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CALIFORNIA ENERGY COMMISSION (CEC)

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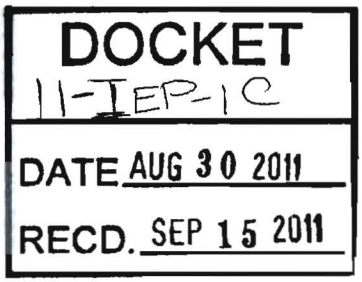
	)	Docket No. 11-IEP-1C
	)	
Preparation of the 2011	)	
Integrated Energy Policy Report	)	
(2011 IEPR)	)	



Committee Workshop on 2011-2022 Preliminary Staff
Electricity and Natural Gas Demand Forecast

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

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ORIGINAL

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Public Comment

Sierra Martinez, NRDC
Phillip Toth, SCE
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P R O C E E D I N G S

AUGUST 30, 2011 10:06 A.M.

MS. KOROSEC: All right, good morning everyone, let's get started. I'm Suzanne Korosec with the Energy Commission's Integrated Energy Policy Report Unit. And welcome to today's Committee Workshop on the 2012-2022 Preliminary Staff Electricity and Natural Gas Demand Forecast.

I just need to cover a couple of housekeeping items before I turn it over to the Commissioners for any comments, and then to the staff.

For those of you who may not have been here before restrooms are out the double doors and to your left. There's coffee and snacks, a room up on the second floor at the top of the HM stairs, under the white awning.

And if there's an emergency and we need to evacuate the building, please follow the staff out of the building to the park that's diagonal to the building, and wait there until we're told that it's safe to return.

We plan to break for lunch today between 12:00 and 1:00. We have a list of restaurants on the table, outside, that are within walking distance of the building.

Today's workshop is being broadcast through our WebEx conferencing system. The parties need to be aware that you are being recorded. We will make a recording available on our website in a couple of days after the workshop and we'll make a written transcript available within about two weeks.

We have two public comment periods on the agenda today, one before lunch and one at the end of the day. And during those public comment periods we'll take comments, first, from those of you who are in the room and then from the folks that are listening in on WebEx.

For those of you in the room, please use the center podium and speak into the microphone so that we can make sure we capture your comments on the record and also so the WebEx participants can hear you.

On the WebEx folks, if you use the chat or raised hand feature and let our WebEx coordinator know you wish to make a comment or have a question, then we'll open the line at the appropriate time.

We are also accepting written comments. Those are due September 9th, and the process for submitting those in the notice for today's workshop, which is on the table out in the foyer and also available on our website.

So with that I'll turn it over the dais for

opening remarks.

CHAIRPERSON WEISENMILLER: Good morning. Thank you for your participation in today's workshop. I think, certainly, the demand forecasting is one of the key Energy Commission functions and certainly looking at this preliminary demand forecast is an important step in our IEPR process.

Karen?

COMMISSIONER DOUGLAS: I'll just join Chairman Weisenmiller in welcoming everyone to the Energy Commission for this workshop.

COMMISSIONER PETERMAN: I will -- I'll give you a third welcome. Welcome to the Energy Commission for this workshop, thanks.

MS. GREEN: Okay, we thought we'd start with the staff presentation.

MR. GORIN: Good morning, Commissioners; my name's Tom Gorin, from the Demand Analysis staff.

Chris Kavalec could not be here today to present this results, but has participated in putting together the presentation and, hopefully, I can answer any questions that come up about it.

This is our preliminary forecast for electricity and natural gas. The primary purpose of this is going to be to feed into the resource adequacy requirements

for summer of 2013 peak. We're planning on making a revised forecast that will come out in January to incorporate comments from this workshop and additional, more recent economic and demographic forecasts to feed into the 2012 LTP proceeding at the Public Utilities Commission.

And this will -- this preliminary forecast will be the forecast presented, I believe, in the 2011 IEPR. The final forecast will support the 2012 IEPR update.

So the agenda, we're going to present the statewide electricity and natural gas results this morning, along with our conservation efficiency results, and self-generation.

And this afternoon we'll present results for the five major planning areas, along with some results for Southern California Gas Company.

Key outputs for the forecast, electricity and natural gas consumption, sales and net energy for load, peak demand, energy savings and private supply.

We forecast for electricity planning areas, the five major planning areas, the Los Angeles Department of Water and Power, Pacific Gas & Electric, Southern California Edison, San Diego Gas and Electric, and Sacramento Municipal Utility District.

We also do forecasts for the Burbank/Glendale

planning area, Pasadena and Imperial Irrigation District. We have not included that in our report for those bottom three planning areas. We do have forms on our website for Burbank, Glendale and Pasadena, and we're still in the process of putting together forms for Imperial Irrigation District.

Our natural gas planning areas are Pacific Gas & Electric, Southern California Gas, and San Diego Gas and Electric.

We still separate Southern California Gas Company and San Diego Gas and Electric because our forecast is essentially done by electric planning area. And we forecast San Diego Gas and Electric gas and electricity all at the same time.

We have key inputs, survey data from the RASS and the CEUS surveys that are done through the Energy Commission, which provide UECs, which is unit energy consumption by end use and saturations for end uses.

Economic and demographic consumptions, which I'll probably talk about later.

Energy prices, our quarterly fuel and energy report sales data is data that we collect on a quarterly basis from LSEs, utilities, generators on energy use. And we also use program-specific efficiency and self-generation data which is reported to us and through the

PUC.

Methodology; we have individual sector models for residential, commercial, industrial, agriculture and water pumping, transportation communications utilities, which we call the TCU sector in street jargon, and those are aggregated into a summary model, which essentially adds all those up.

And then the results of those models are fed into an hourly electric load model which produces a peak for each year.

This is kind of a general overview of the flow of the model.

For the methodology we used this year in the spring, we have put together -- used an econometric model for updated forecasts that we presented I believe in May. We've integrated some of the results of that econometric model into the end-use model forecasting process in residential, commercial, industrial and peak sectors.

We've used a new predictive model for self-generation of photovoltaics and solar water heating as opposed to the trend model we used in the past.

And we had Scripps do some climate change analysis for us for this forecast period that we incorporated into the peak model.

Changes from last time is we created a -- used the full implementation of the Huffman Bill, which is AB 1109, for lighting reduction requirements, and we included the 2010 Title 24 revisions and we put both of those into our committed energy efficiency savings.

The Energy Commission forecast has always used the committed and uncommitted paradigm for forecasting. And committed savings are programs that are in effect, and programs that have been funded.

Uncommitted programs are programs that have not yet been funded or standards that have not yet been adopted.

And we did develop, with the assistance of Itron this year, at the same time as our committed forecast, a managed forecast which includes what we would consider uncommitted savings estimates for the future.

So you'll see in the forecast comparisons with the utilities we have comparisons of committed and uncommitted forecasts.

We used a previous electric vehicle forecast from the Fuels Office, I believe they just released a new transportation forecast on Friday, that we have not incorporated into this preliminary forecast. We will incorporate it into the revised forecast.

A quick explanation of how the integration of

the econometric models were included in the end-use models this time around. We have used the price elasticities by end use for the residential sector that were developed, the overall price elasticity that was developed in the econometric model, and also used the industrial price elasticity that was estimated in the econometric model and incorporated those into the end-use models that we have now.

We made a commercial weather adjustment consistent with a cooling degree day coefficient and entered that into the commercial weather-sensitive end-use values, so that it reduces the sensitivity of commercial -- I believe it reduces the sensitivity of commercial use to -- requirements.

The industrial sector is driven by output, kilowatt hours per unit of output. And from the econometric model it was determined that measured productivity, which is the ratio of employment to output created also had an impact on the kilowatt hour output.

So, there's an elasticity from the impact of increasing labor productivity on the manufacturing, on the industrial model, and it's a downward impact because as productivity increases there's less energy used.

The peak results from the HELM Model incorporate climate change scenarios, which we can discuss a little

bit later. Essentially, it has an addition to peak for the impact of climate change between now and 2022.

And for the mining and construction portion of the industrial model we used the econometric forecast instead of the inform model output and, essentially, for mining and construction we used the employment rather than output as an input driver.

The results, compared to the econometric model, are relatively similar. The end-use residential model was slightly higher than the econometric model. This is the -- this is a graph showing the -- essentially, the results of the full econometric model and the preliminary forecast end-use results at the total sector level.

The peak forecast is slightly higher in the econometric model than the end-use model because of the results for LADWP and PG&E are -- had higher econometric peaks. This is the non-coincident -- the statewide non-coincident peak results.

An explanation of the climate change adjustment that we used in the peak model, we had Scripps provide eight temperature scenarios from -- to 2022, which includes daily maximum and minimum temperatures.

We went through that data and chose a mid- and a high-temperature increase for the mid- and the high-

ranges of the forecast.

I should go back and say that this forecast used three scenarios, a high-demand scenario, a mid-demand scenario and a low-demand scenario, which we will talk about a little bit later.

The low-demand case included no climate change adjustment. The high-demand case used the high temperature adjustment, and the mid-demand case used a mid-range temperature adjustment from the eight temperature scenarios that Scripps provided.

We used the long-term trend, based from 1990 to 2020, for the data that was provided to us to calculate an annual max 631 temperature, which is what we used to calculate the peak for the nine weather stations that we use for California.

It's currently the current day's -- 60 percent of the current day's maximum temperature, 30 percent of the previous day's maximum temperature and ten percent of the second previous day's maximum temperature to account for heat buildup.

And that's used to determine the temperature that drives the daily peak.

This analysis produced an increase of about 425 megawatts, which is about half a percent in the mid-case, and 650 megawatts, which is about one percent in

the high-demand case at the statewide level.

An explanation of the three demand scenarios, they're based on April 2011 economic projections, which is kind of the first caveat of this presentation because more recent economic scenarios are not quite as optimistic as we were in April.

For the revised forecast I think we're planning on using an October economic projection.

So the high-case we used the Global Insight optimistic case. For all these cases we used a mixture of Global Insight projections and Economy.com projections.

So, for the high-case that was the highest case we had available at that time. The Global Insight optimistic case, we used low electricity rates, low committed efficiency program and self-generation impacts, so that would give us the highest energy demand forecast.

For the mid-case we used Economy.com base case, mid-priced electricity rates, middle ground efficiency program and self-generation impacts.

For the low-demand case we used the low economic demographic growth which was, at that time, the protracted slump scenario by Economy.com, high electricity rates, and high-efficiency program and self-

generation impacts.

So, we felt at that time that that developed, essentially, the widest range of forecasts that we were comfortable using for this preliminary forecast.

A summary of the -- a summary of the results is that, to start with, our electricity consumption was three percent lower than we projected in 2009 because of the current economic situation, so we're starting from a three percent lower projection value.

We reached the CED 2009-2020 levels by 2018 in the high-demand scenario, and by 2022 in the mid-demand case. So, essentially, this forecast is similar to CED 2009, delayed by two years.

Peak demand is projected to reach CED 2009 levels earlier because there's not as much impact of reduction in demand on peak as there is in sales.

And the high-demand scenario reaches the CED 2009 level a little later. This is a graph which probably shows it better than the words do. You can see the blue triangular line is essentially -- in '22 is the same level as the CED 2009 forecast was in 2020.

And, essentially, it's the same for peak but the high-demand scenario is a little bit higher.

Per capita consumption we're still projecting to be relatively -- remain relatively flat. We were

projecting a decline. You know, you can maybe say there's a slight increase and that is driven by increases in the later years in manufacturing, and income increases, and also the inclusion of electric vehicle forecast.

And this forecast, which was not included in previous forecasts, peak per capita increases slightly but it's essentially the same as we were projecting in 2009.

We revised our population forecast downward. We have not included in this forecast the updated census numbers that the Department of Finance is now using for 2010 and 2011. We essentially used the Department of Finance estimates for 2010 that were available in the spring, which are about a million and a half people more than they're estimating now.

We did use the Census growth rates, which is why our preliminary forecast is lower than the CED 2009 forecast. We were using -- for that forecast we used long-term population projections by the Department of Finance that were assembled in 2007. As far as I can tell, that's the most recent long-term projection that the Department of Finance has available.

But we decided for this forecast to use the Census estimates of population growth which came from

Economy.com.

