final adoption of the program budgets and portfolios for this year is because there was so much dispute associated with how much was realized in the prior cycle of '06-'08. Is that a fair statement?

COMMISSIONER BYRON: If you would not mind going ahead and just briefly describing the other three categories, too?

MR. SCHULTZ: Yeah. The other one, again, which was mentioned before and we will get into a little bit later here, we took the -- depending on the end use and the program, and everything else in the year -- we took the reported impacts, and "impacts" in this case would be sort of first-year impacts, which is basically a function of how many widgets were installed and what those widgets were, and how much per widget was reduced, or was saved, if you will,

and in some cases, to the extent we could incorporate those impacts as reported through our end use forecast models, we would try to do that; and we would incorporate them by increasing the penetration of the measures to change the UECs -- as going back to some of the earlier presentations. And in other cases, we were confident that that was the best way to treat these reported impacts, so we put them on a different dataflow processing, which we will talk about a little bit later, and we subtracted them off of the raw model results, or through the summary model; in other words, terms that Chris, for example, is using as post-processing kind of thing. There are different ways to have the same effect, and that is to account for them, but accounting for these effects in a different way than what -- than the other way. Now, which of these is more superior or more credible, again, gets into -- involves a lot of complex issues about the interaction of how the models work and how the end uses are developed, and how they change as a result of other factors such as price and market and such, as building in standards. So this is, again, another detailed area that you will get a little bit better idea, hopefully, as we go through the flowcharts here, in terms of how we were processing them. And if you have some further questions, we will take another crack at it then.

Okay, this is another look at the differential

treatment by utility, the three categories, and that is through the summary model, through the sector models, or deferred. Okay? And it is the sum of those three lower from the previous charts, so again we are sort of drilling down from the larger things into more specific type of results here. You can see that we made fewer adjustments, or fewer reductions, if you will, or a more fuller accounting of the reported impacts from San Diego Gas and Electric relative to the other two utilities. Again, there are a lot of reasons for that and some of which we may be revising when we get into more precise application of some of these concepts in our approach when we do the revised.

Okay, let's get back to some explanatory notes, so maybe a review of what we just talked about, as well as maybe some additional terms that we have not talked about. So these are explanatory notes for charts on slides 4 and 5. And, again, this is just a summary of the way in which the conventions at the PUC are and how energy savings loosely described, in addition to costs, which is what their budgets are all about, how they typically report these things, and then there is this term in the energy efficiency world known as free riders, it is not just energy efficiency, but this gross vs. net, and there has been different ways to measure, or account for, or to estimate, or to adjust growth, and that is if you multiply, like I said in my earlier example,

the number of widgets installed, if you can tie the dollars spent to those widgets, that would be a gross number, right? Then there is a question of, well, how many of those participants in that program year for that particular program would have done it anyway, and then you get sort of the free riders, and then you end up with net, and that would be gross minus the free rider, which is typically expressed in reporting conventions as a net to gross ratio, which typically has been about .8, which means that 80 percent of participants, as an example, that has not been a universally applied net to gross ratio, but this is one way to capture or reduce the effects of what most people from a common sense standpoint know as free riders, but nobody that I am aware of in a purely scientific or rigorously applied study has been proven to be shown what that free ridership factor is on a regular basis, or how universally it should be applied. Anyway, so these are just some of the terms that did enter into it when we reviewed the reported impacts. You know, one of the things that we look for is whether they reported on a gross or a net basis, and that then would help to shape which process, how we processed them through which aspects, which of our approaches, in combination with some of the other things we looked at. This first year, I mentioned before, and that is something that is, I think, self-explanatory, but it is the estimated

load impacts -- again, if you multiplied whether it is on a net or gross basis the number of widgets installed times the impacts per widget, which is supposed to be a value that is carefully scrutinized, then you would get the first year impacts. Then, if you wanted to know how long those impacts would last, conceptually you would multiply that by the useful life, if you wanted a lifecycle; if you really wanted to know what the lifecycle benefits of this, and most people understand as opposed to, for example, some demand response programs where there is no real lifecycle impact, it is one year, for energy efficiency measures, everybody -- most people would assume that the installed measures will last for some period of time. Right? We also know that in some cases, some of those measures will be thrown away, some of those measures will burn out at some point, all those other things come in here. But the term of art here is the "useful life" or "effective useful life," and if you wanted to just take a straight -- and if you wanted to account for the full benefits over time, from measures installed in Year 1 or Year 2, or whatever the year it is, then you would do a simple mathematical or conceptually you would get what is known as the "lifecycle impacts" and that is the impacts over the life of the measures, multiplied by the first year impacts. These are again conceptualized in simplified terms here. "Ex ante" or "ex post" is another term of art that

you will see in regulatory filings, or comments by parties on filings. And again, I go back to some of the other terminology. I used to think this was clearly understood and clearly used, and consistently used; I am not so sure that that is true much anymore, it is just maybe my own lack of paying attention to recent years. But, to me, "ex ante" was, and maybe still is, correct me if I am wrong and whether there has been a change in a convention of the meaning of these two terms, "ex ante" used to be what the utilities would report when they applied for funding for a particular year, and this is "ex ante" by definition, by using -- I guess it is Latin -- what they think is going to be the impact before they actually implement the programs. "Ex post" comes in various shades and we will talk about that in different kinds of it, but "ex ante" used to be sort of what they estimated at the beginning of the year, what the impacts would be at the time that they estimate what their budgets are necessary for. "Ex post" gets into another little murky area, in some cases it mean -- the distinction there, it used to mean there could be different kinds of -- maybe it still does -- different kinds of ex post reporting. And again, typically a year, either during the course of the year, or in the annual program year context, at the early part of any given year, the investor-owned utilities have been required to report what they

accomplished in the prior year. Now, that is based only upon where they can document spent money, right? In other words, that is a first part or first dimension of ex post. That does not mean -- and one could, and there are some cases now, verification that the money -- that they say they were spent -- was spent on those widgets, okay? That is something that has been done at the Commission and various regulatory proceedings on a regular, but sometimes ad hoc, basis. That is different from a full-on doing a very verification report, or a study which may involve, for example, anything from an on-site study or to an actual detailed load impact study which measures pre- and post-consumption, for example, of a group of participants. So verification is the final dimension of ex post, but there could be adjustments made at each stage of the ex postness, if you wanted to, we did not get involved with too much of those kinds of nuances, and I am not sure whether or not they are still relevant. But it is the verification studies that I referred to earlier, that were completed and that have been completed for different program years and different times. When we get to some historical charts, we will talk about when those studies were done, when they were not done at all, and the nature of those as the terms and conditions, or the rules and regulations for measuring the effects of these things have ebbed and flowed over the

years.

So once we sort of gathered all this data from a variety of sources and, again, ITRON was very helpful in terms of collecting this and converting it into a form that we could further assess. In other cases, for different program years, we went beyond what they had given us, as we will talk about later. And then we had to make a decision on how to treat those reported effects. Realization rate was step one, we get into the deferred treatment kind of thing if we think it is an overlap with whatever else, and then we get into the net vs. gross considerations, and then we get into, finally, some decay functions associated with the reported savings, which we will get into more detail in terms of how that works.

This category, as you go back, if you remember, if you go back to this chart here, you will see the deferred treatment, that is that green area, that is fairly large. And we basically -- I am not going to use the word "ignored," we did not ignore it, we just deferred judgment, if you will. And one of the things we hope to do is to try to figure out better how to account for those, if they are not already accounted for, through our modeling procedure. This, again, is the part of the analytical process that is started, but not complete. But if we decided that those were, for example, instead of deferring them, if we decided

that everything else being the same, if we took those deferred treatment impacts, which we will see later are fairly substantial on a quantity basis, and said, for the final forecast, they should be included as something incremental to, something that we did not get in the models, then that would further reduce the demand forecasts, everything else being equal.

Okay, this is just sort of a stepwise-type description or summary of what I was trying to describe earlier, just to show you which pathway it goes, and this here is where the deferred treatment, or treatment deferred, is. And the "yet" there suggests that we may, upon further review, or a review that will be underway, continue to put it into one of these other two categories -- or for treatment. This gives you an end use by end use sort of accounting for what fit into those three approaches, and you can see the end uses here that we felt were best treated by increasing the penetration of the measures associated with those end uses in the models themselves. The ones in the middle category, which is a fair amount, again, is those that we felt are best done by subtracting the impacts that we had collected and then discounted by reducing in the summary model. Then we have the not accounted for category here on the right-hand side again.

Okay, this is in tabular form, a matrix for those of

you -- we are on slide -- where did the numbers go -- we are on slide 10, thank you. This again tries to summarize pretty much everything I think I said before, or alluded to in the flowcharts, puts it in the matrix and aligns it with different program years to show them more completely in document the sources that we started off with, the ones in the kinds of adjustments and assumptions we made in order to get to the final effects that we put into, and that are reflected in, the preliminary demand forecast. And you can see here how it is sort of a patchwork, but it is a systematic, we hope, and fairly comprehensive and thorough, and we are quite sure it was reasonably done in terms of why we decided to use which of these ratios, or which of these factors, or which of these sources for these program years. So that is just in a matrix form a summary of what the documents -- the process that we undertook and the assumptions that we used at various stages of the adjustment process.

This is, again, a little bit more detailed, or reconstructed information here, to show again maybe more clearly, it breaks it out in different ways, basically to distinguish them between residential and non-residential, and the type of a treatment we used, and then the end uses that fit into those treatment categories and sectors. So, again, the struggle is to get as much -- an accurate and

accounting at the end use level as possible, because that is the virtue of the end use demand models, is that they can account for changes that are going on in other areas, whereas a larger, sort of econometric-type model will, by definition, not have that type of granularity. So this is our summary, again, of how we have evolved to this point. This is a general summary at this point, again, of where we are in terms of the different types of treatment by sector and by end use and measure category.

This is the same matrix -- I guess we are on, what, 12 now, whatever we are -- I do not know why the page numbers are not showing up here -- in any case, this puts some data for program years 2003 through 2007 using this previous structure that shows which -- so this gives you some general idea; again, it is aggregated by statewide, you can get the relative importance of different end use categories and how they were treated. So if there are persons out there who think that we maltreated your favorite end use through this time of summary chart, please, those are the kind of comments that we like to have, and tell us how to treat it better. We do not want to maltreat any end use. Anyway, so those end uses, by the way, that you see in the middle category there, say, I think are a complete accounting of the end uses, it is not a perfect match with the end uses that are embodied in our model, although in

some cases, for example, these are combined. So like CFL and lighting, non-CFL at the top, residential, the sum of those two would go into and be taken into account for in our newly created residential lighting end use. So that is why we have got sort of a cross-walk here going on between measures and end uses. But most of the end uses identified here would pretty much line up with the end uses, or the sub-models, if you will, that are treated in the demand forecasting modeling exercise.

And then one final chart. This is just a summary, but let's go back to this. I added this as an Appendix here. This was not in the original posting, but it is included here. This is a blown-up version of the one we just looked at before, and hopefully we will be providing even more detailed versions of this. This is the same structure in terms of our treatment by category, or by sector, and by end use, a measure category again, but it has got some data here. So, among other things, for example, at the bottom we have got some totals here that break out residential vs. non-residential. This is for program years '98 through 2011. So it includes -- and this again is to again remind everybody, the title says it is gigawatt-hours, it is just the first year impacts, it is not the cumulative. So you will see them go up and down. You will see them disappear. If these were all cumulative, you would not see

much, if any, kind of sharp drops up and down, depending on -- this is all reported first impacts after applying the realization rates. So, again, if any of you out there who have your favorite end use, and you think we are maltreating it, and you want to know where we started from, from the original unadjusted non-realized whatever else, multiply these by the realization rates that were mentioned before, and you will get the full-on same so you can get an idea of the magnitude of the kind of reductions that are going through, as well as how they were treated. Like I say, we were hopefully in the near term will continue to break this down, for example, this kind of detail, and re-think it, and develop more refined improvements for the various factors that we talked about before. For example, this table can and should be reconstructed a lot of different ways. This is all done at the statewide level and that could be misleading. There could be some problems, if you will, that will appear, and certainly -- my guess is, not "certainly" -- I would hope that all you energy efficiency program managers at the utilities would recognize how realistic these, and necessary these adjustments are, but if, per chance, you think they are not, we will be providing data hopefully soon, that will supplement this, for example, this by utility program, and for these program years. And also, at that point, people can start to reorganize in whatever

they want, for example, focus on just the lighting component if the lighting is what you really care about. And the CFLs -- I should mention maybe a little bit about what non-CFL lighting is, particularly in the residential sector, or in the non-residential sector, which is where it is. It is typically and predominantly has been, and is basically replacing fluorescent tubes in commercial buildings, from going to T-12 to T-8, or T-10 to T-6, I am not sure what the various standards are, or the various technologies that are available. But this is an ongoing thing that is happening in terms of technology evolution, particularly for commercial buildings. All the fluorescent tubes that are in there. These are fundamentally different than the compact fluorescents, as you can all imagine, just from common sense in terms of their durability, how long will they last. You can pretty much assume that, once some energy facility manager goes in and does a replacement of the T-8s, let's say, as opposed to what was in there before, that they are probably going to stay there until that building is demolished or renovated, or that floor space is, or whatever else, as opposed to compact fluorescents which may appear one day and disappear the next. So this is an inherent difference between CFLs and -- I mean, these are fluorescent technology, but they are not compact fluorescents and they are much more built into, they have a longer useful life,

whereas CFLs post-insulation studies shown have a rather dubious history of either staying or not staying. People take them out or not. That kind of thing does not happen as much with non-CFLs, particularly in commercial buildings.