For the revised forecast we're planning on incorporating recent revisions made by the Department of Finance to 2010 and 2011 population data and they just released a population series by city and county, which makes 2000 to 2010 consistent with the Census years, which will decrease the growth between 2000 and 2010 for history of population and households it will decrease. The Census estimates were about four percent below their 2010 estimates for population and about two percent below for households.

Household income is growing faster in all three of the scenarios versus the 2009 forecast. This may seem anomalous given current conditions.

The household income is a combination of persons per household and per capita income. And the income projections from April were higher than -- per capita income projections were higher than what was forecast in 2009.

We also have new commercial floor space projections; they're starting from a lower point. And after 2012 in the mid and high case they're growing at a higher rate than was projected in our previous forecast. Those projections may change for the revised forecast given use of new economic projections, because they're

driven by income and employment.

The employment projections start from a lower point. The mid-case is essentially the same growth pattern lagged by a year, a year that was -- or two that was projected in 2009.

The new -- newer employment estimates probably lag that another year. So, the problem -- Chris had said in the earlier forecast that it's hard to make predictions around turning points in the economy and we're still in the process of evaluating the projections that we get from Global Insight and Economy.com.

Some basic overview of the sectors are 2010 consumption starting points lower than 2009. We have faster growth; mainly that's coming from the lower starting point. And we have, for the mid- and low-cases, because of the implementation of the lighting standards we have lower consumption growth.

We have faster growth in the commercial sector because of the faster floor space growth that I showed before.

And the industrial consumption is down because of the -- mainly the productivity adjustment. There's some faster growth assumed in output, but that's overtaken by the productivity adjustment.

And the peak follows the history -- I mean

follows the consumption pattern.

We also produced an end-user natural gas forecast, which does not include gas used for electric generation. This is basically residential, commercial, industrial use of natural gas and it should not include gas used for self-generation. That's done by the three planning areas, PG&E, SDG and San Diego Gas and Electric.

It's done in conjunction with the electricity forecast, but we have added natural gas program impacts to the results.

The natural gas forecast is slightly higher at the statewide level partly because of a higher starting point and some higher growth in industrial natural gas use.

I put these charts in so we could see the comparisons to the previous forecast. PG&E natural gas forecast is -- grows, essentially, at twice the rate in the mid-case that we projected in the 2009 forecast.

SoCal gas is less than PG&E and slightly below what we projected before.

And San Diego natural gas forecast is essentially -- it's very similar to what we projected in 2009.

I think that's it for the statewide level. Are

there any questions?

CHAIRPERSON WEISENMILLER: Yeah, I was trying to figure out in terms of, obviously, with the new econometric model just what have been the major issues with that transition and how comfortable we are with the comparison between that and the end-use model.

MR. GORIN: Well, it's not a new econometric model. We used the -- we put together -- Chris put together an econometric model for the May forecast and we used those results to influence the results of the end-use model. I mean we used it to adjust the end-use model results from relationships that he found with the econometric model.

So, we're still using -- for this forecast we're still using the end-use model.

CHAIRPERSON WEISENMILLER: Okay, but with insights from the econometric model.

MR. GORIN: With four or five insights and adjustments that we made from the econometric results. So we're trying to feed end-use -- feed the results of the econometric model into the end-use model.

CHAIRPERSON WEISENMILLER: And I guess the other question would be where the major -- what's the largest single uncertainty; the economy?

MR. GORIN: The largest single uncertainty?

CHAIRPERSON WEISENMILLER: What seems to be driving the result, in terms of the results?

MR. GORIN: Probably the economic forecast. The economy is going to recover, we don't know when.

CHAIRPERSON WEISENMILLER: Okay.

MR. GORIN: There's some uncertainty in population -- well, which leads to uncertainty in the population forecast in a rather -- you know, if there are not as many jobs in California, are people going to come to California to not have a job? You know, so the economic uncertainty would fuel the population forecast uncertainty in my mind.

CHAIRPERSON WEISENMILLER: Okay.

MR. GORIN: And we're -- you know, hopefully, by using the two economic forecasting, Global Insight and Economy.com, we got really two different looks at the world and, you know, trying to resolve those into a more narrow band of uncertainty may be not quite as easy as we thought.

CHAIRPERSON WEISENMILLER: And in terms of the uncertainties are they bigger for the forecasts of sales or peak?

MR. GORIN: I would think they would be bigger for the forecast of sales.

CHAIRPERSON WEISENMILLER: Okay.

MR. GORIN: Because it appears to me that -- well, peak is mainly driven by air conditioning and households. You know, there may be some uncertainty in a number of households, but people are still using their air conditioners when it gets really hot. So, that uncertainty's been taken away a little bit.

CHAIRPERSON WEISENMILLER: Right. Okay, thank you.

MR. GORIN: Okay. Now, we're going to have Nick Fugate present the efficiency and conservation part.

MR. FUGATE: Thank you, Tom. Good morning Commissioners and to everyone in the audience, thanks for coming.

So, I'm Nick Fugate with the Demand Analysis Office and I'm going to talk a little bit about efficiency and conservation. And despite what it says on my title slide, I'm not going to talk about self-generation. That will be another presentation after this one.

So, this forecasting cycle we continued with our practice of distinguishing between two categories of energy efficiency savings, committed savings, which are those savings that either have been implemented already, programs and initiatives that have already been implemented or that have been -- you know, they haven't

been implemented, yet, but they are on the horizon, you know, final plans are in place, they've been approved and funding has been allocated to those programs. So that's committed savings.

The uncommitted savings are those that we feel are likely to occur over the forecast period but, you know, there are no firm plans yet established for how we're going to achieve them. Either that or funding hasn't been funded, for example, programs that might occur.

And, you know, from last forecast period there have been some uncommitted savings that we're now considering committed.

So, for example, the AB 1109, the Huffman Lighting Bill, last time around that was considered uncommitted and this time it's been put into the committed portion of the forecast.

So here we have a graph of the three savings, the consumption savings scenarios. We've got a high, mid and a low scenario.

The high demand actually on the chart appears the lowest, you know, appears on the bottom of the three. That's because the high demand corresponds to, as Tom mentioned, low savings.

And, conversely, the low demand corresponds to

high savings.

In 2010 the committee savings represent about 22 percent of consumption. And out in 2022 they represent about between 25 and 31 percent, depending on the scenario.

And here we have a similar graph, but this is for peak savings. And all three scenarios are above 20,000 megawatts at the end of the forecast period.

One thing to note is that, you know, all three scenarios appear relatively similar. Part of that is because, you know, this graph represents a combination of savings from utility programs, building standards, and price effects. And, you know, between the three scenarios the savings from building standards, for example, aren't going to vary that much so, you know, most of the variation comes from the programs and the price effects.

And with the programs, the history is the same up to 2010 and then we have two committed years, 2011 and 2012, and so all of the variation just comes from differences in how we're treating those two years. So, it ends up not being all that different from scenario to scenario.

So, I'm going a little bit about what we did with the utility and public agency programs. Like I

said for the IOUs, at least, the committed period covers 2011 and 2012 first-year savings. And then those, you know, savings from all implemented programs and all the committed programs, you know, they carry on throughout the forecast period.

For the two committed years, 2011 and 2012, the high savings are we just took the total, what was reported by the utilities, the net savings.

And for the low savings we were informed by the CPUCs EM&V efforts, and we figured that those were, you know, a good high and a low boundary.

And then for the mid case we sort of split the difference.

As the savings -- as the first-year savings are predicted across the forecast period we use a logistic to K function, so most of the savings from, you know, a measure that's implemented will carry on for the life of the -- the useful life of that measure. And then it will -- as it approaches the end of its useful life it will decay and then shortly after the useful life it will decay to zero or approach zero, or at least that was how we did it last time.

This time around, actually we -- for programs that were installed in 2006 or later, we assumed that 50 percent of the decay would be made up from the -- would

be made up by the utilities. So, actually, what ends up happening is that rather than decaying to zero, it decays to 50 percent. That's just for programs implemented after 2006.

For the publicly-owned utilities we used a similar procedure. So, I'm talking primarily about SMUD, LADWP, Pasadena, Burbank, Glendale, so the utilities that have a distinct planning area in our forecast.

We have savings, reported savings consistently back to 2006 and up through 2010. And in 2011 many of the utilities provided a year-ahead projection of program savings, so we had a committed -- 2011 was considered a committed year for the publicly-owned utilities.

The realization rates that we used for those programs were also informed by the EM&V efforts at the CPUC, and what we did is we sort of looked at end-use by end-use what sort of realization rate we were seeing with the IOU programs, and applied a similar realization rate to the POU programs by end use.

So, now moving into the building and appliance standards, the Energy Commission -- you know, in our forecast we have -- we model impacts of standards going all the way back to 1975 and these have an impact on

consumption per household in the residential sector, and in the commercial sector they impact consumption per square foot.

And it's done by vintage so, you know, this allows us to estimate the impacts of building and appliance standards in our forecast by, you know, running our models with all of the standards in place and then, you know, standard by standard we strip them out and run our model again and see what the difference in consumption is. And that gives us an estimate of -- a net estimate of each individual standard.

We also model price effects and this is sort of meant to capture savings that are not -- are not captured by -- by programs or by the standards.

You know, it's primarily price effects, so as rates change we have some assumptions about how, you know, people's behavior changes. As rates go up they use less energy and so we actually have that as part of our model.

Now that I'm up here, I'm kind of rethinking the title of this slide, "Committed Savings Issues." But I guess they are issues, things we would like to address in the -- you know, maybe for the revised forecast. You know, attribution has been a big question that we've been sort of struggling with, along with a lot of the

stakeholders in our forecast.

It's a question a lot of people are interested in. You know, I think earlier on I showed you the slide of the total savings but, you know, a natural question is to ask what portion of that total savings was motivated by utility programs; what portion was motivated by standards? And it's a very difficult question to answer and our previous attempts were -- it caused a great deal of concern with a lot of the people who are interested in this topic.

And so we're still working through that, particularly in the demand analysis working group, and we hope to at some point, in the near future, arrive at a sort of an acceptable methodology for determining attribution.

Television standards; the recent television standards haven't been incorporated, yet. And, also, we're looking at 2013 is not currently a committed program year for the IOUs, so that's something we will probably also look at for the revised forecast.

So I mentioned earlier we distinguish between committed and uncommitted savings, so we run our forecast with the committed savings and then we, alongside that, are producing an incremental uncommitted analysis which looks at the impacts, the potential

impacts of some of these uncommitted savings.

So, these would include uncommitted utility programs. I mean, although we're not modeling them in the base forecast, we expect that the utility programs will continue for the foreseeable future.

There will be updates to Title 20 and Title 24, and Federal Compliance Standards, and we're also modeling the Big Bold Energy Efficiency Initiatives, which I think the biggest portion of that is the assumptions about zero net energy homes.

So, the incremental uncommitted analysis this time around is based on the one that we did for the 2009 IEPR, which is actually I think we put that out in 2010.

So, we started with that. We took assumptions about Huffman. So, I mentioned last time around Huffman was considered an uncommitted source of efficiency savings and this time around we actually integrated that into our base forecast.

And so we took -- we took those savings out of the incremental analysis.

We also made some adjustments for 2010 title 24 revision.

And the previous analysis only went out to 2020, so we had to extrapolate a couple more years.

In order to sort of be more consistent with what

the CPUC's doing with their 2010 LTPP we adjusted our assumptions for the Big Bold Energy Efficiency scenario, and that is I think we had higher assumptions in the mid case, previously, so we lowered, but the CPUC was using our low case. So, we replaced the mid case with the low case this time around.

And we also made some adjustments to the peak energy ratios for air conditioning.

We have an incremental, uncommitted analysis of sorts for the publicly-owned utilities. What we did, essentially, was we took the goals that were in place and for the three scenarios we assumed in the high case that they would achieve those goals; for the low case we assumed that they would achieve about 75 -- or, I'm sorry, about 70 percent of their goals, which at a portfolio level seemed on par with some of the EM&V results that we were seeing. Not necessarily -- in the CPUC arena with the IOU programs.

And in the mid case we split the difference at 85 percent.

The goals did not go out to 2022 so we had to extend them. I think what we did is just took the last year goals and carried it forward at a constant rate.

And we also had standards and Big Bold Energy Efficiency impacts were estimated using IOU savings and

applied to the POUs as a portion of total consumption.

So, for the -- in general, the incremental uncommitted analysis this time around was fairly -- I mean it was simplified somewhat in that we used -- we relied heavily on the previous analysis. I think once we have a new IOU goals study we'll look at doing a -- starting from scratch with the incremental analysis and doing a completely new one.

So, this is -- this graph looks similar to some of the ones that were in Tom's slide, but what you're actually looking at here is all four of these forecasts are the mid-demand case and then just showing the impacts of the different uncommitted scenarios on that mid case. So, it ends up producing a total consumption in 2022 by between three and six percent.

And a similar graph here for peak. In 2022 the total reduction ends up being between five and ten percent, depending on the scenario.

And here we're looking at, again, the high-, mid- and low-demand scenarios, along with the uncommitted savings, so the high-demand case is paired with the low uncommitted, the low-demand case is paired with the high uncommitted and that should give you the largest spread.

And I'll finish up with a similar graph for the

peak savings.

And I believe that's it for my presentation so, Commissioners, if you have any questions?

CHAIRPERSON WEISENMILLER: Sure, thank you. The first question is what do we assume in terms of noncompliance rates with our standards, our building standards?

MR. FUGATE: I know we do have an assumption about noncompliance. I don't know what it is off the top of my head, though. I'm looking to Tom.

MR. GORIN: In the past we've had about an 80 percent compliance rate. I think in the commercial standards they use 75 percent, 70 or 75 percent.

If I remember right, the 2000 building standards got substantial savings from verifying compliance from previous standards.

CHAIRPERSON WEISENMILLER: Uh-hum.

MR. GORIN: So we've -- we've upped the compliance rate since those levels since the 2000 standards.

CHAIRPERSON WEISENMILLER: So somewhere around the 70 to 80 percent?

MR. GORIN: Yes.

CHAIRPERSON WEISENMILLER: Okay. And do we have the assumption for the -- looking at slide five, that 50

percent of the IOU decay from 2006 is made up through additional unconditional savings. What's the logic on that, in terms of new programs or what?

MR. FUGATE: I believe that was an -- they are directed to do that by the CPUC.

CHAIRPERSON WEISENMILLER: But are there programs behind it or is it just a wild guess?

MR. FUGATE: Do we have anyone from the CPUC here who can speak to that?

CHAIRPERSON WEISENMILLER: Well, again, we can follow up on that.

MR. FUGATE: Yeah.

CHAIRPERSON WEISENMILLER: But, again, I was trying to just understand the logic on that part.

And --

MS. MACKIN: Hello?

CHAIRPERSON WEISENMILLER: Yeah, great.

MS. MACKIN: Hi, this is Dina Mackin from the CPUC.

MR. FUGATE: Hi, Dina.

CHAIRPERSON WEISENMILLER: Hi.

MS. MACKIN: Hi. So, I believe that the committed -- the committed savings are related to the actual budget of the portfolio cycle, if I'm not mistaken.

Does that answer your question?

CHAIRPERSON WEISENMILLER: So you're saying the assumption -- well, presumably, the assumption is as the programs you know are dropping off, what's the impacts of those, that other programs are coming in place to make up at least some of those savings?

MS. MACKIN: Yeah. So, yes, there is a decay factor, but the IOUs are responsible for recovering a certain level of -- or there's -- they're responsible for maintaining the level of savings that is expected to drop off due to decay.

CHAIRPERSON WEISENMILLER: Okay, so the IOUs have to come up with specific programs to meet this target?

MS. MACKIN: Yeah, so if there's a certain -- if they're using a technology that has a two-year decay, then that means that that program is going to have to include achieving goals that include those recovering that rate of decay, if that makes sense.

CHAIRPERSON WEISENMILLER: Yeah, okay. The next question is on slide eight we talk about rate -- looking at the impacts of rate changes. So, I guess part of the question is how well do our retail rate forecasts line up the utility retail rate forecast?

MS. MACKIN: Well, you know, I haven't done a

comparison of it, myself, so that might be something that would be better answered by one of the IOUs.

CHAIRPERSON WEISENMILLER: Well, I was going to start with Tom and then, obviously, as the IOUs to chime in.

MR. FUGATE: Yes. Thank you, Dina.

MS. MACKIN: Okay.

MR. GORIN: I'm going to say that our mid-rate forecast is probably a little higher than the utilities. I haven't -- that was something that I didn't look at in great detail. Our high-rate forecast is probably higher than the utilities.

I think we're essentially using a 15 percent real increase over the next ten years. If I remember right, PG&E uses a one percent real rate increase over the ten-year period.

I'm not exactly sure what Edison is using right at the moment, or San Diego.

But I would say our mid and high case are probably higher than those used by the utilities. We can address that when we maybe talk at the individual utility level.

CHAIRPERSON WEISENMILLER: That would be good. Also, I'm assuming are forecasts are sort of simplified to some sort of constant level as opposed to, say,

looking at the balancing accounts right now and seeing if it's higher or lower in the interim?

MR. GORIN: Right. I mean we're using an average, what we would consider an average residential, and commercial, and industrial rate.

CHAIRPERSON WEISENMILLER: Okay. But, again, we can pick that up more this afternoon.

COMMISSIONER PETERMAN: Tom, just a clarifying question. The consumption graphs that you showed in your presentation, do they incorporate the committed savings identified or the uncommitted savings identified in Nick's presentation?

MR. GORIN: Yes, all the consumption graphs that I showed at the statewide level and that we'll show this afternoon, with the exception of the comparison graphs to the utilities, include all the committed savings. The only thing that's subtracted would be the uncommitted -- the only thing that reduces the forecast would be the uncommitted savings portion.

CHAIRPERSON WEISENMILLER: Okay, thanks.

MR. FUGATE: Thank you.

MR. GAUTAM: Good morning, Commissioners and everybody in the audience, thanks for coming to today's workshop.

I'll be going over the public supply forecast.

So, first I'd like to talk a little bit about the different data sources we used to characterize various DG technologies. A big source of the data comes from various subsidy programs. We have the -- we tracked the ERP program, the CSI, the SGIP program, the New Solar Homes, and PV programs offered by POUs.

Another big source of data for us comes from our CC 1304 forms. Under this form we collect on-site generation data from large industrial and commercial customers.

The size threshold for reporting under this form is about one megawatt.

For this forecast, for the residential sector we're going to be using our new predictive model. I'll talk a little bit about that model later on.

For the nonresidential sector we use a simple trend analysis, just like we did in the last cycle.

The predictive model for the residential sector is based on work done by NREL. The model that they developed is called the Solar DS model and we're pretty much keeping the same structure.

The main output of this model is the -- one of the main outputs of this model is the payback for investing in solar and solar hot water -- solar PV and solar hot water systems.

We consider system costs, maintenance costs, incentives and tax credits, along with energy rates. The payback is applied to a Bass Diffusion function to calculate adoption rates.

For the residential sector the results were deferred by demand scenarios because of differences in economic and demographic information and rates.

For the nonresidential sector there's only one -- one scenario so to speak. Since we do not have a model for the nonresidential sector, we're not able to accommodate the differences in rates, and floor space, and other variables.

This is to show the installed cost of PV that we're using for the residential sector. The blue is a capacity-weighted average cost from the CSI program for residential systems up to five kilowatt.

The red shows the installed cost that we received from EIA. The cost from EIA declined about 35 percent between 2011 and 2022, so that's a big driver for increased adoption, especially in the tail end of the forecast.

For the nonresidential sector we calculate the average -- the average growth rate in capacity additions by different programs. For SGIP we used 2006 and 2010, for CSI 2008-2010. The on-site used from 1304 was all

constant.

Let's see, here are some of the preliminary results. The statewide -- on a statewide basis this is a total on-site generation is higher than CED 2009, after 2020.

Just a few more details, in the low case we have 17,100 gigawatt hours and the high case bounding it at 15,900 gigawatt hours.

And just as a reference, in the CED 2009 total PV generation was estimated to be 3,200 gigawatt hours.

Let's see, for PG&E we also have all three cases above, the last report after 2020. In the low case we have 7,800 gigawatt hours by 2022 and 7,300 gigawatt hours in the high-demand case.

For Edison, let's see, that should be all three cases are above 2020, compared to CED 2009. In the low case we have 6,000 gigawatt hours and in the high case 5,500 gigawatt hours.

For San Diego all cases are -- that's actually a typo. All cases are above CED 2009. I think we saw an increase in the CSI, in historic CSI adoption for San Diego, which helped drive the results up.

In the low case for San Diego we have 1,600 gigawatt hours total on-site generation and 1,400 gigawatt hours in the high-demand case.

Next we have the statewide peak impacts from on-site use. Let's see, low case we estimate 3,400 megawatts by 2022 and 3,100 megawatts by 2022 in the high case.

For PG&E all cases are above CED 2009 through the entire forecast. In the low case we have 1,600 megawatts as a total impact from on-site in 2022, and high case of 1,500 megawatts.

For Edison all three cases are above CED 2009 by 2022. The low-demand case has 1,175 megawatts and the high case at just about a thousand megawatts.

For San Diego, again the higher -- the adoption in recent years, after CED 2009, has pushed our forecast for self-gen above CED 2009 in all cases. In the low case we have -- oh, 1,175 megawatts and just about a thousand megawatts in the -- no.

I'm sorry, I was -- for San Diego total impact is 350 megawatts and high case 300 megawatt by 2022.

Just an idea of next steps, as I mentioned earlier we don't have a predictive model for the nonresidential sector. We're working on that and hope to have something ready in time for the revised forecast.

One of the other projects we're working on is with the PUC on developing a unified database. Around

the fall of last year we shared some data on CHP and was kind of surprised to see the differences the two agencies had, so we're trying to reconcile that to get a better idea of what the install base is.

And that concludes my presentation, so if there are any questions?

CHAIRPERSON WEISENMILLER: Thank you.

COMMISSIONER PETERMAN: Hello.

MR. GAUTAM: Hi.

COMMISSIONER PETERMAN: I just wanted to inquire a bit more about your inclusion of other technology, self-generation technologies in addition to PV.

MR. GAUTAM: Yeah.

COMMISSIONER PETERMAN: So, as we see, you have the SCHIP program, the ERP, so does that mean that you're forecasting fuel cells, as well as small wind, initially, or --

MR. GAUTAM: From the SCHIP we're -- we only looked at the micro turbines, engines and fuel cells.

COMMISSIONER PETERMAN: Okay.

MR. GAUTAM: And, again, those mainly go in the nonresidential sector, it was just a simple average. I'm just going to --

COMMISSIONER PETERMAN: Okay, I just wanted to --

MR. GAUTAM: Sure.

COMMISSIONER PETERMAN: -- just bring that point out again, because I can appreciate there's lower penetration of those technologies, now, but looking out to 2020 and I've just been visited by a lot of wind people, recently, just bring that point out again, because I can appreciate there's lower penetration of those technologies, now, but looking out to 2020 and I've just been visited by a lot of wind people, recently.

MR. GAUTAM: Sure, I understand.

COMMISSIONER PETERMAN: And I've been getting warned about the potential in that industry, so just something to keep aware of in terms of next steps.

MR. GAUTAM: Okay, thank you.

COMMISSIONER PETERMAN: Thank you.

MR. GORIN: Yeah, are there comments from the public or the people here in the room? Step to the microphone.

MR. MARTINEZ: Sierra Martinez, representing NRDC.

MR. GORIN: Hi.

MR. MARTINEZ: Thank you for the wonderful presentations.

I just had a clarifying question on the energy

efficiency presentation, on slide nine it talks about committed savings and it says the television standards are not yet incorporated. And I was just wondering if you plan to incorporate the TV standards in the revised forecast, given that they were adopted here in 2009?

MR. GORIN: We're in the process of trying to figure out what portion of those standards are devoted to commercial and what are devoted to residential. And we haven't been able to get that break out, yet. I'm not -- and we may look at some of the assumptions that were made in hours of use in the residential sector, and maybe change some of them a little bit.

MR. MARTINEZ: Okay, so you guys are in the process of incorporating it?