Okay, let's go back here to the summary again, just by way in terms of what might consider these, or add these to the list of next steps that we are hoping to undertake in the very near term. So hopefully these will serve for a subsequent discussion, even today, and for your post-comments in terms of if you have comments and if you can organize them along the lines of what we are suggesting here. These are the areas that we are looking for comments on. And the top of the list here is, again, what we are hoping to do, this is not going to be an easy exercise because of the ever-changing reporting requirements over the years at the PUC, but we hope to develop end use specific adjustment factors, whether that is a realization rate, or any of the others, but especially realization rates. It could very well be that the data will show, if we get some more time and resources to review the completed verification reports, it could be that something more specific to end use or a utility for a group of program years is more effective, or more reasonable, whatever word you want to use there, in order to put it down the right path there, or to get the more predictable outcome, or useful outcome, I should say --

more reliable outcome.

Again, as mentioned before, that we have not done much -- we have not done anything relative to 2007 IEPR in terms of trying to account for the POU programs. And we do intend to get something in that. Whether we apply, or how we apply, or if we apply the various types of adjustment factors we did for the aggregate programs, if we apply them to the POU programs, this is again going to be a significant area of activity, and it is not clear whether we should use all of them, or the same ones, or none of them. But this is, again, another area of investigation we are hoping to turn to soon. We have not done anything to account for the low income energy efficiency programs for either the IOUs or the POUs in the demand forecasts. So if, for example, we do get around to re-thinking what those impacts from weatherization, or whatever it is, in low income programs, in the proposed budget cycle, or recent ones, then the demand forecasts would be reduced further than what it is now, accordingly. We have not done much, or we have not shown the results of what we have done or could account for in the other demand site category of the California Solar Initiative, or the Self-Generation Center Program. We were hoping to make some improvements there in terms of how we treat those impacts in the historic, as well as the forecast period.

Okay, I think that is pretty much it in terms of the general comments. Any questions?

COMMISSIONER BYRON: Mr. Schultz, you left yourself -- I should say -- there is a lot of time on the agenda, assuming that there was meant to be some lively discussion around this topic.

MR. SCHULTZ: Oh, I cannot imagine it is controversial.

COMMISSIONER BYRON: So I will remain out of it, and you go right ahead and let's see if we get some questions, and you can provide some answers here.

MR. SCHULTZ: Okay.

MS. TEN HOPE: I will ask a couple of questions just to get people warmed up here. You were talking about the POU programs and there was a question of whether realization rates would be applied or not --

MR. SCHULTZ: Or whether the same realization rates, or whatever, yes, right.

MS. TEN HOPE: Okay, so there is a plan to do realization rates? I guess that is my first question.

MR. SCHULTZ: No, I guess what I am trying to suggest is that is an important adjustment factor, as you can see, it is right at the top and it is, as we have used it, potentially a big hit. The question that we have to ask ourselves, and we are only at the beginning stages, we want

to look at the comparability in program design, let's say, between -- take SMUD, really, those are the only two big -- not the only two, but the two big POUs, right? And SMUD has actually some history of some programs that may or may not look almost identical to PG&E's programs, okay? If we used, for example, a realization rate for PG&E's CFLs, and it looks like the same program design and everything else was going on for SMUD, and SMUD is not applying the realization rate, then we may say, "Well, what is different about -- what makes SMUD so special?" And then I guess we probably might be tempted -- and this is just an example -- might be tempted to apply the same realization rate for CFLs to SMUD program as we did for the PG&E program. Again, that is just an example. It is not going to be easy, there is always danger in transferring kind of things, but the realities are that the POUs do not have a solid history of doing the kind of ex post load impact studies, ex post verification reports, they just do not. It is a whole different kind of set of rules and protocols for measurement and evaluation that applies to the POUs as opposed to the IOUs. So on the one hand, in terms of the demand forecasts, and wanting to make it as utility-specific as possible, and as useful as possible, and if we have reason to believe that in the investor-owns for comparable programs the savings need to be adjusted downward in order for reality to be approximated

better, then we would be remiss in not doing something to make similar adjustments to the POU programs. But, like I say, this is at the very beginning of that process and it is going to take a long time to come up with some reasonable adjustment factors, and hopefully this will be worked through so that we will have something better, or some kind of comparable treatment, if you will, between the POUs and the IOUs in the absence of a convincing argument that we should not.

MS. TEN HOPE: Thank you.

MS. KOROSEC: I think we have a question on the WebEx from Rob Rubin. Rob, go ahead.

MR. RUBIN: Hi. Can we go back to slide 3, I think it is, Don? Yeah, that one, thanks. Okay, so the blue line, the IOU EE Programs that seem to trail off beginning about 2009, and because of decay, the new rules with the PUC are we have to maintain that cumulative effect if the new goals come out, you know, that just gets us to zero, right? And it is over and beyond that for the future goals. So even if you were to assume funding for these programs were to stop in 2012, it seems to me we could have in 2011, it would still be there throughout. I mean, and that is probably not true, that we will stop EE in 2012.

MR. SCHULTZ: When you say the "new rules", Rob, are you talking about the rules that are pending for final

adoption for '07 -- I mean, '09 through '11?

MR. RUBIN: No, beginning with the [inaudible] cycle is when this cumulative effect --

MR. SCHULTZ: When?

MR. RUBIN: The 2006-2008 cycle.

MR. SCHULTZ: Right.

MR. RUBIN: Is when this cumulative concept came apart. And what happens, so, let us assume -- I cannot tell what that number is in 2010, but whatever you give us for that, okay, great, so --

MR. SCHULTZ: No, but -- go ahead, finish.

MR. RUBIN: Yeah, I understand those are first-year impacts, but so let's just say in 2008 that top number is, what, 1000 [inaudible], let's just say for discussion, let's say that was the all IOU programs; what would happen is, in 2009, if our annual goal for the utility is a 50, we would have to -- anything that decayed in that 1002 would have to be made up in 2009 before you started counting towards that 50.

MR. SCHULTZ: No, I understand the concept, and let me use your question as a way to zero in on something, hopefully, illuminating kind of things. This table, again, does not account for the decay. But if you look at these three columns here, the most recent ones that are up for -- they are all constant. Right? This assumes that the annual

budgets that are up for whatever they get to be, are going to be implemented successfully, as predicted, every year the same. We know that ain't going to happen. But we do not have any basis for an alternative assumption. We know the participation rates for most of these programs are going to be different. Excuse me?

MR. RUBIN: I am with you on that.

MR. SCHULTZ: Okay, but hold on, Rob, a minute. Just a second. If you looked, then, at the previous cycle, the one that you say that you had this obligation to whatever else, this is '06 through '08, and now look at the totals if you will. There is a very uneven -- you will see that '06, the first year of that cycle, is 1,000 gigawatt hours, and the third year of that, when you were catching up, presumably, in various forms, was 3,000. The annual average probably would have been, you know, somewhere, well, average them by 3 if you want. Okay, so I am not quite sure how we could, or should -- and this is, again, if you have some suggestions -- how we could or should account for the phenomena that we know every year is going to be different than what is budgeted for. And I have lost track of the funding flexibility rules that you may be operating under. Go ahead.

MR. RUBIN: Would you go back to that graph on 3? Maybe I am misreading that graph. Isn't that graph

cumulative?

MR. SCHULTZ: Yes, it is.

MR. RUBIN: It is, okay. So what I am trying to suggest, and maybe I am missing your point here, Don, is in 2011, we are at some level, right?

MR. SCHULTZ: Yeah.

MR. RUBIN: Okay, so we need to maintain -- if that is what you are suggesting that the IOUs are going to be bringing in, anything -- that is going to be a minimum going forward as long as there is energy efficiency --

MR. SCHULTZ: Okay, so you are saying that top part of the shaded blue line should be equidistance from the bottom part of that line, it should be flat.

MR. RUBIN: Yes. Yes.

MR. SCHULTZ: Then, again, that would be under the assumption that you have met your obligation to achieve that.

MR. RUBIN: That would just assume that energy efficiency programs are going to be funded through 2017 and the IOUs only get back to zero.

MR. SCHULTZ: Wait a minute, you said something just contrary. Well, as it stands now --

MR. RUBIN: Michael Wheeler is in the room, correct?

MR. SCHULTZ: Yeah.

MR. RUBIN: I do not mean to put you on the spot,

Michael, but am I getting this right or not? Or maybe I am not clear.

MR. SCHULTZ: He is coming up to the mike to clarify everything.

MR. RUBIN: Thank you.

COMMISSIONER BYRON: And, Mr. Rubin, it would be helpful if you could identify what organization you are with.

MR. RUBIN: [Inaudible] Gas & Electric.

COMMISSIONER BYRON: Thank you.

MR. WHEELER: So this is Michael Wheeler. I think the confusion comes from -- so, Rob, you are correct that it is Commission policy that we have these cumulative savings goals, and where we have, I would say, a disagreement is that we expect that utilities will meet their cumulative savings goals throughout the period that goals are provided. So in this case, we have adopted goals for utilities through 2011, and we have been talking a whole lot at the Commission lately about what the ability is to actually meet cumulative savings goals. At the CEC, as I understand it -- and, Don, correct me if I am wrong -- is that we are only looking at the committed, excluding any utility programs going forward, the effect of any utility programs going forward, ignoring that goals exist and that it is highly unlikely that utility programs would not be funded. That is part of the

uncommitted. And it sounds like that is the disagreement that we are having right here.

MR. SCHULTZ: So the reason it does not drop off is because we do have some residual decayed effects going beyond the first year impacts. The reason it does not stay flat is for precisely the reason we have decided as a matter of policy to retain the convention we have had in the past, and that is that only committed resources defined as that which is authorized, and we are in a little bit of a gray area this time, I agree, compared to that hard core definition.

MR. RUBIN: Okay, I understand that. So that is clear for me. Thank you. Let me ask you now the last question and then I will move it over. So the next cycle, when we have to go -- let's say we bring 100 megawatts, but 30 of it had decayed previously, so we would only be claiming 70 because 30 just got us back to zero. How is that -- are you now going to go ahead and add 100 to this graph on the following year because that 30 is not in it? And the utility is only reporting 70? That is where I am getting confused going forward how you are going to account for that deficit the utility --

MR. SCHULTZ: -- through the intermediate phase of sorting out the incremental uncommitted forecast, which is where we would start to pick up that difference. Once we go

where we are going to have to reconcile, as has been mentioned before, reported goals, and what does that goal mean that was established a year or two ago, relative to what we are now accounting for more accurately from an updated base. These are the ongoing analytical challenges. We are not going to get rid of what we believe is some residual through some estimate of the useful life on the demand forecast. We recognize that is a realistic effect and it will spill over into the uncommitted forecast, if you will. But those will not be reported and attributable to the uncommitted, they will be subtracted from this little area here, from 2011 on, would come out of -- it would not be added to -- the uncommitted portion of the forecast; at least, analytically, that is the way I seem to see it folding out. Now, those of you who are paying attention to all these nuances, if you think that is wrong, let us know and please let us know why.

MR. RUBIN: Okay, thank you.