MR. GORIN: We're trying to figure it out and trying to look at what counter-factual would be. In some sense, when you're modeling demand, the savings would -- some of the savings would be -- they would actually be saving, you know, you could count that as savings but it wouldn't change demand a lot because of the size of the screens getting larger. Which if -- but, I mean, we're going to incorporate the savings when we get a break out of commercial and residential changes. I mean market segment.

MR. MARTINEZ: Okay, and you guys expect that

will be done by the revised forecast?

MR. GORIN: Yes.

MR. MARTINEZ: Excellent, thank you.

MR. TOTH: Hi, my name's Philip Toth, from Southern California Edison, and I wanted to address a little bit the 50 percent of decay question.

That was mandated by the CPUC in Decision 09-09-047, where the utility's responsible for making up 50 percent of the decay that occurs within their service territory, and that is from our programs and included in our programs.

CHAIRPERSON WEISENMILLER: That's good, that's useful. What sort of additional programs do you do, how do you build that in the program design?

MR. TOTH: Well, it's not -- picking up decay is not necessarily built into the program designs, it's for decay specifically.

The programs are designed to -- to meet or exceed the goals that were put forth by the Commission, but included in that is a portion of the decay that happens within our service territory.

CHAIRPERSON WEISENMILLER: Thanks.

MR. TOTH: You're welcome.

MR. EMMERICH: Good morning, Commissioners. My name's Herb Emmerich, I'm the Demand Forecast Manager

for Southern California Gas and San Diego Gas and Electric.

I only have comments on the gas side. I don't know if you're going to talk about that more in the afternoon?

CHAIRPERSON WEISENMILLER: Well, why don't you go, now and, certainly, you're welcome to dig into more detail in the afternoon.

MR. EMMERICH: Okay. Generally, I want to congratulate the staff on really an extensive and outstanding job.

I was hoping, though, to see a wider divergence in the forecast between the high and the low. In most cases it's almost the high, and the low and the medium are almost the same going out in time.

The forecast overall, we believe, is very optimistic in all cases. We tend to have a more pessimistic view of gas demand in the out years, especially what's happening with the economy right now, and also the energy efficiency variance that we've been able to achieve over time, and we expect to continue.

There is some uncertainty on energy efficiency on the gas side, as you know, because some of the funds were diverted to the General Fund through the budget process this year. We're hoping that will be refunded

to the utilities in 2013.

We do have enough funds to get us through this year and next year because it's a multi-year program.

So, also, there is now a big proceeding on the gas side for pipeline safety, which could affect rates quite a bit. And I don't know if that's been taken into account? PG&E, San Diego, and Southern California Gas Company are proposing multi-billion dollar pipeline replacement programs and that will affect rates in the area of five, ten, maybe 15 percent depending on the customer class.

Thank you.

CHAIRPERSON WEISENMILLER: Thank you.

MR. GORIN: Herb, he has submitted a presentation. Did you want to go through that, now, or wait until this afternoon?

MR. EMMERICH: That's up to you. I can do it now. What I've done is try to compare what we did in the California Gas Report for 2010 with the preliminary report that you have out now.

MR. GORIN: Yeah. We -- we can go through the presentation, now. We do have one more public comment. Are they on the phone? But it's related to natural gas and so if you want to go through --

CHAIRPERSON WEISENMILLER: Sure, let's do that.

Let's have the other comment and then go through natural gas.

MR. GORIN: Okay. The question was for the demand -- the natural gas demand forecast how much will LNG from abroad play a role?

And from the demand forecast perspective, as we view it, LNG would be a supply issue. We forecast what we consider natural gas used to be -- I mean what end-user natural gas is going to be used. We're not all that concerned about how it's supplied, so that's more of a supply issue in my mind.

MR. EMMERICH: Is that a question to me?

MR. GORIN: No, this was a question from somebody on the web.

MR. EMMERICH: Well, my reply to that would be any time you have more supply it would tend to drive down gas prices. And with all the shale gas coming online and, actually, somewhat more LNG coming online, we tend to think gas prices in the long term will be lower than were expected just a couple of years ago.

And I have a slide in my presentation to address that.

COMMISSIONER PETERMAN: And I'll just also add that, for the caller online, the questioner online, that we're having a workshop at the end of the month looking

more at natural gas, the natural gas prices, and that gets into some of the more supply concerns that are raised, including some of yours, sir, as well as the price forecast.

MR. EMMERICH: Well, I was hoping that workshop was going to be the day after tomorrow, so I don't have to make two trips up here.

COMMISSIONER PETERMAN: Well, it will be good things come to those who wait; it will be a good workshop.

MR. EMMERICH: Go up there?

I just have a quick review of economic outlook that the Cal Gas support, which is done by PG&E's, Southern California Gas Company in San Diego, and see how that compares with the forecast that you have.

COMMISSIONER PETERMAN: Excuse me, would you mind tilting up your microphone?

MR. EMMERICH: Sorry. The California Gas Report is prepared by the California utilities. We do work with the CEC staff and we use the Electric Demand Forecast as part of forecasting gas demand for the power sector.

Our general outlook is that the economy will pick up, but it's picking up slower than we anticipated just two years ago.

And housing is lagging very much. And our normal customer hook-up per year would be around 70,000 and we're down to about 38,000, so that just gives you an indication of how low it is.

This is a Southern California employment projection. We do expect employment to go up and I think that's consistent with what your staff is showing.

And industrial employment in California is virtually flat and maybe even declining over time. Most of the big users of gas and also electricity have moved out of state, but we do have commercial job growth that we're expecting.

The red stuff up there, I'm sorry about that, that's only because those are changes we made to update what's actually happening at this point.

Our forecast of customer growth is 1.3 percent and that's slightly lower than we had just two years ago.

Our active meters, 5.4 million for So Cal Gas and about 800,000 for San Diego.

And this is an important slide. Just two years ago we were expecting gas prices to be from 5.50 to 6.50 during the summer and winter period. And in the meantime, now, prices have fallen more than $2.00, so the forecast now for the winter is 3.91 and 4.39. And

this is because of shale-based and LNG gas supplies have reduced the price outlook significantly.

There's shale gas coming online everywhere, in the east, in Canada, and even in Europe. Although you think, well, Europe won't have any impact on us, but it does because it makes more LNG available to be diverted to the United States.

So, this is the gas price forecast we had for the 2010 California Gas Report. And the light blue is the EIA forecast, now. And as you can see, it's significantly lower. These are all in constant dollars and as much as 50 percent lower out in time. You're only going to about 2022, I believe, but even then it's about 30 to 40 percent lower than we anticipated just two years ago.

And this is what I mean about having a wider range of outlooks. This is just in a two-year period the outlook has changed significantly. And, generally, the forecasts I've seen have been almost the same for the high, medium and low.

And I would think it would serve everybody better if you had a more robust look at the future.

But I believe, Commissioner, the last time you asked what do I mean by robust? Well, if you're a gas driller, you should assume very low prices to make sure

that your enterprise will stay successful.

If you are looking on the conservation side, you would expect to look at some of the very high prices and see how more costly energy efficiency projects would work out in that scenario.

Our demand forecast showed declines on the gas side, whereas the staff report still shows, even in the low case, gas demand increases.

And I'm not saying the forecast the staff has is unreasonable. It is certainly reasonable. But I would like to see a greater divergence of outputs.

So, since we have these lower forecasted prices that does not mean it's actually going to happen. Prices could rebound because of a pushing out of coal back east, that the demand for gas in the power sector would increase and prices could come back.

But generally, if we have these kinds of lower prices, you could see core demand be four to five percent higher than we forecast in the Cal Gas Report.

This is the overall report that we had for Southern California Gas. As you see, it's a decline over time.

And the main segment that's declining is the power gen segment, because we're anticipating that 70 percent of renewables will be located in our service

territory. So, PG&E probably is going to have somewhat an increase in their forecast, and PG&E people are here, but we anticipate decline in power gen and, also, a replacement of old, inefficient plants with the more efficient plants producing gas demand in the power sector.

Residential is flat because of energy efficiency and all the great things the Commission has done in setting building standards, and appliance standards, and so on.

COMMISSIONER PETERMAN: Hi, a quick question. On the last slide what was non-core EG, what would be examples of that?

MR. GAUTAM: That would be the power generators and the large, industrial co-generators.

COMMISSIONER PETERMAN: Oh, okay.

MR. GAUTAM: Energy efficiency programs, you know, we have goals and targets and we have met those targets on the gas side. And the blue item there is what I added. If the energy efficiency funds are not made available, of course, we will not be able to meet those targets. But we're hoping that by 2013 the budget situation will be better and those funds will be returned to the utilities.

That is not an issue, the way I understand it,

on the electric side. Those funds were not diverted. And the gas funds for low-income energy efficiency also was not diverted, so those programs go on full force.

This is an overall look on energy efficiency. As you can see, the accumulation year after year of energy efficiency is quite large. And, you know, we sort of stop in 2022, but most likely they would continue after that point, but we didn't want to be too optimistic on that. And that's the same thing for San Diego Gas and Electric. Again, this is only the gas side.

So you see the accumulation over time. The reddish portion there is the savings and if you add that savings portion, that would have been the demand forecast if we hadn't these energy efficiency programs.

I do look at the electric generation gas demand and it's highly uncertain whether or not some of the renewables will be met. There certainly is an intent for the utilities to meet that.

There's also the once-through cooling rules and regulations, are they going to be actually implementing, which could take offline all the inefficient power plants and replace them with new, more efficient ones. And if that happens, then the gas demand forecast for the power sector would be decreasing.

And this is where we're mentioning it, that the once-through cooling is one of the key items in Southern California which would move out the inefficient power plants.

I'll just skip over this, I think you saw the general scenario. The Southern California gas has wholesale customers, San Diego, our affiliate being the largest, but also Long Beach Southwest Gas and the City of Vernon.

The City of Vernon has its own distribution system, now, so the gas customers we were serving there are migrating slowly over to the City of Vernon distribution. And they also built a power plant which is generating, and it's a quite large power plant.

San Diego's growth is also flat to declining. The significant portion there is the power gen market, again. As you have more efficient plants, you generate more electricity, but you need less gas in order to do it. And also, all of the renewables that are mandated, 33 percent by 2020, if they are met then the power gen sector on the gas side will go down.

So, overall in Southern California our forecast is a decline in gas demand out in time. Northern California, out of the Cal Gas Report is increasing, but the PG&E people can update that, themselves.

So in summary, gas forecast is forecasted to decline because of the housing slump, low employment and aggressive energy efficiency programs.

EG demand is expected to remain flat and could decrease based on the enforcement of rules on once-through cooling.

And energy efficiency programs will continue to have a significant cumulative gas demand reduction effect over time.

Thank you.

CHAIRPERSON WEISENMILLER: Thank you very much.

A couple questions; the first one was in terms -- are your elasticity numbers comparable to the elasticity numbers in our staff's models?

MR. EMMERICH: Ours are .1 for the core market and like .12 for the non-core market. In California, especially in Southern California, we can't burn fuel oil because of air quality regulations. So if you looked at the rest of the country, you would be in the .2 to .3 range for the industrial sector, but we can't do that, so the price of gas doesn't affect demand very much.

CHAIRPERSON WEISENMILLER: Okay. Tom, is it similar?

MR. GORIN: I think ours are similar. I don't

think we have a lot of price elasticity in the natural gas sector. It's used for residential, it's used for space heating, cooking, water heating.

CHAIRPERSON WEISENMILLER: Right.

MR. GORIN: End uses that are pretty set in their ways and with -- there was -- you know, so I think the .1 range is probably what we have.

CHAIRPERSON WEISENMILLER: Okay. And what sort of assumptions do you have about electric vehicle penetration? I know that's really a hot topic in the South Coast and in the San Diego areas, and that can obviously affect UEG loads.

MR. EMMERICH: Well, there are people here from San Diego that can talk about the electric side. I just cover the gas side.

CHAIRPERSON WEISENMILLER: Okay.

MR. EMMERICH: I do want to mention one other item in Southern California; the South Coast Air Quality Management District is pushing electrification of the South Coast Air Basin, which could affect gas demand if it actually is implemented. That includes electrification of gas water heating, and cooking, and drying, and so on.

We've done some analysis that that's not cost effective but, you know, air quality sort of goes on its

own way in Southern California.

CHAIRPERSON WEISENMILLER: Right. Thank you.

COMMISSIONER PETERMAN: I just had one quick, follow-up question. You noted that you had a more pessimistic projections around our forecast, around natural gas versus our current ones. Were you speaking specifically about those pertaining to your service territory or just at large for the State?

MR. EMMERICH: To our service territory.

COMMISSIONER PETERMAN: Okay. And I think that was a good point you made about some of the differences geographically, with the once-through cooling plants, and the renewable penetration. Just encourage staff, again, to be mindful of those differences.

Thank you.

MR. EMMERICH: Thank you.

MS. YUCEL: Hi, this is Zeynep Yucel, PG&E. I lead the forecasting group. So, just a brief item, I would note our feedback on the natural gas. So, there's going to be a workshop at the end of September, I guess, so we're going to be prepared, similar to Herb's presentation.

But today I just want to highlight that we are sharing Herb's outlook on our gas forecast, so the core side is pretty much flat or declining a little bit. And

the minimal growth is coming from the EG, electric generation.

So in the workshop, you know, we can prepare more details as to, you know, the economic outlook, you know, what variables drive the gas demand and how we produce the electric generation demand forecast. So, I just wanted to highlight that very quickly.

COMMISSIONER PETERMAN: I'm glad your results make sense together, that's always good to know in advance.

MR. YUCEL: Yeah, you know, what Herb states, I share that.

MS. GREEN: Do we have any more public comments? Do we have any more from -- no, none from WebEx.

Should we adjourn for lunch or --

CHAIRPERSON WEISENMILLER: Yes, why don't we adjourn for lunch, now.

MS. GREEN: An hour, so we're back at --

CHAIRPERSON WEISENMILLER: Why don't we come back at 1:00.

MS. GREEN: One o'clock, okay.

(Off the record for the lunch break.)

CHAIRPERSON WEISENMILLER: Tom needed to run and get a file from SDG&E, which we now have. So, you want to start?

MR. GORIN: Okay, welcome back. There was a question from the internet, I guess, while we were gone about why some of our history has changed in some of the historic charts we have for 2000 and 2010.

Our -- we feel that our reporting has become more accurate and we have better estimations of self-generation, and that is added to the consumption forecast. So, some of the historic values for consumption in the service territories have changed because it's estimates of self-generation, and some of the peak estimates have changed because of the same reason.

We're trying to, you know, hone in on what self-generation actually happened in the past.

CHAIRPERSON WEISENMILLER: Great, thanks.

MR. GORIN: Okay. We're going to start with the San Diego Planning Area and this comparison -- this is actually the forecast that we put together.

Wait a minute, how do I go back?

This is an overview of our results. The 2010 reported consumption was four percent below what we had forecast in 2009. This is probably going to be a recurring theme for all the utility planning areas.

Our forecast, now, is -- has a slightly higher growth rate than 2009 because -- partly because of the

lower starting point and there's more optimistic growth in the econ demo forecast this time, than we used previously.

And I should note that our economic forecast actually comes from Moody's Analytics, which used to be Economy.com, and I'm old and don't change my ways very well. So, I may use them interchangeably and I apologize for that.

The weather-normalized peak, which happened in Southern California, last year, at the end of September, which was not really in the summer, but that's the way the temperature fell. It was three and a half percent below what we forecast.

The peak growth rate is similar to what we had in 2009.

The load factor, now, at the end of the forecast is projected to increase because we've included electric vehicles in the forecast and we're assuming they're charged off-peak for the most part.

Per capita consumption increases slightly due to the higher growth rate in consumption and we have a lower residential peak projection which makes the per capita peak decline.

And this is a table from the report. I purposely, for the service area, for planning area

forecast put in the 2011 to 2015, ’20 and ’22 growth rates to eliminate any weather-adjusted -- any weather adjustment that would occur going from actual 2010 values, so they’re more comparable from forecast to forecast because we forecast what we -- using what we consider normal weather to be.

And the historic values are based on actual weather.

So, the growth rate in the mid cases, in consumption is slightly higher than what we were forecasting in 2009 and the peak growth rate in mid case is somewhat lower.

And these are graphical representations of that and you can see the slope of the red line, which is 2009, is lower than any of the other three forecasts.

And the peak is more comparable, other than the high case grows at a faster rate. But you can see the difference between the actual peak and the orange dot, which is the weather-normalized peak that we calculated for San Diego.

And I believe that’s a similar value to the one that San Diego calculated for their weather-normalized peak for 2010.

This is a load factor, which is a measure of the peakiness of the system load and it’s projected to

remain relatively constant at the lower end of the historic value. The historic values are -- vary greatly because of the relationship between the temperature on the peak day and the overall temperature over the year.

So, as in the case of last year, you had a really hot weather vent in an overall mild year and you're going to get a low load factor.

Per capita consumption since the start of the current economic downturn has taken kind of a nose dive in San Diego. We're projecting that to be relatively constant. We were projecting it to increase slightly more last time, starting from a higher point.

And peak -- per capita peak now declines probably due to more residential air conditioning.

Residential forecast was four percent below our previous projections. Higher growth rate, higher household growth rate, increased persons per household, similar household income. I went over before how household income was calculated and use per household started at a lower point.

A lot of these lines are very closely bunched, but they were -- the high and the low case were designed to try and get as much variation as we could for each of the sectors. It's probably more pronounced in the industrial sector than the residential and commercial

sector.

This is our housing -- our household forecast. The household forecast grows at a higher rate in San Diego in the future because of projections of population and households.

I was asked at the break why there was no population scenarios and Moody's Analytics, or Global Insight, or the Census, to my knowledge, Department of Finance do not forecast population scenarios. They have a population forecast.

The Department of Finance population forecast may be different than the Census forecast; but Moody's Analytics varies household formation rates, which varies the number of households and varies persons per household, but their population forecast that they present is derived from Census, with some adjustments, but it's constant in all the scenarios.

Persons per household is what we use to make the scenarios of households.

These are -- may seem counter intuitive, but the high-demand scenario is the lowest persons per household scenario because it creates the most households, dividing by a constant population, a lower number.

And that comes from -- that's a type -- it comes from Moody's Analytics. And it follows a trend that

I've seen for the last 20 or 30 years from the national reporting, the national companies, that assumes that California is going to return to the national trend of declining persons per household. And in my tenure at the Energy Commission I haven't seen persons per household in California decline.

And the mid and high case -- I mean the mid and low scenarios are derived from two different analyses of historic trends in persons per household. The mid case uses essentially half of the increase in persons per household seen over the last 20 years, and the low case uses an exponential curve-fitting function to that.

Household income, excuse me, is somewhat counter intuitive until you think about it a lot. The mid case ends up being the highest household income case. Because in the high-demand case the percentage drop in persons per household is greater than the percentage increase in per capita income. And it took us a while to wrap our heads around that.

Use per household only goes up in the back end of the forecast and that corresponds to all the electric vehicle use being put in the residential sector.

Commercial building sector was six percent below our 2009 projections. They have a -- it has a higher -- the 2011 forecast has a higher growth rate. Excuse me.

The floor space projections have a higher growth rate.

So we're starting from a lower point and growing at a faster rate and ending up practically at the same point by the end of the forecast.

And this is the commercial floor space projections. These are modeled using our current economic projections. These may change from the -- for the revised forecast, using more recent economic projections.

Looking at some of the newer projections, it may be that the front end of the forecast is lower, but I think the projections now are indicating the recovery will come back about to the same place, so the steepness of the slope in the out forecast years may be slightly higher.

Industrial and mining was eight percent lower. The mid case grows at the same rate as 2009. And the differences in the scenarios here are driven by the different economic output projections that were used.

You can see the high case, which is essentially Global Insight high case. They have a different view of industrial output than the two cases that were developed by Moody's Analytics.

The other sectors are transportation and communication's utilities, agriculture and water

pumping, and street lighting. They comprise about 12 percent of the total consumption and they have growth rates that are similar to the 2009 forecast.

Our electric vehicle forecast, that we're currently using, is projected to increase total consumption by about two percent by 2022, and mostly in the residential sector, and it's projected to start taking off in the next two years or so.

And the peak impacts of that are minimal, between 20 and 25 megawatts, 2022, because of assumed off-peak charging.

The committed efficiency savings amounts to 30 percent of consumption and 30 percent of peak -- 37 percent of peak.

The 2009 to 2012 utility program estimates are based on current CPUC filings and Asish described the self-generation forecast, previously.

This is a graph of the committed efficiency savings estimates at the service area level and they're similar to what Nick showed, previously, at the statewide level.

And these are the peak savings associated with that.

This is a table of self-generation and that essentially reduces -- the mid case reduces peak by

about six percent in 2022.

This is a section on comparisons to the San Diego forecast. I will note, and this is the case for all utilities, that these forecasts were submitted to us in April of this year, so they're based on forecasts that were done early in the year for the utilities, which used economic and demographic assumptions which were prior to the ones we used in April, so they were based on probably late-last-year assumptions.

We did compare -- for San Diego we compared both managed and unmanaged forecasts. We took our uncommitted savings estimates that we produced this time and subtracted them from our forecast to create what we would call a managed forecast.

The San Diego forecast, that they submitted, is higher than all our scenarios and higher in the residential sector. One of the things that we noticed is that San Diego EV forecast is about 800 gigawatt hours at the end of the forecast and ours is about -- Where is it? I went the wrong way. Ours is only about 500 to 550.

On the other hand, the San Diego peak is lower than our forecast, so there's a differential growth between energy and peak in the San Diego forecast that we're going to work with San Diego to try to understand.

This is a comparison. The mid case is the green line. One -- one reason for the differences could be that, in my understanding, San Diego used Global Insight, which is maybe comparable to our high case. And this is a comparison of the managed peak forecast, which is similar -- the results are similar to the unmanaged.

And they have more residential growth in the front part of the -- up through 2017. It may change. You know, both of the forecasts may change using more recent economic forecasts.

One, with us revising our forecast, you know, maybe using October economic forecast and having a revised forecast presented in the January/February time frame, I'm thinking that the utilities will be in the process of revising their -- their annual forecast at the same time and we're proposing to share information with them on the revisions that they're making, along with our revisions, to maybe come to some closer resolution to some of these differences for the revised forecast.

The managed residential forecast for San Diego is higher. And then the commercial/industrial forecast is -- in the mid-forecast period is more comparable to our mid-rate forecast, and falls more within the range

of our forecast.

And the peak forecast comparison, the San Diego forecast is closer to our low case, so that's a difference that we have to work with them to try and figure out.

And the managed forecast is -- you know, through 2018 is pretty comparable to our mid case and only grows after that. I think maybe ours declines. The mid and low case in our peak would decline more from zero net energy homes, maybe.

So, that's the San Diego presentation and I think San Diego has a presentation they wanted to make. Are there other questions?

MR. VONDER: Should I come up here or should I go over there? There's just one, just one.

Okay, I'm -- testing. Yeah, okay. I'm Tim Vonder with SDG&E.

Tom did a good job on his charts. This is actually the first time I've seen those charts. So, I wasn't planning on putting up a whole set of charts, like Tom did, but I'd like to make a few comments.

If we were to look at the information that is in the published preliminary forecast, that 200-and-some-page document that we just got, in there, and Tom put this up as the first chart, you would see total

consumption for SCE -- I mean the CEC and SDG&E in those years, in that table. So you can see there, on 2022, under total consumption, gigawatt hours under CEC it's 25,005. Well, that's what you saw on that first chart.

So, putting SDG&E's numbers next to the CEC's numbers you would see in the next column there, and like Tom said we do exceed, in total consumption forecast we do exceed the CEC's all cases.

And we grow from 2010 at a rate of 2.3 percent a year and the CEC is growing at 1.8.

Now, there's various parts to that, that forecast, that consumption forecast and I'd like to pull out a couple of them that we have particular interest in, and that we plan on doing a little more investigation as to why we're different. And, hopefully, this will help us understand the differences between us and the CEC.

If we take a look at the EV sales, okay, that we have in our forecast and the EV sales that the CEC has in their forecast, you can see that we start off in 2010 at -- both at two gigawatt hours, but SDG&E's forecast grows all the way to 1319 gigawatt hours while Energy Commission stays at around 527.

So, we're about two and a half times what CEC has in their forecast.