MR. TOTH: Hello, my name is Phil Toth, I am with Southern California Edison. I am up here with Jacqueline Jones, or I was up here with Jacqueline Jones. I have a question regarding page 10. First off, thank you for putting this out here so we could look at it and get our arms around what is happening within the model. Basically, I have two questions. They are confirmation questions. And

I am not sure they are going to be answered here. Now, on the row that says the gross ratios --

MR. SCHULTZ: I am sorry, where are you? I am sorry? Oh, page 10? They should be the same, but like I say, I cannot see what slide number this is up here.

MR. TOTH: So data sources and assumptions.

MR. SCHULTZ: That one.

MR. TOTH: Under the row that says "note the gross ratios" and it has the assumed 80 percent net to gross, and then it goes into net to gross provided by ITRON, I assume that is going to come out of EM&V studies, and some other modeling, or what not, my question about net to gross ratios is, what made up these numbers? I see you cited a source, but not the numbers, and a few things like that, so I have a few more pointed questions, or data needs to assess if this is reasonable. And underneath that, realization rates, now from 1998 through 2008, it is assumed 70 percent; I would like to know how that was calculated. And conversely, from 2009 to 2011, it is assumed 85 percent. In a world that realization rates and that the gross ratios are going down, I would just like more information on how those were derived.

MR. SCHULTZ: Would you like that now or -- is this a data request?

MR. TOTH: Yeah, I am not sure if you are going to

be able to address these now, but I wanted to get them out here.

MR. SCHULTZ: General statements that went into this as a somewhat collective judgment, based on various folks who were involved with this, the 80 percent net to gross ratio is what I recall from my fading memory back in the day when that is what the Commission told PUC utilities when there was endless studies and analyst time being wasted on trying to measure the immeasurable perimeter of free ridership, and I believe the Commission told, for certain program years, if not all of them, through the 1990s to use .8 as the net to gross ratio until there was a study that convinced otherwise. Subsequent to that, there were some studies that were done that showed a net to gross ratio that was different for different sectors, it went all over the place, and I do not know whether it ever got re-fixed, or reapplied, or whatever else. So that takes care of that one. Again, I do not know -- I am not quite sure what -- maybe Michael Messenger will talk about the net to gross ratio what were used from ITRON, Nick did it from the workbooks, and, again, I am not sure exactly what the values were. And again, for lack of a -- because of the ever-changing nature of this perimeter, and again for lack of understanding on what could or should be done for '09 through '11, we just resorted to another best judgment, or

our judgment at this time. Quite frankly, I mean, I do not know, I have been doing this as long as probably anybody or almost as long as anybody, and this is just one of those things that you want to have one, but everybody knows it is greater than infinity and less than or more than 1 and less than infinity, or some such thing. And studies get done, tons of them are done, and I had a chance to review them all, some of the studies that were done to collect information are basically convincing for one program year, but not necessarily true elsewhere. And so the transferability of things, I do not know, it is just one of the factors that is out there. It is a measurement evaluation issue that has been around forever, and it will be around forever. And, you know, a case could be made that it should be 1.0 and just stop it. But that determination has not been made, so…

MR. TOTH: And the realization rates?

MR. SCHULTZ: The realization rates, again, the source of the -- I will call it the need for a realization rate, although I am not sure others would agree with that choice of terms, arose out of the -- well, I do not know how many dozens of verification reports that were done for these programs, right? Different -- they were done -- and I am not going to say ad hoc in a ad hominem sense, in the sense that it was not, you know, it is just that you cannot do --

it is extraordinarily expensive to do a full-on verification report for every program year, for every utility, every you know, it just gets extraordinarily expensive. So the Commission has done what it has done in the past, they say, okay, we are going to do a selective year, a selective sample by different utilities, whatever else, and hire a consultant to do a full-on investigation of what really happened with that amount of money that was spent. And the different consultants that came through, oh, Tech-mark, was that the consulting group, Chris, is that right, that was hired by the Energy Division, or Mike, to oversee these consultants who did these verification reports, came up with the realization rates -- am I being correct here, Mike? Is that about right? And they came up with different realization rates for different programs than others. Okay? And we did not have the time to go back and realign all those to the end uses that we ultimately want to get to, so again just said, "Well, time is up. We've got to do a forecast, we can't talk about this anymore, we've got to choose a number." We thought about it deliberately for, I do not know, quite some time and chose a number. Again, these are the kinds of parameters, if you will, that we want to review and reconsider. And two observations again, please give us a reasoned explanation of why you think for a program year, or whatever else, should be different than

that, whether it is a net to gross ratio, or all these other assumptions. You know, if you want to contribute to this debate, give us what you think it is and why. The other thing I want to conclude with here is, and this goes back to something that Chris said earlier, we have a fairly moderate thing here, right? In other words, we did not take everything that was reported. If we took everything that was reported, the first year impacts, everything that was reported, that is unadjusted, the demand forecast would be appreciably lower than what it is now for the next short term, and into the long term. Okay? If we ignored it, I mean, we could have just said, "This is impossible, we cannot do it, let's put it off to the next cycle," right? And so let's assume no effect. Right? Well, that would have had a noticeable effect the wrong way. This is a fairly middle course, meaning that we can change all these things, we can refine all these things, and as much as we will, and we can get to the point where we will go to court on each and every one of these adjustment factors and defend it, and it will not, I am convinced, be a significant difference, that change by itself, if we focused all our time, the Demand Office, between now and the Final, in refining these, to the best -- even better than ever, world-class adjustment factors, uncontestable, the results on the Demand forecast would not be much different than if we left

it the way it is. So what we have to do is decide what, in terms of timing and resources, is it more important for us to deal with some more structural changes to the model, or are we going to have time to do that plus refine these adjustment factors? And this a question that --

MR. TOTH: Well, I am with you. Just to be clear, I was not attacking them, I was just trying to assist the source and so it helps me determine if they are reasonable.

MR. SCHULTZ: Okay. Anything beyond that, I think, would be a waste of both our times in terms of documenting, and I think that is as close as we need to get for now, particularly since, again, as I said, these are preliminary and when we do establish and -- if we change any of these things significantly and document it for the final, we will give you a more definitive citation. How's that? And if you can help us find a better citation, thank you.

COMMISSIONER BYRON: And if I may, just to add here, isn't the reason that these are in dispute and possibly holding up approval of the new programs at the PUC is because aren't the incentive payments that are linked to these a key aspect of what we are talking about? I mean, Mr. Wheeler, maybe you do not want to get into this, but I would appreciate it if you could just let me know, isn't that really what the critical issue here is, is we have got incentive payments that are linked to the success of these

various programs, and these factors are going to certainly influence the results. Isn't that correct?

MR. WHEELER: Commissioner, you are correct that the incentive payments are connected to these results, but just for the record, I do not believe that that interaction is causing the majority of the delay with the current adoption of the current filing.

COMMISSIONER BYRON: Fair enough, but it is nevertheless why these factors are in serious dispute, because there is real money associated with them?

MR. WHEELER: Yes, I agree, that is one of the reasons, and I think that we would like to develop as another one of the reasons that we are able to report, whether for load forecasting, or for procurement purposes, true impacts of energy efficiency so that we get those forecasts and procurement authorizations correct.

COMMISSIONER BYRON: Good.

MR. SCHULTZ: Yeah, I think I might add, I do not think there -- I have never been involved in any discussion in our group, and it certainly would not be my intent to suggest to the PUC that you go back and throw these adjustments into your earnings claims disputes now or ever. We made these adjustments in order to make them fit for the purposes of which we are trying to use them and for us to -- it would be hubris for us to think that these are better for

earnings approval purposes than for getting a demand forecast that makes sense.

COMMISSIONER BYRON: Fair enough.

MR. SCHULTZ: We are not going to intervene in the PUC proceedings and say… At least, I do not think so. I would not volunteer for that one.

MR. MILLER: My name is Bill Miller. I work for Pacific Gas & Electric Company. I have not worked in energy efficiency as long as Don Schultz. But Michael said that there were goals adopted through 2011, I believe, and I believe there are goals adopted out to 2020, and the Commission is also looking at those goals. Maybe that is a fairer way --

COMMISSIONER BYRON: Step up to the microphone, please, so everybody can hear you on WebEx.

MR. MILLER: Yes, there are goals out to 2020 and CPUC is looking at whether it wants to change those goals and on what basis, so it is not decided to reconsider the goals through 2011 -- did I get it right, Michael?

MR. WHEELER: Yeah, you got it right, Bill. I think that the only distinction I will make is that we have goals for utilities through 2011, and we have goals for the total market from 2012 through 2020, inclusive of utilities, codes and standards, legislation, federal codes, and in our goals update process in 2010, we will parse out, we will update

who we expect to accomplish which of those of that total market goal.

MR. MILLER: Thank you. And then I wanted to offer Don some help and ask for some help. And we will provide some additional information, but I think I still have -- and you may have Rick Ridge's consolidation of studies to that date of about 2001 or 2002, where he basically went through the left-hand side of your chart and came up with some assessments which I will send you, which may or may not be useful.

MR. SCHULTZ: On the topic of net to gross ratios --

MR. MILLER: Basically many of those things --

MR. SCHULTZ: Okay, great.

MR. MILLER: -- he was tasked by the CBE to sort of assemble the current state of knowledge at that point in time, the California Board [inaudible] Efficiencies. And then the help I want to ask for is, I remember a situation two or three years ago where my company was asked to go see Commissioner Grueneich, and asked why her adopted goals were not in our load forecast, so the help I am going to ask for is that, when this is finalized, and there is basically some kind of map back from what the programs say they accomplished, so in fact there is a work paper or something, so that in fact, should that question come up again, it could be answered by saying, "It's here and here is how

these numbers link to those numbers." So a map like that, at the end of the day, could be very useful to all of us.

MR. SCHULTZ: Thank you for your help, Bill.

MS. JONES: This is Jacqueline Jones with Edison again. Hey, on slide 3, the statement standards and price market effect estimates are from the 2007 IEPR?

MR. SCHULTZ: Yes.

MS. JONES: Where would that be from?

MR. SCHULTZ: The previous IEPR cycle; in other words, okay, to reproduce this chart based upon all the changes and everything, socioeconomic, planning period, and everything else, for everything other than the IOU programs, requires a much more systematic and final type of iterations to eke out the difference between appliance standards, building standards, and price effects. Okay? So all we did, since we do not think that there is much change in terms of the structural effects in the last two years, in terms of the price as captured by the models, or the standards as captured by the models, all we did is take those same numbers, take out the POU impacts, or the whole system of the POUs, so that the scale is the same, and then spliced in the revised dark blue things. Does that make any sense?

MS. JONES: Well, yes and no. I believe I remember from the 2007 IEPR that one of the issues was not being able

to attribute between all the standards and price market effects and the IOU and EE Programs.

MR. SCHULTZ: Right.

MS. JONES: So I do not understand how you were able to split it up.

MR. SCHULTZ: It is not as sophisticated as you would think, yet. But let me put it another way, I am pretty sure it is our intent to repeat, or replicate this chart for the final, that not only will change this dark blue a little bit, but will be a more accurate indication of what the magnitude and timing of those other effects are, and hopefully a more complete documentation in terms of how there is not any, or very little, or minimal interaction between them, because that is the objective, is to make sure that there is no excessive interaction. So these are all goals, if you will, or objectives that we are hoping to have. We just wanted to -- I wanted, or we did -- wanted to put this up there just to, again, key off of and start to drill down more specifically on this blue line, relative to the larger stuff that was reported earlier on the forecasts, and to basically reiterate the message that you have been hearing again, is that, in the larger scheme of things, on the demand side, if you think that price and market effects are a demand-side phenomena, naturally occurring, or whatever, and certainly building and appliance standards are

a demand-side type option, that the relative impact compared to those other effects, of those four of the IOU Program, are relatively small.

MS. JONES: Well, the cumulative effect that is in the Demand Forecast is not relatively small, so that is why I actually -- my understanding is that we started all of this, because of the question of the overlap. And so right here, are you saying you are going to have that for the July workshop?

MR. KAVALEC: The answer is yes, we are redoing this analysis for the Preliminary Forecast, we are in the middle of doing that right now.

MS. JONES: Thank you.

MS. GEORGE: Well, Don Schultz is the person that inspired me to get involved in this eight years ago. He said, why don't you come down and become an Intervener and I will tell you how to do it. Anyway, we were reviewing like the '96 through 2000 programs and it was just me and him, I was brand new, so that is the level of the data was, it was pretty scary. Anyway, I wanted to find out, first of all, is this is all demand, not peak, right?

MR. SCHULTZ: Correct. This is all energy.

MS. GEORGE: Yeah, so is there going to be --

MR. SCHULTZ: These are all gigawatt hours. Lynn's this morning was megawatts -- peak.

MS. GEORGE: So you are not dealing with the peak -- is that --

MR. SCHULTZ: Well, the Demand Forecast models do a peak forecast which is not being -- and each of these program impacts, or standards, and whatever else, could be converted to a peak -- their peak demand dimension if we wanted to.

MS. GEORGE: Okay, well, one of the questions that I had was whether there is going -- and maybe you are not the right person to ask, but in some of the forecasts there is a factor applied, in other words, I just multiply by, you know, 20 percent, or something like that, and that is the peak.

MR. SCHULTZ: Right.

MS. GEORGE: But that does not really represent what is happening on the grid, necessarily, in particular, for example, the CFLs in the residential setting are used mostly off-peak. And so they practically -- the effects of that practically disappear when you take it on-peak, and the factor, the previous factor, did not really reflect that. And since they, you know, they were like a huge part of the program, so one of the questions that I had, I was looking at your, you know, what is adjusted downward and what is adjusted upward, the residential is an increased measured penetration, and then on the commercial, you are reducing

the output. You are assuming that there is an adjustment downward. Is that right?

MR. SCHULTZ: Okay, but in general, the closer we get to an end use accounting for it, whether it is subtracted off a sector component going into the sector model, or out of it, or through the sector model like the CFLs, and then all that information does get passed to the official peak demand forecasting model, which is a separate modeling after everything else is in, and that is where you get the definitive load shape, or peak impact, through the whole process. We just have not gotten to that process.

MS. GEORGE: Okay.

MR. SCHULTZ: Later on -- the peak demand models are being run, or will be run, and the peak demand forecasts, with and without these effects, could be computed and shown, will be perhaps if they started to get some indication of what this will be. It is a very tedious process and the reporting is also tedious. But in the final documentation and final forecasts, again, I am not sure what the kind of commitment anybody could make to it now, but the tradition would be that there would be a complete accounting for both the energy and peak demand, as well as possibly even natural gas savings associated with these programs.

MS. GEORGE: Is the model going to be able to take the values from the DEER database and plug those in?

MR. SCHULTZ: No.

MS. GEORGE: So it is going to be a factor, still, it is just going to be a multiple factor?

MR. SCHULTZ: Well, yeah.

MS. GEORGE: Well, the issue that concerns me is that CFLs had been grossly exaggerated for many many years in the commercial sector. The Commission finally acknowledged that there were 400 percent exaggerations and that has to do with, you know, the effective usable life was assumed to be nine years, based on residential studies back in the early 1990s and, in fact, since they are used 12 hours a day in a commercial setting, they tend to burn out in a year and a half, so your cumulative savings over those commercial CFLs is pretty non-existent. And that would make a really big difference in those cumulative figures, especially on the peak side, and one of the things that I am extremely concerned about is that the demand forecasts, you know, the energy efficiency figures start to really match up with what is on the grid because I think that we have spent too much time worrying about how much shareholder incentives, profits they are going to get, and little time looking at the capability of energy efficiency to actually reduce the peak. So that is the issues that I really want to get at. CFLs are one thing, I think that that is going to be reduced going forward, but they just like lost a huge

chunk of their savings over the last couple of years, and that is really what the arguments are about, because they had overstated CFLs, and the goals were based on these very exaggerated savings, and they were not there when they really looked at the numbers. But the other issue that I want to see very clearly laid out in the demand forecasts going forward is to be able to look at the potential for reducing the peak with air conditioning. And PG&E actually -- procurement planners said they did not know how to do that, they had no -- energy efficiency is a base load resource, well, that is ridiculous, you know, it is both base load and peak, and that is one of the reasons we have not done enough shell measures in the air conditioning is because we were so -- we were looking at the cost-effectiveness in a way that really did not make sense. When you look at the cost of peak power, we should be doing much more of the shell measures in the air conditioning because that is where the demand for new resources comes from. So that is where I really want to see that whole area clarified in the future, so that they can look at this demand forecast and say, "Oh, if we increase the air-conditioning by this much, then we would be able to reduce the peak by that much, and we would still have reliability with many fewer resources."

COMMISSIONER BYRON: Thank you, Barbara.

MR. SCHULTZ: Thank you, Ms. George.

COMMISSIONER BYRON: Can I just comment on just a couple things here? I think we have time, do we?

MR. SCHULTZ: Uh huh.

COMMISSIONER BYRON: Barbara, if we go back here to this summary table here, you mentioned a bunch of things, but I just wanted to let you know where we are in considering some of the things you talked about. You referred to the DEER database, it is our understanding that the Energy Division right now is in the process of confirming that all of the numbers in the '09 through '11 applications are built upon the revised, most recently DEER database, which will capture such things as radically reduced useful lives of CFLs. So we are counting on, unless we hear otherwise from our colleagues that they found some smoking guns, or whatever else, and the utilities need to go to prison for violating the addictive -- you know, using the DEER database -- we are going to assume that the numbers that are adopted at some point will reflect the best available information in terms of the DEER database, including such perimeters as useful life. And there is, as I understand it also, there is substantial indication now that, particularly in commercial buildings, as you mentioned, the useful life of CFLs is a lot different than it is for residential. One of the issues that we have not

dealt with, and, again, it is on the table, and you have some -- because you are correct, there is a disconnect here, we want to ensure the best available information is being used, and there is spotty information. If you take residential CFL where there is a lot of question about -- we know that we can document and assume that the utilities have used the 10 year useful life that has been in the DEER database, if that is what it was, for a long time because that is all it was; subsequent studies in recent years have suggested that, in the residential sector, as well, the useful life of CFLs is not that. Okay? One question that we might have to deal with, and I am sure it would have little effect on the peak demand forecast, and it will have little effect on the historic, but we could go back, because all of these numbers in the historic period here are based upon, and we would probably use -- well, no, we did a decay factor on them, so it did not carry along with it -- but what I am saying is that we could go back and take the most recent available information on some of these really small parameters and revise history, if you will, based upon best information, even though the money that was collected for earnings from this stuff is already gone.

MS. GEORGE: It is gone -- $350 million and --

COMMISSIONER BYRON: Well, I understand. But there is another analytical question, it could be that the earlier

generation of CFLs in the residential sector, maybe they did last longer.

MS. GEORGE: Yes, I understand that.

COMMISSIONER BYRON: Maybe they were a higher quality CFL. These are all questions of which there is very little, other than anecdotal evidence.

MS. GEORGE: Right.

COMMISSIONER BYRON: Okay.

MS. GEORGE: Yeah. Anyway, this is a long long argument.

COMMISSIONER BYRON: Well, it is. And I thank you, and we welcome your participation. I am going to go ahead and suggest that we move. Mr. Schultz, we have not had a chance to meet, I understand you have been Energy Commission, at the PUC, and now you are back with us. And, you know, that is a high value ad because it really gives us the benefit of your perspective, it improves communication, and we are really all interested here in getting the most credible forecasts that we can. So welcome back to the Energy Commission in your new capacity.

MR. SCHULTZ: Thank you.

MR. KAVALEC: ITRON has been providing invaluable assistance for our work, not only for the energy efficiency numbers that we developed, but also for the taxonomy work, and for work involving a comparison of our model inputs with

the asset model inputs. So here to give a summary of that work, the CEC ITRON joint work, is Mike Messenger.

MR. MESSENGER: Thanks, Chris. I am glad to be here and I hope that I will also provide some value ad because I have worked at the Energy Commission, the PUC, and ITRON. The other thing I want to say is, I have sat through this, and I have tried to imagine myself as a member of the public, as opposed to someone who has been in this business for 20 or 30 years, and so I want to ask you that, if I start to do what some of the other speakers have done and start using acronyms, that you stop me. And say, "No, I don't understand that acronym," because it is very easy to lapse into acronyms in this particular business. And the final think I want to say as an overview before I get into my presentation is, you know, it seems to me that this repeats over and over in every state that I work in, and I have now worked in many different states, that deal with these same issues of program attribution, and it gets really messy because no one can agree how to separate price impacts, standards impacts, and utility program impacts. So one of the things I am going to suggest today is, it may be more important to get the total right than to get these percentages of attribution correct. And I think that is something that we really need to focus on because I think we could have endless debates about which program caused --

which was the first mover, was it the standard, or the program, or the price effect?

So here is what we are going to talk about. First, I am going to try to breeze through really quickly the work to date. I was asked to sort of summarize it, and if I am spending too much time on that, let me know and I will just go quickly. Then I want to talk about what we found from our analysis of model comparisons, and we have two specific recommendations for you to look at, then I am just going to go through some highlights of what sort of will be the trends in the utility program savings over time, at both total level and an end use level, talk a little about the assumptions that have been used in the quantification step this time around for the committed forecasts, and then what we plan to do in the future in terms of working with the Energy Commission and the PUC, in terms of developing an uncommitted forecast that bridges this gap between committed and uncommitted.

So why did we start? We were hired to try to understand the better, you know, with a greater level of certainty, what is really embedded in the CEC current model in terms of savings. And I have to tell you that I think we have made some progress there, but we still do not know if our key end uses, how much savings is embedded in this sort of baseline forecast. And so we are working to try to get

to that place because, obviously, if you are going to try to compare a savings forecast from a utility vs. the baseline forecast, you need to know what level of savings is embedded in your forecast, and I think we are doing well in some places but not others.

We were also hired to provide sort of additional documentation of the level of utility program savings over time, what is in our model, which was the basis for the CPUC goals decision, and what is in the CEC model. In particular we wanted to focus on what is the baseline, you know, before we do any comparisons of forecasts, do we both agree that the baseline UEC for lighting in residential, for example, is 1,800 kilowatt-hours per year in an average building, or not. So we try to make sure we are starting from the same base.

And then we wanted to see if we could add any information or light on this question of, well, what is the level of overlap. I think, unfortunately, we are still -- most of the analysts I have heard have opinions on this, but there is no real definitive analysis on whether it is 20 percent, or 50 percent, or 100 percent, but we will try to get to that if we can.

So all of this work is available in the series of deliverables that we found, but I am just going to give you the highlights. We compared the baseline EUIs for what we

thought were the key end uses -- residential lighting, commercial lighting, and commercial HVAC in both SDG&E and PG&E service territories, and we looked at, well, where are the big differences and do they make a big difference in the overall aggregate forecasts. We did a comparison on what are the methods that are being used to estimate and forecast savings over time. And we got into a little bit of this sticky wicket of was this savings program induced, caused by a program, or can we determine a certain naturally occurring level of energy efficiency that would happen, regardless of whether there were standards of programs. And that, to me, still has not been shown, you know, that there is a naturally occurring efficiency level, and whether that tracks, you know, price trends, or whether that is just an autonomous variable that happens at 3 percent per year. But we are trying to get to an answer on that. And then, finally, we did some more comparisons of actually forecasts of structural electricity use, and particularly, we looked at commercial lighting in terms of what we forecasted for the growth in different types of commercial buildings and what the saturations of equipment, how those change over time, and how those sort of interacted with energy intensity changes to produce a final forecast. And as has been referred to earlier, we also gave our best sort of literature summary of what estimates exist for average

lighting use in various parameters, bulbs for household, daily hours of use, and average watts per bulb, over history, from 1980 to 2000. And we also updated that to like 2008 in a subsequent step. And we are hoping that is the basis for the residential lighting usage forecast that Tom Gorin talked about earlier today, and trying to move forward on that. And then we also developed some revised estimates of changes in structural growth, and we will talk about this a little bit later in a slide that, you know, there really has been some significant structural growth in the demand for refrigeration services and houses. People are using bigger refrigerators, with more features, and that, to a certain extent, is counteracting the effects of energy efficiency over time. It is important to understand that.