Commissioner, I heard you ask the question earlier, to Tom, about the penetration rate of electric vehicles into the service territory or into the State. Our penetration rate goes from about a thousand on the road, electric vehicles in 2010, to about 423,000 electric vehicles by 2022. So, it's quite a robust increase.

It seems like San Diego's a real hot bed for new technology, especially in that area.

Another area --

COMMISSIONER PETERMAN: Excuse me, can I just ask you a question about that, since we're on the plug-in vehicle question? In terms of your estimates do you use OEM reports, or customer surveys?

MR. VONDER: You know, I can't -- it's a consensus forecast that was used and that was part of the analysis that went in -- or I mean part of the forecast that went into the mix to come up with the consensus forecast, but I really -- I don't have that detail at hand.

COMMISSIONER PETERMAN: I was just curious because with our transportation work we've dealt with a number of EV forecasts and this is a particular technology we do see quite a range. And then you realize that people are counting different things in

terms of whether in counting hybrids, or pure plug-ins, and so I was just curious to how you resolved this difficulty of having a range of forecasts depending on who you ask?

MR. VONDER: Well, I wish our Clean Transportation Group were here to really address that. They could probably talk for a half-hour on just that one issue. But I apologize, I don't have the details.

COMMISSIONER PETERMAN: I was just curious, trying to use this forum to get more information for something else I'm working on, so thanks.

MR. VONDER: Okay. Well, then moving onto private supply; this is another area that we differed in. And here SDG&E started out a little higher than the CEC, as you can see, 852 versus 750, but the CEC ended up higher than we did, so you can see the growth rates there are different.

And I think I heard today that they used more up-to-date information than we did. So, we really want to investigate this and see if we can improve our private supply forecast.

Now, if you take both EV sales and private supply out of that total consumption, and then you take a look at the consumption that's left you'll see that we start at the same place, 19,483 and 19,485, and we end

up at 22,964 and 24,358, for a growth rate of 1.4 percent and 1.9 percent.

Now, in light of the present economy and everything some people might say that 1.9 percent's a high growth rate. But in historical terms, in forecasts of -- in other rounds of forecasting that's not at all a high growth rate.

Going over to the peak side, I know it's been noted a couple of times that we differ on peak, that Energy Commission's peak is higher than ours.

Well, if you take a close look, this is comparing mid case to mid case. We didn't do scenarios, so we just chose the mid case here.

We both started at the same place in 2010 and that's a recorded 2,687. And by 2022 CEC ends up at 5,183. We end up at 5,139. That's only a difference of about 44 megawatts, which is very, very small.

And if you see the -- if you look at the growth rates there, .8 and .8, if we use recorded, and then to the side there I have the weather-normalized peak for 2010. And then down below I recomputed those growth rates using a weather-normalized 2010 to 2022, and the growth rates come out 1.6 and 1.5.

So, if you look at the sales, at the growth rates that we have over there, CEC has 1.4 and 1.6 and

we got 1.9 and 1.5. I really don't think we're that far apart. But there really is a couple of areas that we'd like to investigate further.

So, those are my comments on our two forecasts.

CHAIRPERSON WEISENMILLER: Thank you. A couple questions; as we've looked at the staff forecast, going from low to highs all pretty -- it seems pretty compressed. I mean does SDG&E, in its forecast, have more of a dispersion between their low and high cases?

MR. VONDER: We didn't do a low and high.

CHAIRPERSON WEISENMILLER: So you just did the mid case?

MR. VONDER: We only did an expected case.

CHAIRPERSON WEISENMILLER: And we've looked at the differences between EV and private supply. I'm also -- how do -- how do our energy efficiency numbers look comparing between the two companies?

MR. VONDER: Well, I didn't prepare a graph here because the way staff has looked at energy efficiency, they roll a lot of things into it. They do program, utility programs, public agency programs, standards, and price effects.

CHAIRPERSON WEISENMILLER: Uh-hum.

MR. VONDER: And when we look at it price effects are someplace buried in our model, you know, and

we don't pull it out and make it part of energy efficiency.

But from what I could look at and what I do remember is when it comes to committed programs I think we used the same assumptions about taking reported ex ante claims and applying a realization rate about the same -- the same type of realization rate and the same type of net-to-gross ratio, and we made adjustments in the same fashion.

I don't know exactly how the numbers came out. I would hope that on the committed side they're pretty close.

On the uncommitted side I do remember that we made the same types of adjustments, again, for realization rate and so forth, but we discounted the B's program more than staff discounted the B's program. We totally discounted it one hundred percent in our outlook of uncommitted energy efficiency.

So, they're uncommitted or in their managed forecast they would have more energy efficiency than we do by a little.

Oh, one other thing that I could point out here on this one, if I can go back to peak for just a second. Remember, I said there's a difference there of about 44 megawatts by the time we get to 2022. If you were to

take a look at just the EV portion, we had about 65 megawatts of EV in our forecast in 2022 and staff had, I believe, around 15. So that, all by itself, you know -- so, anyway, that's that.

CHAIRPERSON WEISENMILLER: Okay, thanks.

MR. GORIN: This is the Edison Planning Area forecast in things that are similar to San Diego and the State, and I will try and go through rather quickly.

Their consumption was two and half percent below, mainly caused -- below 2009 and mainly caused by commercial and industrial lower use.

Growth rates are similar. Their weather-normalized peak was two percent below what we forecast.

The mid-case peak growth rate's now slightly lower than 2009, the load factor's about the same. And the per capita consumption on peak are relatively constant.

You can see here that the growth rates, the mid-case peak growth rate's a little lower than what was projected in 2009. And the mid-case energy is slightly lower.

So, the high case reaches what we projected in 2009 by 2020, essentially by 2022 the mid case reaches where we were projecting to be in 2020.

The same sort of difference in the peak

forecast. I've put the weather-normalized peak on there because Edison had the same occurrence of hot weather at the end of September last year that occurred in San Diego.

There's virtually no difference in the load factors.

Per capita consumption is a little bit higher mainly because of the EV forecast.

Per capita peak is relatively constant, but it starts from a slightly higher level.

So, the residential forecast is four and a half percent below 2009 and it has slightly lower growth. There's lower household growth in the mid and low cases, and it's a combination of lower population and revisions to persons-per-household forecast.

Household income, and this is pretty much constant across the utilities, grows at a faster rate than we were projecting in 2009.

So, even though 2010 was lower than what was projecting in 2009, we're projecting an increase in 2011. I'm not sure that that's currently being seen in the first six months of consumption. We're going to revisit that in the revised forecast and may make adjustments accordingly.

The household forecast is lower than was project

in 2009 and that is a result of lower persons per household.

When we incorporate the new Department of Finance estimates of history that may change the historic persons per household values a little bit because the difference between -- the 2010 difference in households between Department of Finance and the Census was about two percent, while the difference in population was four percent. So, household counts were closer between the Department of Finance and the Census than the population estimates.

Household income has the same higher growth and the same case that the mid case is the highest out of those scenarios.

Use per household goes up because of EVs, again, at the back end of the forecast period.

Commercial building sector was relatively close to the 2009 projections, only one percent below, and the growth rates are similar.

Floor space, we'll get to. The mid and high case are pretty much the same as what we were projecting in 2009. Floor space is projected, now, to be flat for two years and then increase at the same level that it -- in the mid and high case as it has in the past. The low case is a little bit lower.

These are going to be revised using new economic drivers for the revised forecast.

Industrial and mining sector was four percent lower and the rates now decline faster, partly because of the elasticity of productivity in the differing economic forecasts.

And the industrial forecasts have the greatest divergence in scenarios because of the divergence in economic output used in the scenarios.

Moody’s Analytics has -- which are the mid and low cases, have virtually the same long-term outlook, but they have -- the mid and low cases have a different path to get to that same point. In about 2017 Global Insight has a decidedly different outlook on industrial output. But we’re starting from a lower point in the forecast.

Other sectors are only 11 percent of the total. Five and a half percent of that’s ag and water pumping and five percent’s transportation, and communications, and utilities.

In these sectors, in most of the service areas, they grow at the same rate, it’s just -- as the CED 2009 forecast, the only difference is the starting point.

And we’re projecting electric vehicle use currently to be about two percent by 2022. We’re also

going to revise the electric vehicle forecast to be consistent with the new transportation report that just came out.

This is the electric vehicle forecast and scenarios. And we're projecting peak impacts to be from 85 to 100 megawatts in 2022.

Committed efficiency savings about 30 percent of consumption in peak and the same thing for -- the same comments for self-gen.

These are the efficiency savings estimates and the peak savings estimates. Self-generation reduces peak by about four percent in 2022 in the mid case.

A comparison to the Edison forecast, they submitted only a managed forecast and I made a discovery, either yesterday or this morning, that they submitted a forecast, I believe, for their service area. So, the comparisons are benched to their service area numbers.

In the past they have submitted -- also included in their forecast a forecast for their resell cities, which makes their -- with the resell cities factored in it makes our planning area and their service area, plus the resell cities, more comparable.

And their forecast, from what I gather from information they provided last week, and they can

correct me if I'm wrong, includes an extra 2,600 gigawatt hours of non-EV electrification. That is I think, basically, port and other industrial electrification that we need to examine more closely and to consider whether we want to include it in our revised forecast.

So their managed sales forecast is higher than all of our forecast cases. Part of it's electrification, but I'm not sure that that's the case with the residential forecast. And their managed peak grows faster than our forecast.

So, this is a comparison of their managed forecast to what we would consider our managed forecast, and I didn't really compare -- I didn't provide a comparison of our uncommitted savings to what they would consider uncommitted savings because they haven't -- I think they're embedded in their forecast and not specifically taken out.

And this is a comparison of the residential forecast, their managed residential forecast. I started the -- their forecast comparison in 2015 because of -- because they were granted confidentiality for their forecast before then, for sector level comparisons.

The peak starts out lower than ours and then grows at a rate similar to their consumption forecast.

And maybe part of that has to do with electrification, also.

So, that's sort of the ten-minute version of the SCE forecast and its comparison, and welcome to questions and comments.

CHAIRPERSON WEISENMILLER: Yeah, Tom, I was trying to remember where the differences historically have been with Edison; I thought it was maybe the commercial sector. I'm just trying to figure out if we're getting closer or not at this stage?

MR. GORIN: I don't think we're getting closer.

CHAIRPERSON WEISENMILLER: Okay. That's the --

MR. GORIN: We've had differences in the commercial sector. I think the last forecast cycle their commercial sector was growing a lot faster than ours. I think that may be continuing.

CHAIRPERSON WEISENMILLER: Yeah, and I know we were trying at that point to understand what was driving the differences. So you're saying at this stage we still haven't sorted that out?

MR. GORIN: No, we're still working at it, but through the -- what is it? Through the Forecasting Group and the Demand Analysis Working Group we're -- we have essentially monthly meetings about forecasting topics and we're trying to maybe resolve those

differences, and maybe trying to come to some common framework for forecasting analysis to use, maybe similar models.

CHAIRPERSON WEISENMILLER: Okay.

MR. GORIN: This would not be a new -- a new idea to you or me, coming from the common forecasting methodology framework, right.

CHAIRPERSON WEISENMILLER: Right.

MR. GORIN: We may be going back to that.

CHAIRPERSON WEISENMILLER: I guess the other question was we heard earlier that SoCal's looking at the impacts of the proposed electrification proposals, like in the South Coast, and sort of driving their loads down.

Now, presumably, that's got to have an effect of pushing Edison's up and that somehow -- or Edison's and LAWP, both. I mean, so somehow you're probably uniquely situated, having both gas and electric forecasts in the same place, to worry about that sort of -- not having -- so not having things fall between the cracks. It would be a lot easier for SoCal to assume some stuff have shifted and for Edison not have, in its forecast, pick up that shift or vice-versa.

MR. GORIN: And, you know, we're in the process of analyzing it, that kind of information, and the rules

probably aren't set in concrete, yet, even from South Coast's perspective.

CHAIRPERSON WEISENMILLER: Sure.

MR. GORIN: And it's an evolving situation and it has been for quite some time.

CHAIRPERSON WEISENMILLER: It's going to stay in play. I think it's just useful if when you -- a combination of our folks talking to the SoCal Gas, and the LAVP and Edison folks to try to at least have a coherent set of understanding of what these actual shift numbers are among all those, so that we can then worry about the policies, but at least understand how much of a, you know, shift of, say, gas water heaters are being shifted or whatever the drivers are there to make sure that everyone has sort of a comparable understanding.