So what do we conclude is real to this initial analysis? Well, the first one is one that is a hard sell, but we are going to keep trying to make it, even though we are a minority point of view here. The first three hours of debate here focus on, you know, which program saved what, and can we definitively determine whether it was utility programs, or program standards, or price effects. And what we have been saying is, regardless of that argument, what you should do when you put out a forecast is talk about what is your forecast re structural growth at each energy use;

for example, do you forecast a 15 percent growth or a 20 percent growth in the number of households? What is your forecast for the growth of the average size of a house? Is it going to keep going up? Or is it going to stay flat? And, then, what is your forecast for the energy intensity increase or decrease? Are HARMS (phonetic) going to be 10 percent more efficient 20 years from now, or 20 percent more efficient? And that that is what is useful for policy-makers. They need to see that top-level information first, before you dive into all the details we have been talking about today about, you know, the relative effectiveness of CFLs and their useful life, and all those other things. We content that you need some high-level structural framework before you get to the details of net to gross, and realization factors, etc. So we are hoping that we can help, working with the CEC staff, to get some of that information out there in the public domain because that is the top-level thing that we think you need to worry about if you are really concerned about things like climate change and what the electricity use comparisons are going to be. It is not all about savings, it is just as important to understand what is the structural growth, or lack of structural growth in each of these sectors, and how that is going to change as a result of the recession, for example.

The last thing is that we did find one thing, which

I think we have reached agreement with the CEC on, and they are working on it -- I think Don referred to it as a "deferred treatment issue", is we think that it is a structural problem that the load impacts of utility lighting energy efficiency programs, not the rest of the programs, but the lighting ones shows where the significant share of savings from '92 to 2003, it appears to us that not including those effects has led to an overestimate of EUI in the commercial sector for lighting. And that was across the board in all of the different building types that we examined. So we made a recommendation, which I think Tom referred to as an adjustment that he had made already to try to figure out the effects of increased enforcement of standards, as well as looking at to what extent a building's EUIs are changing over time. So we think that the results of this recommendation will hopefully be manifest three or four weeks from now when we look at what the commercial EUIs are in the Final forecast. But that is a place where we think that it is probably important to explicitly look at these utility reported savings, make whatever adjustments you need to make, and then to factor those into the commercial baseline forecast.

These next things, I think, are just sort of interesting policy things, they are time series analyses that we have looked at for both the IOUs in terms of their

savings, both reported and verified. And I want to make one little parenthetical remark about "verified." I see another place where we are potentially going to have some confusion; I noticed on Don's chart that there is a separate adjustment for net to gross in realization rate, well, in the Energy Division's Report, when they did realization rate, they had an NTG adjustment as part of their realization rate, so there is now a potential of double-counting because there is an NTG adjustment and then a realization rate adjustment, and if you are using somebody's realization rate adjustment that also includes NTG, you are double-counting. So we are going to have to, I think, work that out. And it is the first time that the PUC has actually ever tried to adjust reported savings to get to verified savings, using both net to gross and changes in the installation rates. So I can understand why there is confusion there.

COMMISSIONER BYRON: Mr. Messenger?

MR. MESSENGER: We had clear definitions there about realization rate and net to gross.

COMMISSIONER BYRON: Wouldn't that be double discounting?

MR. MESSENGER: Double discounting, yes.

COMMISSIONER BYRON: Okay.

MR. MESSENGER: And whether that leads to double counting is another question, but the way I understand it,

if you are double discounting, you may be underestimating the net realized savings from the programs.

COMMISSIONER BYRON: Right.

MR. MESSENGER: And, you know, the problem is that we only have data, as Don was saying, for the last four or five years that is reliable, so how you can take that data and either use it in the back casts or the forecasts, is another judgment question.

The second bullet here is we did agree with the staff that you do need to make an adjustment from reported program savings to get to verified savings and we recommended something like 60 to 70 percent for that particular cohort, 2004 to 2007. And I would also say parenthetically, that the Energy Commission did a similar analysis in the early 1990s that came out with a 65 percent realization rate, you know, back in IEPR-2 or something like that. So I think it is reasonable to assume that, over time, there is going to need to be a systematic reduction between reported savings and verified savings, and it seems to be in the range of 70 to 80 percent for the times that we have looked at it.

This is just some information about the relative share of savings for the three IOUs here. And you will note that there is this big surge in 2001 and then a drop in 2002 and 2003, you know, post-energy crisis, or whatever we want

to term that -- the market meltdown, or whatever we want to call it in 2001. And then you can see that we have gone back to this cyclical effect that I have documented in previous papers before of, there is this big surge in spending, everybody gets really excited for two or three years, and then it drops off. You can see in 2005 and 2006 it drops off a little bit, and now we are in the midst of another big surge being reported in 2007 to 2008. And I predict, am willing to put money on it, that 2009 is going to be another drop because of the fact that programs still have not been authorized, they are just bridge funding for 2009 and we are half-way through 2009. But the important trend is it seems to be going up, even though there are these regulatory waves that are happening in terms of both funding and verified savings.

COMMISSIONER BYRON: And, Mr. Messenger, that is what you attribute it to, it is the cyclic nature of funding? Or is it that we over-attribute, and then have to readjust, and so we are seeing the readjustment in these cycles? I have not read your papers.

MR. MESSENGER: Okay. I think it is two things, one is there are regulatory lags built into this system, and I think the history is, is that when you look at a new cycle it usually -- authorization does not happen until six to nine months after the program year has started, so that is

one of the effects you are seeing; and the second effect is, usually after a wave of results of evaluations come in, people say, "Ah, we should be moving away from this measure into a new measure," or into a new set of program designs, and it takes a while to get the new program design up and running and to recruit, so that is the other lag effect you see here is -- I would say, for example, starting in 2005, people started questioning whether you should have lots of residential CFLs and that drop that you see, part of that is not as much reliance on savings from residential CFLs, then there is another wave of that, which is coming later on. So that is just one technology, there are many different examples. You know, in the 1980s it was ceiling insulation, for example, that was judged to be -- we should no longer be giving rebates for that. And there is probably another technology I could show you in the '90s, but that is the other thing, is that when the EM&V feedback comes in, there is a shift in program designs, and that leads to a temporary drop, at least, in the savings. And it seems like the cycle is anywhere from three to five years if you go back over 30 years of recorded evidence in California, at least. And it is similar in other states, but not exactly as pronounced because there is not as much of a historical record. What I think tends to happen, if you look at the two graphs, the trends are very similar whether you look at residential or

non-residential, so this is a systemic thing, it does not vary by sector, and so you can see these sort of ups and downs. This is getting to the question of what is the right adjustment factor, and this is just the data that we are reporting from another source from the Energy Division's Verification Report, and you can see that it varies by utility, but, you know, for 2004-2005, it was between 61 percent and 68 percent, as the amount you should multiply the reported savings times that fraction to get to verified, and the results are similar for 2006-2007. And, as I said, the problem with 2006-2007 is there is not only an adjustment for installation rates and realization rates, but there is also an adjustment for ex post measurement of net to gross. So that is the first time that ex ante has been converted to ex post, and a big one, for example, is the residential CFLs used to be .80 was the NTG rate, or 80 percent, and the DEER update said it was only 62 percent, so taking that 80 percent and taking it down to 62 percent resulted in a much lower realization rate.

COMMISSIONER BYRON: So these are realization rates in this table?

MR. MESSENGER: Yes.

COMMISSIONER BYRON: Okay.

MR. MESSENGER: But the problem is, what I am trying to point out is the realization rates in 2004-2005 did not

include NTG, the ones for 2006, 2007 did include NTG, so they are a little bit apples and oranges. Another reason why I think it is important to get the total right is because you can make all kinds of errors when you get in the lead of trying to figure out that program.

This is just to show -- and I just show the effect of going from reported to verified, and the blue is the reported, and the red is verified. And you can see, it does not change a lot over time, but it is, nevertheless, a 20-30 percent reduction every time, and that is important to take into account if your model relies on utility reported savings as an input.

COMMISSIONER BYRON: And is there a reason specifically that you can point to why there is a consistent continuous over-reporting?

MR. MESSENGER: If I knew the exact answer to that question, I would be a millionaire, so I am just going to give you a hypothesis.

COMMISSIONER BYRON: Or maybe somebody trying to become a millionaire.

MR. MESSENGER: What I think tends to happen is Public Utility Commissions tend to encourage utilities to set ambitious goals, and so Program Managers say, "Yeah, I can get 1,000 customers to do this, or 10,000 customers to do that routinely," and then it turns out to be

systematically more difficult after-the-fact to get all those 10,000 customers to do it, and the savings per unit that you thought would happen usually gets reduced. And if you look at the distribution, I did this once -- actually, recently -- it tends to be something like 70 percent of the customers get slightly less savings than they thought, and 30 percent of the customers get slight more savings than they thought, but when you take the net effect into account, there is a reduction of anywhere from 20 to 40 percent downward in terms of the installations achieved vs. the installations that were forecast. So that is the basic reason. Another way of looking at it is hope springs eternal, and what that means is, every time the forecasters -- the Program Managers, in this case -- forecast, "Yeah, I'm going to get 1,000 units," or, "I'm going to get 10,00 units." And then it comes back and they get less. They have a whole set of reasons as to why that was, and then the next time it is going to be better. And so they try again and, so, as far as I can tell, there is no negative incentive for Program Managers who consistently over-forecast because, if you look at what happens, and this is something that the PUC, I think, is changing, but right now when utilities report their savings, they report verified installations times their ex ante estimates of savings per customer, and there is no requirement that, in a future

report they come back and say, "And here is what the verified savings was." So there is no feedback that policy-makers see that says, you know, "Even though we thought we were going to get 100 megawatts, we only got 70." So without that systematic feedback, I think there is encouragement, and I think -- I know, because I have been guilty of it in the past -- to encourage people to continue to do optimistic forecasts. So I think that -- and I imagine that if we went to a private firm, there would be this similar relationship, you know, "How many computers are you going to sell next year?" "Oh, easily 20,000." And then reality comes in and it is 14. And they say, "Well, okay, we'll do a new model and next year we'll try again." So I think this is just optimism.

COMMISSIONER BYRON: And we could expect the same kind of optimism, I would assume, then, from the publicly-owned utilities, as well?

MS. MESSENGER: In spades. Yeah, I think that is true. Now, the other thing I wanted to do is -- this chart is supposed to highlight what, to me, is a fairly significant factor, which is the utilities have finally achieved the policy goal that most people thought was very difficult, if not impossible, to get to, and that is can you ever get to a place where your program savings are more than one percent of your actual sales. And if you look around

the United States, right now, people are starting to set goals at 1.5 or two percent of sales for conservation savings goals, but the common denominator is about one percent, and as you can see in this graph where it says "one percent crossover," that is the first time in the last ten years or so where you are getting to a place where even "verified" is starting to come close to one percent of sales on an aggregate basis. So that is a pretty significant finding, and if you can continue that, and if we can go up this red line, in 2008 they are saying that the verified savings are going to be, you know, maybe 1.3, 1.4 percent of sales, so that is a pretty significant thing. So they are making progress and it is becoming bigger over time. The real question in my mind is, how deep is the next trough going to be when this cycles down again? And we do not know.

This is just more work on energy and peak savings by end use and this is to give you an example of the kinds of information that is available on the database that Don and Nick are working on. And this is to show how the influence of CFLs over time in this forecast -- this is for residential. And note this is reported savings, not verified, but you can see how the share of savings from CFLs has gone from maybe 40 percent in the year 2000 up to 75 or 80 percent in the year 2007, and you can see how the other

savings by end uses have also followed that over time. And I should note that that -- I expect that that fraction -- and, Michael, tell me if I am wrong -- I think that fraction is now down to about 30 or 40 percent now, the CFLs as a fraction of residential? Yeah, so that is going to cycle down for 2009 and beyond. So I have mentioned these already, so I am not going to spend a lot of time.

The other thing that I think is happening, which I think gets to this question of, well, what is happening in terms of residential usage as a result of the recession, in addition to seeing CFL going up over time, the proportion of total portfolio savings is going up for residential as compared to the total. So it used to be that people said, "Well, 60 or 70 percent of the savings are coming from non-res." It now looks like, in 2005, it went up to the majority -- 52 percent of the total savings -- were coming from residential products. That means to me that the utilities are spending more time focusing on savings from the residential sector, and it may be easier to sell some measures to the residential sector, like CFLs than it is to sell measures in the commercial sector. The other thing is pretty obvious, there has been about a 6X increase in first year annual savings from 2000 to 2008. And I have already mentioned this last point about verified savings for the first time, at least in my mind, have exceeded one percent

of sales in 2007 -- verified annual for 2007.

So now, to get to the question, sort of, that has been discussed a couple of different times in this meeting, how can we figure out what is the degree of overlap, or if there is overlap, between the utility program savings estimates that are happening in this one model, and the embedded savings that are in the CEC forecasts? We have come up with two methods and we are getting closer to the answer, but we are not there completely yet. The first one is, well, first, let's try to figure out what the total level of savings is that is embedded in the CEC forecasts by decomposing it into sales growth and energy intensity, then compare that to these program savings forecasts and whatever level of sales growth their service sales growth they are determining, and figure out if, you know, if in fact it looks like the change in energy intensity in the CEC forecast is so significant that the utilities savings already are captured in that, or not. That is the sort of high-level approach. The low-level approach is, you need to go back and look at all of the details of how did they do the savings impact calculations for standards, how did you do it for price impacts, how did you do it for utility programs, and did you assume the same baseline; and based on all of those comparisons, come up again with an estimate of, okay, if we hold all things constant, it looks like X

percent, you know, 20 percent of the utility savings, or 50 percent, need to go into the CEC forecast. So we use both of those methods. CEC has not had the time to use either method in the short term because they have been focused on trying to produce a forecast, and I have been told that they may present some results consistent with Method 1, quantifying the level of total savings, and then looking at what that means in terms of what the utility forecast is, and comparing that both on an energy intensity basis, as well as total sales, in the June 26th forecast and in the revised forecast. But, like I said, it is not yet clear if that is going to happen in time, and so we think that the best thing to do is to try to first of all get everybody to agree on a transparent way of looking at what is the total level of savings in the forecast, then look at what the addition of the utility amount would be, and talk about whether it is feasible for the utilities to actually -- if there is already, for example, a 30 percent decrease in energy intensity, I would not want to layer on additional savings beyond that if the utility program is only shooting for a 10 percent drop in usage. So you can compare the relative drops that the utility is shooting for in the baseline vs. what is already in the forecasts, and compare them on an apples-and-oranges basis.

So this is just more details about those different

methods. I have already talked about providing your forecast of structural growth and energy intensity per common forecasting unit, and by that I mean square footage, or per housing unit, per single-family house that is 2,200-square-feet in total area, or per refrigerator, or per dishwasher, all of those are common forecasting units. And I have talked a little bit already about why that is critical, it provides a better perspective on what is driving the forecast and helps you identify, if you are short of resources, which end uses have the most savings impact, and therefore which ones you should focus on as being critical to the actual forecast, and which ones you can afford to ignore. For example, we have ignored, of the 15 to 16 end uses in the residential sector, we are only focused on three; the other 13, we think, are fairly stable, and we have not tried to do any improvements of those particular ones.

And here is an example of how we would suggest that you try to display information for each end use in the CEC forecast because we think it provides information -- useful information. And this example is from the paper that we did, that was both a taxonomy paper and looking at how you can explain forecasts over time. Now, everything has been normalized in this example to 1990 equals one, but you could choose any base here you want to. And what this shows is

that the structural service growth, e.g., the amount of energy services residential customers are demanding from their refrigerators, has grown at a greater rate than the decreases in energy use caused by building in appliance standards and utility programs over this time period. So let's just take year. In 2005, if you look at that, there has been a 54 percent increase in the demand for refrigeration services, but there has only been a 12 percent decrease, or one minus .88 in the average usage per refrigerator. So when you net all that out, there is a 15 percent overall increase in electricity usage for that end use. So, you know, it depends on whether you are looking at the glass as half-full or half-empty. One can say, "Well, gee, without efficiency programs and standards, we would have had a huge increase in sales from that particular end use;" on the other hand, you could say, "Yeah, but if there is some interaction effect, if people are using the savings that they get from the more efficient refrigerators to buy more efficient refrigerators, then it looks like there is a significant income effect that is increasing electricity use, regardless of whether you set standards that are really stringent, or not so stringent. And as you probably know, California set the most stringent standards in the world in 1984, and the federal government adopted those later on in 1988. That has led to a big decrease in marginal intensity,

or the UEC for a new refrigerator. But because of the slow turnaround, it is just barely starting to get into the stock in 2005 at a .88 effect, and the overall energy use, bottom line, it continues to increase in the refrigerator sector, even though that is one of the success stories of energy efficiency that is trumpeted by many people around the world.

And I just went through this -- I said I was not going to spend any more time -- I think the other reason that this is important is that, when you are trying to assess whether certain GHG policies are even possible, it is important to know if you are seeking energy use reductions, efficiency is not enough. If you just focus on efficiency, and do not look at the growth in, for example, the size of the house, or the size of the refrigerator, or the size of the car, or the horsepower, you can do incredible things on the energy efficiency side, but you are still going to have increases in energy use. If you really believe that you want to decrease energy use, you have to have some policy for at least monitoring, if not effecting service demand growth over time; otherwise, that service demand growth is going to completely overwhelm whatever energy efficiency policies that you passed, and bottom line, you will still have increases in electricity use over that time period. Here is just another way of trying to display those things

and, really, I am just searching here for ways that might be intuitive for policy-makers who do not want to get into the details. This is a way of showing for some selected end uses the impact of structural change on the forecast between 2000 and 2018, that is in the blue; the red is the decrease in energy use per unit, think of it as, you know, maybe the average refrigerator was 18-cubic-feet in 1980, so what that says is, you know, we are going to reduce that, the baseline usage of that 1980 refrigerator by -- what is that -- 25 percent. And that is great, but if on the other hand, now the average size is 23-cubic feet for a refrigerator, the net of both of those effects is what is shown in the vanilla there, which looks like, you know a four percent effect. So these are all examples of how you might want to just display this information, and then you can have discussions of, well, does that seem realistic or not? And how do you figure out, you know, for each of the programs we have been talking about, what share of the red bar do they deserve -- if this utility program is 20 percent, or 50 percent of that red bar, that type of thing.

The last thing I want to mention here about Method 2 is, from an economist perspective, the reason that we have programs, in addition to capturing savings, is to try to increase price elasticity over time. And by that, what I mean is, for a given increase in prices, we would like more

response from the marketplace in terms of buying more efficient goods. The problem that I have right now with trying to separate out price effects from utility effects is, the last time we measured price elasticity was in the '80s, so we do not know, I would argue, when you look at that chart that Don was showing, that has big price effects, whether the price of elasticity has changed and, if so, how much, when we would look at these data in the year 2000. And economists argue about this all the time, are price elasticity's -- do they change over time, or not? And it is a function of a lot of different things, but I think it is going to be important if we are going to continue to report that very large amounts of savings come from price effects, that we confirm that by going out and re-estimating price elasticity in the residential sector, or the non-residential sector, whichever seems to be the most important. Now, on the other hand, it may be impossible to separate them, but I would think that you should be able to separate price effects from utility program effects if you do it correctly, do not know.

Now, what is the solution in the long-term? This is just, again, speculation. We have talked about in this working group alternative model specifications that focus on trying to forecast total energy savings and usage by end use, first, and then separate them into these different

components of service, demand growth, and energy intensity, and that by definition requires you to think less about trying to prove attribution and more about how can we gather information in the marketplace about what the net effect of all the programs that are happening, whether it is a program run by ARB, or SMUD, or the Energy Commission, whether it is flex-your-power ads, or whatever, try to get an accurate idea of what is happening net of all the programs as opposed to trying to focus on can we determine, you know, the incremental effect of the utility program vs. the standard that covers the same end use vs. the ad that was run on flex-your-power last month that encouraged people to reduce their dishwasher usage, for example. It is almost impossible to sort all those out, but it may be possible to run it to work on a different model that works on accurately forecasting total savings first, and then gets to the question of attribution.

Okay, this is just a summary of the recommended adjustments that we made to the forecasting model to incorporate savings estimates from utility programs and other market changes, and I have already gone through most of these things in terms of our recommendations for residential lighting and non-residential -- 100 percent. We recommended not adjusting their current model to include savings from refrigeration and cooling end uses and HVAC

because it does not look to us like they are going to be very significant, and the baseline comparisons were either incomplete or pretty close. So in terms of just prioritizing your effort, we think that the CEC staff is headed in the right direction by focusing in on lighting first, and then getting to those other end uses.

The other thing that we have done, that we are not sure if the CEC staff is going to have enough time on, is we recommended a change in the expected useful life of refrigerators, and that is based on the most recent evidence from the most recent RASS, and the effect of utility recycling programs, and that effect is basically to shorten the expected useful life of the refrigerators because people are, say, instead of holding on to a refrigerator for 25, 30 years, I am going to turn it in through the recycling program and get a new one. So we think there is evidence that, on average, people are holding on to their refrigerators for a shorter period of time, and buying a newer model. And as far as we know, that is not yet incorporated into the CEC's model, which I think -- correct me -- is this 18 years or 20 years? Do you know, Tom? Yeah, the CEC model currently is about 20.

So what are the next steps? Well, ITRON is committed to working with the CEC staff and our PUC Project Manager to develop an uncommitted managed forecast using

energy savings estimates from both the Goals Study and from what we call the SESAT model, and try to make sure that everything is consistent between what is on the CEC side of the model and what is on the side of the PUC model. But the other thing that I want to just say that I was thinking about this when I heard various arguments today about, you know, is it a good idea or a bad idea to have committed savings, and then a cut-off, and then uncommitted savings? And in my opinion, that is sort of the wrong question; the right question is, as funding goes out over time, there is a lower probability that you can actually estimate that it is certainly going to happen, so, if it was me, and I did not have any other policy considerations, I just wanted to get an accurate forecast, I would use a probabilistic model, I would use some kind of crystal ball simulation, and I would say, you know, the expected value of funding of X is 90 percent in the first three years, and then it goes to 70 percent in the years four through six, and then it is like 50 percent in the last years, because that seems to me -- it is more of a continuous function, it is not a yes/no, either there will be funding after 2012, or there will not, it seems to me that it is more likely that, if there is a distribution function that you can construct there -- and maybe we could do that as part of the scenarios analysis because I think, you know, particularly given the most

recent recession, no one knows with any accuracy what the funding levels are going to be beyond the existing cycle; but I think it is reasonable to expect that there will be some funding, and so you can deal with that through a probabilistic analysis, rather than assuming zero in one forecast and lots of funding in the other.

And that is it. I am here to take questions. I have just some more additional back-up information about savings by end use for different sectors, if you are interested in seeing that. But for right now, I will stop and say -- ask for questions.

COMMISSIONER BYRON: Very good. I hope there will be some questions. I would like staff to respond to that last recommendation you just made about changing our assumptions about uncommitted funds, that there is some probability of committed funds going forward in the out years, and whether or not that makes sense to them. Dr. Jaske, coffee break is over.

DR. JASKE: Mike Jaske, Energy Commission staff. There are a variety of ways to deal with the issue of how to treat long-run savings objectives goals. Mr. Messenger is correct that some sort of probabilistic approach is one option to deal with the level of funding question, but there is an additional level of uncertainty and that is what is the program design. So how do you convert those dollars

into savings? How do you decide what is the mix of end uses and measures? And as one of the earlier questioners of staff tried to penetrate, you know, there is a big difference whether your energy savings mix is tilted toward off-peak CFL lighting savings vs. on-peak air-conditioner savings. So, for the very same aggregate energy savings, a quite different peak consequence. So I suppose one could, you know, create some alternative assumptions about funding levels, program designs, etc., but you are talking about multiple forecasts, then, maybe not -- at least that would be my first step about how to do it, is to have multiple forecasts because I am not sure I can convert policy calls into probabilities very easily. But then that would leave the Commission, or any of the other users of the forecasts with the quandary of which one, or which set of them to use, and how to weight them. So we could move in that direction if you so desire, but it has both staffing levels, and then questions of interpretation, and sort of just tractability to all the downstream applications.

COMMISSIONER BYRON: Right. The problem is the all or nothing, so even if it was an assumed 50 percent, that that would at least leave some continuity in the program.

MR. MESSENGER: And if I can, just a brief additional fact. I worried about the same problem that you did in terms of how do we figure out not just funding

levels, but how do you convert that to savings, and I think if you go back through the historical record, you can see there are trends in the amount of kilowatt-hours purchased, so to speak, per dollar of funding, and you can look at those trends and use those trends to develop an easy way to convert a thousand dollars of funding into both an energy and a peak component. So I think it is possible to do probabilistic and make it simpler than having to do 15 or 20 different forecasts, but you have to be willing to extrapolate the data from history and agree that history has some way of informing what the future might be like. If the future is really different, then you are right, Mike, there is no way of figuring out per million dollars spent in 2016 what you are going to get. But I would argue that if you look at the patterns of what the utilities at least have reported getting per dollar of expenditure, you can see a pattern from history and use that to bound the probabilities.