MR. GORIN: Right.

CHAIRPERSON WEISENMILLER: Or at least an understanding of that. Otherwise we're -- if you combine that with EV, self-generation, conservation, you know, there's enough different effects going on and it's going to be very confusing to try to get apples to apples comparisons among the forecasts.

MR. GORIN: It's a big jigsaw puzzle.

CHAIRPERSON WEISENMILLER: Yeah.

MR. GORIN: It needs to be fit together. Herb?

CHAIRPERSON WEISENMILLER: Herb?

MR. EMMERICH: That was a very good point, Commissioner. We have looked at that. And because gas, on an end-use basis, is much more efficient than electricity, burning electricity, we have looked at scenarios that gas use on the power sector could actually more than offset the reduction on the residential and commercial sector. So, we have looked at that.

Of course, you have the reduction of emissions in the South Coast, but you have an increase in global warming emissions worldwide if you have that happen. And we think at this point most likely the additional electric demand will be met by gas-fired generation because it's going to be very tough to meet the new goals of 33 percent by 2020, anyway.

CHAIRPERSON WEISENMILLER: I don't know if anyone from Edison wants to come up?

MS. BENSON: I'm Johanna Benson, I'm an analyst in the Long-Term Demand Forecasting Group. And at this time we're still looking through and going through their forecast, and comparing it to ours. So, we don't really have anything to present today, but we'll be filing comments.

CHAIRPERSON WEISENMILLER: Good, thank you.

MR. GORIN: Now, for the PG&E Planning Area forecast.

I apologize, I had thought I had a table in this presentation that included the utilities that were in the PG&E forecast -- our version of the PG&E forecast planning area. We have -- it's on the next slide. Where did it go? I just missed it. I've been up here too long. How do I go backwards? That's okay.

Well, I can try and explain it and we've talked with PG&E about it, and we have a fairly good understanding of the differences. And I essentially benchmarked our comparisons to the PG&E forecast numbers.

Our planning area includes some areas that are not in the PG&E TAC area or PG&E control area, or like Modesto and Turlock. And it's a geographical problem that we're trying to work through, but I think we have a fairly good understanding of the differences.

So, their consumption is two percent below forecast. Our mid case is similar to 2009, the weather-normalized peak for PG&E we calculated to be four percent below our forecast.

We're projecting the load factor to be flat. The consumption -- the per capita consumption increasing slightly and peak remaining constant.

The growth rates are very similar, the mid-case growth rates are very similar to what we project in 2009. We're just starting from a lower starting point, basically.

The peak forecast is also starting from a lower starting point with virtually the same growth rate.

The same, you know, a slight increase up from electric vehicles at the end of the forecast for the load factor.

And per capita consumption we're projecting a slight increase in per capita consumption over the first part of the forecast period, also, in the mid case. Per capita peak is pretty flat.

Residential forecast has slightly lower growth. We have fewer households in the mid and low case from changes in population and revisions to the persons per household.

So, there's pretty tight bound in residential consumption, most of the -- it's hard to see, but the blue line that's hidden behind everything else grows at a slower rate than what we had last time.

The household forecast is lower, except in the high case. We're -- the mid case projects persons per household now to be flat. We were projecting an increase in persons per household, previously.

The same story as previous for service areas, planning areas in household income, and use per household has -- follows what we were projecting last time, although it's not as -- there's not as pronounced of a V shape as there was in the 2009 forecast.

Commercial consumption was four percent below our projections. The growth rate's higher, so we end up at the same point. We're ever so slightly below the 2020 value in 2020, but we exceed that value in the mid case by 2022.

Floor space starts growing in the mid and high cases at a faster rate than previously projected in 2013 through the end of the forecast period, so we end up very slightly below. Well, actually, by the end of the forecast period we exceeded where we were in 2020.

Industrial and mining was four percent lower, so the growth rate is similar to 2009, it just starts at a different or a lower point. And, once again, the difference in economic output in the industrial sector provides the difference in the consumption scenarios.

The remaining sectors are 12 percent, five percent transportation, communications, utilities, which have a lower starting value based on sales in 2010.

Six percent of ag and water pumping, and one percent street lighting. There's a difference,

increasing ag forecast this time, rather than the flat it was projected in the future. And electric vehicles is about 1.7 percent of consumption by 2022.

The ag and water pumping forecast is now projected to increase, has a higher starting point, basically because of increased agricultural pumping, and the forecast is based on what we've seen as an increase over the recent history, and that's projected to continue, whereas before it was -- the history was relatively flat.

Electric vehicles are similar to what we saw in the SCE service territory. Again, for the revised forecast we'll incorporate the new EV forecast from the transportation report.

Efficiency savings are about 30 percent of consumption in peak and these are representations of the efficiency savings and peak savings.

Self-generation; I didn't put the percentage in here, I could calculate it. But mid case, you know, reduces peak by about 1,500 megawatts in 2022.

Comparisons I made to the PG&E forecast, their unmanaged forecast is slightly higher than our mid case. The managed forecast is similar to our mid case. The managed residential forecast is a little bit higher than ours. Their unmanaged peak is higher than ours, from

short-term peak growth assumptions. And their managed and unmanaged peak are higher, about eight percent higher than ours in 2022.

This is the managed case which, in our case, includes uncommitted savings estimates and there's the different between their forecast and our mid case is, I would consider, minimal.

You know, they have higher residential growth than we're projecting, which would mean they would have lower nonresidential growth, I would think.

Where the differences are is in our unmanaged peak forecast and probably after the first three years, you know, their growth rate grows slightly faster than ours, but most of the differences are in our assumptions in the first three years.

And the same thing in the managed peak forecast, which actually is more of the difference is in the first year.

So that's it for PG&E. You want questions or comments from PG&E?

CHAIRPERSON WEISENMILLER: Come up to the microphone. That's good, why don't all of you come up.

MS. WINN: I'm Valerie Winn with PG&E. Good afternoon, Chair Weisenmiller.

CHAIRPERSON WEISENMILLER: Good afternoon.

MS. WINN: And we wanted to start with thanking the CEC staff. This is always a very collaborative process and, you know, it's pulling together a lot of disparate pieces of information and trying to make sense of all of it. And so they've been doing a good job at pulling all of those pieces together.

We know that the demand forecast is a really important issue and, you know, as we hear more about it we're doing a lot of planning in an age of a lot of uncertainty. You know, uncertainty about the economy, uncertainty about when people are going to put more EVs in. And, you know, uncertainty about whether programs that are authorized are actually going to perform.

And so we'd really like to, you know, work over the next few weeks with the Energy Commission staff to really make sure we're all on the same page with respect to our understanding of what's in and what's not in each of the forecasts. That sort of a walk I think would really help both of us have a common understanding and, really, then understand where if we changed some of those, what the impact might be.

And so with that in mind, you know, I know comments on the forecast are supposed to be due next Friday, September the 9th, so we're wondering if we could possibly get a small extension in the comment dates to,

say, September the 15th?

CHAIRPERSON WEISENMILLER: Yeah, I think that would make sense.

MS. WINN: Yeah, we've just started to review the information we received and that would give us just a little bit more time.

So, some of the key areas that, you know, we're looking at in the forecast are really, you know, how can we make sure we get this as right as we can make a forecast. You know, because a forecast is always going to -- the reality will be different from what we forecast.

But looking at the things like the resource additions that would reduce demand, how are those going to affect the forecast?

What's the impact on customer cost?

And, also, how do all of these come together and affect the system reliability?

So, a big concern with the resource additions. You know, we have some very aggressive energy efficiency goals in the State. You know, what happens if we're not able to achieve those, how does that affect system reliability?

And I'd not that just yesterday I was reading the California Energy Markets and there was a blurb in

that publication about the ISO in looking at the CPUC's forecast, just recently, in the long-term plan. You know, they're saying they need another 4,600 megawatts of, you know, upward balancing flexibility to maintain system reliability.

So, I think we need to look across all of these different planning forums and try to get a good idea and a good handle on where the sensitivities are across -- across planners, both within the utility and with people who are running the grid.

So, with that, I have several of my colleagues with me, who are more of the technical experts on these issues and I will turn it over to them.

MS. YUCEL: So, yeah, let's just get started with a couple of slides that we put together. This is Zeynep Yucel, from PG&E.

So, you know, just to kind of highlight, you know, we have a couple of observations and a couple of questions, and --

CHAIRPERSON WEISENMILLER: Is your microphone on?

MS. YUCEL: Can you hear me, now?

CHAIRPERSON WEISENMILLER: Thank you.

MS. YUCEL: So, we're going to share a couple of observations and then we also have a couple of

questions, and that we've prepared a few slides to touch base to these questions.

So, you know, one area is kind of looking at the growth rates around energy and peak, you know, what were the historical growth rates and then what we see currently in our forecast, and CEC's forecast.

And then we are going to do some comparisons behind energy efficiency, what's in committed, uncommitted.

And then, you know, I think Rick is going to talk about, you know, addressing this uncertainties that we keep talking about around our base forecast, so is there a way that we can actually make more distribution-based forecast.

So, on the energy forecast and the peak forecast, as Tom mentioned, you know, we do our forecast -- it's on the energy side, it's sales forecast based on PG&E service area.

But what we get from the CEC is for the PG&E planning area.

So, we had some information from CEC and, you know, as I highlighted it at the bottom of the slide, you know, we did our best effort to kind of parse out our service area piece of it to see whether actually we can compare.

And I think on the peak side I kind of saw the similar graph that Tom shared with us. So, if you look at the left-hand side, so this is our best effort to comparison. Again, you know, we need to check with CEC to make sure we carved out the appropriate parts to make this comparison.

So, it seems like in the earlier years, you know, we are quite close. With the out years there's a gap and, you know, we are thinking that those gaps are related to the assumptions around the CHP.

So, before I move on, I also wanted to just give you a framework as to, you know, how we produce our forecast. So, similar to the CEC, from the econometric perspective, we have the econometric models for the major customer classes. This is actually commercial, industrial and ag.

And then we also adjust our forecast based on the assumptions around energy efficiency, committed, uncommitted, you know, the self-generation or distributed generation, and EV.

So, what I wanted to highlight about the assumptions that we use, if I can kind of skip a couple of slides here is that, so we tried to use the public information, you know, whenever we come up with these -- whenever we need to introduce these adjustments to our

forecast.

On the energy efficiency side for historical period and committed period, you know, we work with PG&E file documents, and for uncommitted incremental piece, you know, we relied on the Itron Report, as it is suggested for the LTPT Scoping Memo.

So, the only difference is that our internal group assessed that, you know, we want to exclude the Big Bold and decay, so that's the only difference from the Scoping Memo directions around the energy efficiency assumptions that we incorporated here.

So, again, for the distributed generation, you know, we used the Scoping Memo directions. I think around CHP, again, internal group made some modest changes and I think they are all showing up, also, in System One filing as well.

For the electric vehicle we used the 2009 IEPR, so we should have an exact match there to CEC's.

So, this chart is just to kind of compare, you know, around major assumptions, the energy efficiency, CHP, PV, you know, what kind of adjustments we carried out in our forecast versus what we think CEC carried out in their forecast.

So, it seems like there's more energy efficiency adjustments on the CEC forecast than ours but, you know,

we don't see as much CHP.

Again, so these are some of the details that we would like to clarify with the team to make sure that, you know, you're interpreting your adjustments correctly so that, you know, we can actually feel comfortable how far we are apart. So, again, we will work with CEC offline to get to some of those.

So, if I can come to the peak portion of it, so I mean as you will see here, there's a gap, and that's a concern to our internal planners. So, if you plan to -- you know, CEC suggests this forecast and then if we think that, you know, our growth rate and level is higher than what CEC is suggesting, so there's some implications there.

So, we just need to make sure that we understand the gap around peak and then try to parse it out, so to make sure that, you know, at the end we agree, we have understanding of what makes up these two lines, and that you know what we feel comfortable with. So, there needs to be some discussion happening there.

So, let me just go back to the other point that we wanted to highlight. So, this is from Table 2.1 in the report, just kind of looking at the historical growth rates here.