COMMISSIONER BYRON: Turning to the Energy Commission staff, since this presentation was really directed towards the staff in terms of recommendations, instead of getting more folks like me popping up, say, "Yeah, why don't you do that," do you have any questions for Mr. Messenger?

MR. KAVALEC: Chris Kavalec, Energy Commission

staff. Going back to your slide that you had with refrigerators, and you had a demand for energy services, I was not clear, although we have talked about this before, how you were defining energy services. I mean, so when energy services are going up, what does that mean?

MR. MESSENGER: Okay, so first let me say that it is all in the paper and I would be happy to send that to you, but I am going to give you a really quick answer. It includes the following dimensions: 1) increases in the number of refrigerators per household; so if people are going from one refrigerator per household to 1.5 refrigerators per household, that would be picked up in this indicia of structural service growth; it includes increases in the size of the refrigerator, again, going from maybe 18-cubic-feet to, I think the latest figures I have seen are 23 or 24-cubic-feet on average that people are purchasing, so that would be included; and then the last thing that is included is increases in features service demand, and the biggest feature service that has an effect on energy use is when people say, "I want through-the-door ice." Through-the-door ice features usually adds about 10 percent over the base usage, so as a greater fraction of people in California say, "I want through the door ice" when they buy a refrigerator, that again is reflected in increased service demand, demand for essentially more convenience, in this

case, and that leads to a higher energy use per refrigerator, even if the standard is there, because the standards let you use more energy if you have through-the-door ice. So did that answer your question? Okay. I am just showing this in case someone wants to talk to me about this later. This, I think, is a very interesting look at what has happened in terms of the savings by end use for the non-residential sector, commercial and industrial, and that big red area in there is lighting fixtures and ballasts and that is what Don was referring to earlier as, you know, a change-out from T-12 to T-8 to T-8 premium ballasts. So that has been pretty much a constant, but the other thing that you can see in there is, CFLs -- and this is primarily -- I would expect CFLs to small commercial, although there may be CFLs to some large commercial customers, have been increasing, as well, in the non-residential sector. Anyway, that concludes my presentation. Any more questions?

COMMISSIONER BYRON: Seeing none, Mr. Messenger, thank you. I found it very informative.

MR. MESSENGER: You are welcome.

MR. KAVALEC: We have gone into excruciating detail on the Energy Commission's approach to incorporating energy efficiency program impacts, both in the models and through post-processing. And, of course, we are not the only people that measure energy efficiency impacts, so one of our

working group meetings focused on the utilities presenting their approach to measuring energy efficiency impacts within their forecasts. So here to give a summary of the utilities approaches is, again, Chris Ann Dickerson.

MS. DICKERSON: Thank you, Chris. And good afternoon. My name is Chris Ann Dickerson. All right, so as Chris mentioned, what I am about to present is an overview of how the utilities, and actually a little bit about, at a high-level, how the Energy Commission constructs their demand forecasts, and in particular, incorporating energy efficiency.

Now, what I wanted to say about this presentation is, what I am not about to present here is a detailed course or teaching on the methodologies; in fact, we have far more qualified forecasters here in this room than I am. But what is interesting about this presentation is the ability to compare at a high level the variety of methods that the different utilities and the Energy Commission and others are using, so that you can see really that there is a wide variety of options in terms of how you put these forecasts together. And when you go to compare the different approaches, it is not surprising, in my opinion, that we are tending to see different kinds of results coming out of different models. So that is what we are going to talk about here.

So, once again, as we have talked about abundantly today, when you are talking about energy efficiency, you are inherently talking about forecasts. The accomplishments themselves are forecasts because they are estimates of what might be saved based on what might have occurred, and now we are talking about incorporating forecasts into forecasts, so it is sort of, you know, it is a little bit of an endless regress when you are talking about efficiency, and that is always something that is just important to remember.

So as we have mentioned earlier, the participants in our working group put together some information about their forecasts, and we compared these in a couple of working group meetings, so we have the demand forecasts focusing on the energy efficiency component from Energy Commission staff, from the IOUs, and from the publicly owned utilities, the POUs, the two largest, L.A. and SMUD. We also had some presentations from ITRON's SAE, they call it, the Statistically Adjusted End Use modeling group, and there is a little bit of information about the way the forecast is constructed for the PUC Energy Policy Goals. So the goals approach is not really a forecast, per se, because it does not forecast demand of energy, but it does forecast adoption of energy efficient goods and services, and in so doing you can determine from that an amount of savings. So that is sort of a different approach. But these things all become

talked about together, so it is interesting to know the different kinds of approaches that are used.

All right, so just again, at a very high level, it is important to bear in mind that we are talking about very different basic types of forecasts here. The Energy Commission uses an end-use-based forecast, and so we are looking at building stock and saturation of equipment and appliances throughout this state, and based on -- we have been using the term UEC's, and Use Consumption of Energy, and a number of other types of characteristics. You build from the ground up, looking at the buildings, and the equipment, and the appliances, and the usage, and the population; from the ground up, you develop some estimates of the amount of energy that is going to be demanded. Now, the utilities basically use econometric forecasts, and the difference there is that we are basically forecasting future energy used based on past energy use. So you can see at the outset that these are inherently different methods. The utilities also, in some cases, supplement their econometric forecasts with some end use forecasts, and basically that is true back and forth among all these different methods, is that there really is never one -- is it not the case that these methods are entirely separate; rather, they are put together in different sort of mosaics, and for each different forecast. So you could say that something is

mostly econometric, but there will be little end-use-based components. As we mentioned for the energy efficiency potential studies that are done for the Public Utilities Commission, as we mentioned a minute ago, we are not actually forecasting energy use at all, but rather we are forecasting the amount of energy efficiency that will be adopted by participants in the state, and it could occur naturally and, then, through that, you forecast an amount of energy that would be saved.

All right, so again, this is just to give you a flavor of the different types of approaches that can be used to incorporate energy efficiency into a demand forecast. So one of the first methods is that you need to reconstitute your loads, so what this means is that, inherent in your forecast is the notion that efficiency has already been occurring and is evident in the data that you are using to forecast forward. So in order to back out the energy efficiency, you first -- you subtract off the energy efficiency that has already occurred, and reconstruct your forecast -- oh, I am sorry, let me rephrase that -- you add energy efficiency to the demand that has already occurred. Here, we can look at this slide. So the red line is your measured load, the red dotted line, you add back the amount of efficiency that has taken place, so that you construct, in essence -- they tend to call it a consumption variable --

this is the amount of consumption that would have occurred if the efficiency had not been conducted. From that, you develop some new parameter estimates and you forecast demand, going forward, as if that efficiency had not occurred. And then you subtract out the energy efficiency that has already occurred, plus the efficiency that you expect to occur in the future. And, again, I think the point here is not to learn to do the method, but rather to contrast this with a couple of approaches that we will see.

Second approach is that you include energy efficiency as a variable in your model to predict the historic demand, the demand for which you have observable data. And then you develop your forecast going forward, using as an explanatory variable to predict future consumption, you use your energy efficiency coefficient as a term in the model. And this model works better when your energy efficiency is expected to be the same, going forward, as it has been in your historic period for which you have sales data.

Third method that you can use is basically to prepare your forecasts going forward, using existing consumption data, without regard, at first, to how much energy efficiency may or may not be included in the forecast. And rather, you become interested in the efficiency only to the degree to which future efficiency is

expected to be different from that which has historically been occurring in your forecast. So if approximately the same amount of efficiency is expected to occur over time, you can just leave your forecast the way it is and not worry about the amount of efficiency that might be embedded in your sales data. And then, if you anticipate that there might be more efficiency, for example, that there are changes in program funding -- more or less efficiency, but usually what we are seeing is more -- then you can do, as we have been mentioning, a post model adjustment where you then add or you subtract from your forecast the additional amount of energy efficiency that is expected to occur in your forecast time period, but you only subtract additional efficiency that is above and beyond that which you have been seeing historically over time because you assume that that is embedded in your forecast.

So something that is important to remember is that any of these methods can be used in varying combinations. They can be done at the sector level, so you might use one or more of these methods all the way through, let's say, your residential customer class, your industrial customer class, your commercial customer class, and then add them up all at the end. On the other hand, you may take energy efficiency all in one grand total, together, and subtract if off that way, either using any of the three methods we

discussed, or some permutations of the methods. In California, we show that the utilities are using a combination of methods 1 and 3, so those are the methods where we either reconstitute loads, or where we just worry about the trends, overall, and we have the Energy Commission using Method 2, where they are using energy efficiency as an explanatory variable in their model. And if you will recall, we have different kinds of basic models here, as well. So we have the basic econometric forecasts going on with the utilities and use forecasts going on from the Energy Commission.

Something that is also worth mentioning is that treatment of distributed generation is also an issue, so I am not sure that I know this information for all of the utilities, but I can say, for example, for San Diego, they use a Method 3 where they only forecast a trend line for energy efficiency, however, they manage their distributed generation, their solar and their other DG, they subtract that from their forecast, and then they use sort of a method, the Method 3, and then they forecast the trend line without subtracting the energy efficiency off. And if that is hard to follow, that is okay because, really, the only important point is that there are different ways to do it. So it is interesting when we go to compare the forecasts, that they do not match, and maybe one would not really

expect them to all match.

We have spent a lot of time already talking about the evaluation data coming from the energy efficiency programs, so I will not belabor that point, except to say that, in addition to having these different methods of constructing the forecasts, we also have the different entities using different types, and eras, and vintages of program data from CPUC programs. And as you have heard many people saying, as presented in this chart, even a basic reporting of program accomplishments goes through five or six iterations before it is considered final. And this line here for the ex ante results, the first results that are reported after the program accomplishments have been tallied up, but before they have been evaluated, the ex ante data tend to be the most consistently available, and that is what most of the models are tending to use; and it is interesting to note, of course, that from the PUC's perspective, it is the ex post, or what we call the realized results, the proportion of the ex ante results that were realized in the end, that constitute the actual final record of what occurred. So we have at a minimum something of a disconnect in terms of using these ex ante results in the models, and the ex post reported results being those results that are considered final by PUC and, as you have seen, Energy Commission, in particular, has taken great care to make a

number of adjustments to those ex ante results to get them to match as consistently as possible with what we might consider to be the final results. And when we did our comparison in our working group meeting, we see that the utilities are using varying versions of these ex ante data, in some cases with some ex post adjustments.

Okay, so we have covered this. In the program data we have, again, you have heard from a number of speakers today that these ex post program data are difficult to work with because they are aggregated in different formats over time. And the results are hard to match back to the original claims. And, again, we do not want to make -- it is the case that this information exists somewhere, it just exists in such diverse forms that it is very difficult to aggregate together.

So we have just spoken about incorporating programmatic energy efficiency into the forecasts. There are also some issues with the over-arching methods for incorporating standards into the forecasts. So the Energy Commission, of course, very carefully incorporates savings from energy efficiency standards into its forecasts, using its end-use-based model. That is in many ways sort of a primary output of the CEC model. Now, the utilities, since they are using econometric forecasts, and forecasting demand, future demand based on previous demand, do not tend

to be as concerned about specifically incorporating the effects of standards into their data. The reason for that is that, as the standards kick in over time, so standards will be enacted, but the effects of those standards only become evident in the data over time, as new vintages of building and appliance stock become subject to the standards. So, over time, the sales data begin to incorporate the effects of those standards, in fact, they are embedded, a term we have talked about a lot today. So it is not critically important, necessarily, to explicitly model the effects of standards and, rather, you can let them show up over time because the data that you are using to construct the forecasts are beginning to incorporate the effects of those standards. And in some cases, the utilities use a blend of both of those approaches, so they will a lot of times let the impacts of the standards become evident in the data from an econometric perspective, which does not require a lot of adjustment, but if a big standard expected to have a lot of effect is coming in, they might model that explicitly in their forecast.

We have spoken a little bit earlier about the issue of including policy goals in forecasts and I just wanted to highlight that there are different kinds of perspectives about this issue. I think we have heard from PG&E that, in service of having sort of some matching forecasts, they are

interested in making sure that those goals are incorporated. We have heard from the Energy Commission that they are interested in continuing the distinction between committed and uncommitted energy efficiency, and another issue that arose in some of our working group meetings is just the concern from a resource adequacy perspective about the implications of including policy goals in a forecast if that forecast is intended to be used for procurement and/or resource adequacy purposes. So there are just a variety of issues to consider when you think about including policy goals in a forecast.

I think you have also heard some people mention that there certainly could be additional clarity in how different goals and policies and program effects fit together over time, and so that is when we start talking about our AB 32 goals and our AB 2021 goals, and then the effects of different standards and legislation that is rolling in over time. We will have, now, the effect of the stimulus funds to consider, and there is a lot of interest by the stakeholders in our working group in having some over-arching place where we can sort of consider all those goals and standards together, so that the participants can know where they are on the map, and so that they know that someone or some group is sort of watching over the over-arching set of requirements, so that we can make sure that

they either add, or do not, over time. And that is, in part, what we are doing here, certainly with the Energy Commission forecasts and, in particular, the incremental and uncommitted forecasts. But there is sort of an even over-arching layer from a policy perspective about just having someone make sure that we know how all of these pieces fit together and who is responsible for accomplishing which portion of all of those goals.

All right, so just to sum up, we have talked about some of the methods you can use to estimate the impacts of energy efficiency, programs, and standards on consumption. There are several basic approaches, and ultimately the building blocks can be put together in many different ways, and they can be put together in many different ways in California, and they are. We have seen interest in our working group for developing a common forecasting methodology, and that is certainly something that we are interested in considering doing. And at a minimum, what we have been able to accomplish in our working group so far is increased transparency, so I think people found it very interesting to compare notes with one another about how they put their forecasts together.

Our working group members are struggling more and more with these kinds of issues, as efficiency becomes more important from a policy perspective and as a critical

feature in their forecasts, and certainly we have a group of people who are motivated to try to find some solutions to these problems, and we are making progress in the group. Thank you very much. Are there any questions?

COMMISSIONER BYRON: You may have said this because I was jotting down a note while you were talking, but back on slide 12, I am not sure that you emphasized your last line there, that it can require two to five years to complete evaluation. And of course, I think a message that I have learned today is what we are asking this Commission to do is very complicated, and the determination of the accurate incorporation of energy efficiency programs going forward, the attribution of that, the second step, very complicated. And then, of course, we may not know this for two or three or four years later, and we want to know it now. We want to know it 10 years ahead of time so we can set good policy. But I have to ask the question, why does it take up to five years to get that result?

MS. DICKERSON: Well, so in order to do what we call full ex post evaluation, a lot of times -- well, a lot of times you want to let the program cycle run for a little while so that you can do an over-arching evaluation of a cycle. So let's say you have the 2004-2005 program cycle, in that case you will wait until the close of 2005 before you even start evaluation; then there is a period of time

while the utilities go through their books and add everything up, and then say, you know, these are the number of -- we got this many participants in these different programs, and we have processed this many rebates, and it takes a while just to get the books settled, so that may happen, it happens in varying degrees. There are some initial filings and some subsequent filings, but that can take a number of months, maybe three to six months. So, at that time, we have some studies, a verification study now. So then ED will have their teams of consultants go out into the field and inspect to see -- well, they do a couple of things -- they inspect the books, then, and then they do some field inspections which can include on-site visits and surveys, telephone surveys, so they are actually looking at participant sites to see how many of these claimed installations can we actually count. And for the most part, there tends to be a high correspondence; in some cases, for example, in lighting, there tends to be more of an issue where some of the measures are, for example, dropped off and left in a closet, and so they are never installed. In most cases, you see close to 100 percent installation rates -- and, Michael Wheeler, you can say something if I am off-base here, but for the most part, the items are installed. But in some cases there are just some errors, and you find that something is not installed and operational. So that is the

verification step. There are also some -- and this is something that is controversial at PUC -- but what can also happen at the verification step is that we revisit some of the initial estimates that were made to develop the program assumptions. So you see here in my -- on that first line, the green box, we have gross and net assumptions that go into determining how much energy is saved by each measure, and so the gross savings is a difference from -- the difference between the energy efficient piece of equipment and the standard, or base case piece of equipment. But that is not just one number, that is a number with a lot of parameters, so that includes how many hours the equipment is operated, the weather for weather affected measures, the affected area per measure, so an example there might be a set-back thermostat, so you have to make some assumptions about how much heating and cooling is controlled by that thermostat, and then the measure life, of course, something that we have talked about. So any and all of these parameters can change, and they do change, and the same with the net savings and that is the attribution about why was something installed. So we now have several stages at which any of those parameters can change. So you begin with your ex ante, that is your initial estimate. At the verification step, we can go into the field and, with your surveys, you can determine how many of these measures were actually

installed. And now at the verification step, we are also doing some revisiting of the net and gross parameters. So to your question of how long does that take, you can imagine how that takes a while for all of that to happen and the results to be added. Then, when we go to do that third step, the ex post evaluation step, a lot of times that involves metering in the field; actually, we have to contact the customers, go out to their sites, and install meters, a meter for a specified period of time, which can often be several months, and then come back and analyze the data. And sometimes we do billing analysis where you want to get a year of billing data, a year or more of billing data before the measures were installed, and then you usually wait a year and then you get a year of data after the measures were installed. So you can see right there that that would add well over a year onto ex post evaluation by the time you go out into the field, collect those data, and/or wait for a year to pass before you can have a full year of billing data, and then conduct a number of analyses, write a report, and add it up. That is what takes so long.

COMMISSIONER BYRON: Thank you. I am somewhat sorry I asked. But it is, obviously, very complicated, takes a long time, and I suspect it is obviously a very expensive process, as well. So any future questions? Please, come forward, yes. Absolutely. You can comment, you can

question, we are glad to have you.

MR. WHEELER: Michael Wheeler, Public Utilities Commission staff. I just wanted to take this opportunity to make a comment, which is that this is the measure-based savings regime that we currently operate within, and there is discussion, and I encourage the CEC to join in this discussion at the Commission around the fact that we have these meters on every building measuring how much energy they use, and wouldn't it be neat to come up with a way to use them to do this work for us, even though we know that there is a lot of other intricacies to the amount of energy demanded by of certain residents, the weather, the economy, all of these different fluctuations that add to the choice to turn something on or off; however, we still do have these meters on every house and, given that this system works well enough if we do not need the information that results from the EM&V analysis for three years, but because we want it sooner than that, maybe we are interested in looking at alternative pathways to coming up with that type of -- call it preliminary information in the short term -- that we can use for policy-making, and still do this type of detailed EM&V to double check and verify those assumptions.

COMMISSIONER BYRON: Very good. In fact, that is the real reason I asked and my interest is to inform the policy-making in terms of designing good programs, rather

than being five years behind. Are there any other questions, comments?

MR. MESSENGER: Mike Messenger, ITRON. To me, it is completely unacceptable to have a five-year lag between the program and the final evaluation. And I could spend an hour explaining to you why it takes so long, it has to do with overlapping jurisdictions and the desire to measure things to the level of precision that rarely gets done in the real world, but the bigger problem is, if it takes two to five years for the policy-makers to find out how, about the customer? You know, my view is the customer needs to have an evaluation within three months of installing this good, it is about whether or not it is working. And that is actually the place where meters can have the biggest effect. A lot of -- some of these questions cannot be answered by -- let's call it smarter meters -- because, for example, figuring out what the baseline and what would have occurred anyways, there is no meter in the world that can figure that out for you, unless you want to trend the last 10 years of the customer's site and say that is the baseline that you want to use. But there are a lot of things that a well-designed smart metering system can provide feedback, both to the customer and to the policy-makers, within six to 12 months, and I think it is just because of the way that this whole industry has grown up that there is endless delays in

every step of the way in terms of trying to figure this out. So in my view, the biggest positive impact, or one positive impact the Energy Commission could have, is they could talk with their sister agencies and say, "Look, it is not acceptable to have a five-year delay. That doesn't work for us." We need to work together to figure out, to even reduce it to two years would be wonderful. And I think the starting point should be a year and a half, or something like that, but any business could not run on a system that it takes five years to evaluate the efficacy of a purchase or a program. So, to me, that is not a good thing, it is a bad thing when it takes five years to evaluate. Other people may disagree, but…

COMMISSIONER BYRON: No, I appreciate that comment and, of course, that was one of the first times, I think, we have heard today the mention from the customer's perspective when they need this kind of information. Any other questions, comments? Thank you.

MS. DICKERSON: Thank you.

COMMISSIONER BYRON: I think we are in a public comment period, correct?

MR. KAVALEC: Yeah, that is the way the agenda was set up. But while this is up, this will only take two minutes, I might as well do this first. This is not really a presentation, I just wanted to put all the next steps that

we talked about in one place for the Committee to see, and for folks to comment on. We talked about refinement of the energy efficiency numbers, scenarios for economic projections, next steps related to modeling, next steps related to energy efficiency estimation that Don talked about, what the working group is going to be up to, and what ITRON/CEC is going to be working on. So this is -- we consider this cooperative mentor and we would appreciate comments from anyone on what we are doing, what we should be doing, what we are doing wrong, and so on. So you have that set of slides. So now we can take public comments.

[Public Comment Period]

MS. KOROSEC: I think since we have been having question and answer after each session, I do not know how much more public comment there is going to be. Is there anything -- anybody on the Web who had anything they wanted to say? So if you are amenable, Commissioner, I think that would probably be it for our presentations and public comment.

COMMISSIONER BYRON: Okay. I have a few comments I would like to make in close, although I recognize it is a staff workshop, and I do appreciate all the effort that has gone into it. I have learned a great deal today. And, as I mentioned, it is unfortunate that there are just so many days on the calendar, and we could not schedule it so that

Commissioners Bohn and Grueneich could be here, because I know they wanted to be.

You know, I tried to put this in a broader perspective, if I may. The energy efficiency is at the top of the state's loading order. This is extremely important, even though it is only right now, if I understand it correctly, a net effect of about one percent. We anticipate and our policies are moving towards this being a much higher percentage. And given all the money that California is spending on the energy efficiency programs -- I should say of Californians' money -- it is vital we understand and properly account for the savings from the utility programs and the building standards, however cyclic. However, I like the way Mr. Messenger put it, we need to get the total right first, and then the allocation, second. And also, I note that policy-makers' view of energy efficiency might be different from customers' and, having worked on the customers' side of the meter for a number of years, it is all about saving money. You know, a dollar's worth of saving equates to essentially ten dollars worth of revenue for a commercial company, and certainly residential customers, I think, are very open to saving money, as well. But we are missing it in terms of the scheduling effects, here. The PUC is well behind in terms of allocating these programs on the year, and without going into the reasons of

it, I know that that creates problems for customers. They have budget cycles they need to make, they have to count on these programs, they need some certainty, and this kind of delay without taking that into consideration may be contributing to the kind of cyclic nature that we are seeing here. Of course, this last issue that we just brought up with regard to the measurement and verification is also important to customers, they need that measurement, they need the certainty of funding, they need consistency, they need accuracy, and so these are things that we need to also be working on, instead of just getting our forecasts right.

And we count on our staff here at the Commission to provide the best forecasts possible. I heard some encouraging things today, and I heard some things that concern me a little bit. They do a very good objective application of all the factors that are necessary in making the forecasts, and we count on our staff to do that. But we have got a lot more work to do, it looks like, we need to add in the publicly-owned utility programs, we need to consider other programs that I believe have not been incorporated yet, that might have an effect, the low-income, the CSI, the SGIP, the California Solar Initiative and the Self-Generated Incentive Program, and a number of the potential discrepancies that came up today, I hope the staff will address in a more substantial way. So I think I will

end my comments there. It has been very informative. The issues around forecasting and attribution energy efficiency will no doubt continue, and I also very much appreciate the efforts of the Demand Forecast Energy Efficiency Quantification Project Working Group, that sounds like that has added a great deal of benefit to our efforts here. But we are not done. And we will be back on another workshop on this subject for the IEPR, please remind me, Ms. Korosec.

MS. KOROSEC: The 26th.

COMMISSIONER BYRON: Of this month, of June, on June 26th. I would like to thank you all for coming and for your participation. Some of you come from long away, and some of you are joining us more and more by WebEx. We appreciate all your participation. Are we done?

MS. KOROSEC: We are done.

COMMISSIONER BYRON: Thank you. We will be adjourned.

[Adjourn.]

CERTIFICATE OF REPORTER

I, Kent Andrews, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission IEPR Staff Workshop on Energy Efficiency Program Measurement and Attribution And Proposed 2010 Peak Forecast, and that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said workshop, nor in any way interested in outcome of said workshop.

IN WITNESS WHEREOF, I have hereunto set my hand this ___ day of June, 2009.

_____
Kent Andrews