So, I think historically we have seen that peak

growth rate is a little bit higher than energy growth rate, and then we see that in our turn forecast.

So, if you look at this one, we have .7 percent average annual growth for energy, .9 percent for peak. But when we look at, you know, CEC's that's changing.

So, if you look at -- again, based on CEC's data, on the historical period, so the peak growth was .4 percent higher than the energy growth, but in the forecast period it kind of switched to, you know, peak energy growing faster than peak. So, I think that we want to have a better understanding of that switch as well.

So, you know, what we are thinking that, you know, historically what we see, the relationship in growth rates, we see that in our current forecast, but we see that that is shifting at the CEC's forecast. So, you know, we just wanted to clarify that or understand that better, you know, why is it the case.

So, I think that's all I wanted to highlight from the very high level energy and peak forecasting perspective.

So I know that, you know, we also have differences like sector-based forecasts, but there's a balancing act going on. On the total we kind of merge and assumptions are kind of acting the same way. I mean

there is more energy efficiency on the CEC side, we have more CHP, maybe, on the PG&E side. There's some balancing act going on.

I think at the high level we might be close, but we really need to understand that we align with the underlying assumptions because there are implications going forward. You know, is these forecasts going to feed into the next long-term procurement plan and other areas?

CHAIRPERSON WEISENMILLER: Thank you. I guess one of the things I'd like to understand, though, as Valerie said, when we look at the future and look at the potential range of economic growth, the potential range of technology choices that -- and also program impacts, that in some respects it's surprising how, you know, looking from the staff's load of high cases, everything's pretty tight.

MS. YUCEL: Yeah.

CHAIRPERSON WEISENMILLER: And I don't know in terms of if PG&E has more dispersions in its assessment --

MS. YUCEL: We also didn't do any, you know, scenario analysis. But, you know, I agree with that that if you're that close, I don't think we should produce the high and low, we should just stay with mid.

But in some areas I think there's a good range of high and low, I think it's on the energy side. But some other areas that, you know, we are very close, we either need to revisit what makes up those bands and then redefine them. But, otherwise, I don't see any value why we should produce three scenarios that are kind of coming up with very similar numbers.

But for PG&E, we didn't do a scenario analysis.

CHAIRPERSON WEISENMILLER: You know, I was going to ask in terms of getting more to the nuts and bolts whether the staff's elasticities are close to yours? I mean --

MS. YUCEL: Oh, Matt do you want to look at the models? I actually have the --

MR. MASTERS: I think the elasticities are pretty close, we actually have --

THE REPORTER: Turn your mic on, please?

MR. MASTERS: I think it is. Now it's on, okay.

Okay, so I think we actually are pretty close in elasticity-wise. We actually have three different elasticities, one for the residential, one for the commercial and one for the industrial sector, and I believe they're all within the range of .05 to .15.

Offhand, I couldn't tell you where they lie, but I think those are pretty close to what you've seen, Tom;

right?

MR. GORIN: I believe so, but that would be a question that Chris can address when he gets back, more readily, because he did a lot of the elasticity work.

MR. MASTERS: Yeah.

MS. YUCEL: So, Matt, Commissioner also had a question around rate forecast, so do you want to just say a couple words about that?

CHAIRPERSON WEISENMILLER: Yeah, want to talk about that? I mean, again, it's probably been a while since the Energy Commission has really looked at rate forecast and that's an issue, now. Particularly, you know, when you -- I mean this may be more -- well, actually, both, electricity and gas, I mean you have potentially substantial increases in revenue requirements, which could translate into rates, which then could have impacts on demand.

So I was trying to figure out in terms of what sort of forecast you have of retail rates and then how that matches, or at least start the discussion with the staff.

I don't know if Tom's quite prepared to dig into that today as much, but at least get the dialogue going on the rate forecast.

MR. MASTERS: Yeah, what we've assumed in our

forecast are rates that are increasing at one percent above inflation, so in real terms one percent per year above inflation.

MR. GORIN: Right.

CHAIRPERSON WEISENMILLER: Right.

MR. GORIN: And, you know, one thing about rates, and I'm going to hate to say this, but in the old days --

CHAIRPERSON WEISENMILLER: Go ahead.

MR. GORIN: -- the tariff book was maybe five pages long, you know. There's got to be 70 to 100 different residential rates, now, depending on where you are, and whether you have an EV, or whether you're on a care rate. You know, so for our forecasting perspective we're trying to meld that all into an average residential or an average commercial rate, you know, and we've got these huge, huge number of different rate schemes that people can apply for, that's hard to -- hard for us to determine, you know, what they would do with them.

CHAIRPERSON WEISENMILLER: Oh, yeah, actually I was going to say how about Edison, in its non-core area, was always at sort of an incredible variety there that might draw off the others.

But the other part that I was just looking at

it, it's been a while since I looked at whether the balancing accounts are under-collected or over-collected.

But I mean in the case of Edison there's a pending very large GRC, and as you look through this sort of magnitude in the GRC, like I said, and I don't know if there's some substantial imbalances or not in the balancing accounts. But, again, you just have this feeling that, you know, this sort of one percent real types of numbers we've historically had could be low, at least in the near term.

MS. WINN: I think that that will ultimately vary on, you know, the additional mandates that are added, that may or may not be reflected in the current rate forecast.

CHAIRPERSON WEISENMILLER: Right.

MR. GORIN: One thing I'd like to point out in that table is that both the historic energy and peak numbers are actual, and they're not really weather normalized. You know, we could go back and weather normalize history to see how those rates change.

MS. YUCEL: Yeah, and see how it changes. Yeah, so that was one observation that we had it seems like, you know, we are carrying that trend in our internal one, but we don't see that with the CEC, even though the

history that you published kind of shows that trend.

MR. GORIN: Right.

MR. MASTERS: Yeah, we actually made those same calculations with our own internal data and came up with very similar results, and we looked at it in a couple different ways. And it seems pretty consistent that historically peak has grown about half a percent faster than energy.

CHAIRPERSON WEISENMILLER: Yeah. I think one of the issues I think we're all struggling with on some level, though, is historically -- well, I think if we were having this conversation say four years ago, everyone would have said that your high growth areas would be in the valley, certainly less temperate housing, and that was going to drive a substantially greater peaking over time.

And at this stage, just trying to figure out what the likely growth areas are in demographics, I think at least that part of the story has been tempered.

MR. MASTERS: I would agree with that.

MR. ASLIN: Yeah, I think I would agree with that, also, except for the fact that almost all new housing is being built with air conditioning, and regardless of where you are.

So, if you have a new house in San Jose, it's

going to have air conditioning. And 20 years ago, that really wasn't the case. So, that's what really drives it.

CHAIRPERSON WEISENMILLER: That's true. Yeah, I think certainly the peak versus sales numbers, you're right, are very much air conditioning.

MS. YUCEL: So, yeah, Rick has a couple of slides on energy efficiency and climate change.

CHAIRPERSON WEISENMILLER: Oh, good.

MS. YUCEL: I can draw it for you.

MR. ASLIN: Okay. Well, my name is Richard Aslin and I work for Pacific Gas & Electric Company, also.

And I also would like to extend my thanks to the staff, especially Tom, Nick and Chris, for all their help over the last year or more on putting this together. And also to say that I think the Demand Analysis Working Group has been very effective and I hope that does continue.

I think we see a few things in this draft forecast that are directly coming out of that Demand Analysis Working Group process and that's very encouraging.

I actually had a few notes that I made from this morning's presentation, so I don't want to take up too

much time, but I did want to kind of go back because I think it kind of sets the stage for what we might talk about next.

The first thing was that I was just taking notes on the various things, which were pretty large items, which you had intended to update between now and the next version of the forecast, so I just wanted to make sure I was clear on those.

So, one thing that I heard was that you had intended -- you intend to update the economic and demographic forecast?

MR. GORIN: Yes.

MR. ASLIN: Okay. And then the next thing I heard is that you plan to update the electric vehicles forecast?

MR. GORIN: Yes.

MR. ASLIN: Okay. And then the third thing, which I thought I heard you say, Nick, but maybe you didn't say this, so I just wanted to make sure this is right, but you also intended to update the incremental uncommitted energy efficiency savings based on the potential and goal studies updates?

MR. FUGATE: Yeah, I don't think that was intended for the revised forecast, but once -- I mean that will be something on the horizon once we have a new

goals study out of the CPUC we'll look at doing a new incremental uncommitted analysis.

MR. ASLIN: Okay, so that's a question mark, maybe?

MR. FUGATE: Right.

MR. ASLIN: All right, I just wanted to make sure that was the case. So, just necessarily, everything that we're talking about today, with this draft forecast, is really directed towards just better understanding where the biggest gaps are between the two forecasts and then, hopefully, working those so we can get a little bit closer.

So, what I wanted to do was really focus on the energy efficiency savings that are, first of all, embedded in the forecast, so the committed part of the savings. And then also to segue from that into the uncommitted and then to really look at what does it look like when you have the uncommitted and the committed, you look at those both, together, and does that seem like a reasonable sort of projection for energy efficiency.

I'm going to push page down, I hope it works. Oh, I'll go with this one.

So, the first thing I did was I looked at your report, Table 2-3, which I'm showing up here, sort of

excerpted from that.

And what I'm doing here is I'm trying to look at, okay, if you have the committed savings, so the part that's embedded in the base-case forecast and you look at the incremental part of that, so the part that occurs between 2010 and 2022, what does that look like?

So, for PG&E, when I do that what I see is that it looks like the incremental committed piece for codes and standards is 7,556 gigawatt hours, it's 1,784 megawatts. Okay, and that's the part that takes effect between 2010 and 2022.

And then when I look at, which is not on this table, but it's on another table in the report, the incremental committed programs and price impacts, there's another 3,797 gigawatt hours, 737 megawatts.

So, it looks like to me the total, kind of embedded incremental committed, so the part that just takes place from 2010 to 2022, just for PG&E is 11,354 gigawatt hours and 2,521 megawatts.

MR. FUGATE: Rich, you're using a term I don't think we've used before, "incremental committed."

MR. ASLIN: Yes, I'm coining a new term.

MR. FUGATE: Okay.

MR. ASLIN: That's true. Incremental committed, it's the part of the committed that starts in 2010 and

goes to 2022. All right, so this is the savings that wasn't there before 2010, but shows up between 2010 and 2022, so the incremental part of the committed savings.

MS. WINN: So, if you look at the top part of that chart, if you say take the 1,380 in the total residential column and subtract the 8,768, and then add that to the next group over the commercial, 5,855 minus, what is that --

MR. GORIN: 2,912.

MS. WINN: -- 2,912, that gives you the 7,556.

MR. ASLIN: Yes, that's correct. Thank you, Valerie. That's what I mean by that.

Okay, so then I go from that, and so that's the incremental committed, and I go from that and I look at, okay, what's the incremental uncommitted? So, again, just trying to look at how much energy efficiency savings are we projecting that's going to take place before the end of this forecast period?

So there, when I look at that, I see that in the mid case it's another 5,225 gigawatt hours and another 1,831 megawatts, and this is just for PG&E, and this is just in the mid case.

I'm going to add those together and I come up with what seems like some fairly large numbers for energy efficiency savings that's, you know, being

suggested in this draft forecast.

So, I get an incremental total, so the incremental committed and the incremental uncommitted, add those two together and I come up with the line "incremental total" and that's 16,579 gigawatt hours, and 4,352 megawatts. That's the kind of energy efficiency savings that has to happen, just for PG&E, between 2010 and 2022 to make this base-case forecast realized.

So then I asked myself the next question, how does that compare to other things that we know?

So when we look at this on an annual average basis what we come up with is that the average savings per gigawatt hours is 1,381 per year, for megawatts is 363 megawatts per year, just for PG&E.

And then when I look at the goals what I see is, well, the current goals, if you take the annual average of those, it's 870 gigawatt hours, and it's 248 megawatts, so significantly lower, especially on the megawatt side of it.

And then when I look at the 2006-2008 EM&V studies, you know, that's even lower. So, that actually turns out that if you looked at the EM&V studies what we saw is an annual average, this is 2006 to 2009, actually. It's says 2008 there, but it's 2009.

It's 840 gigawatt hours of savings and 140 megawatts of peak.

So, just to give some perspective here as to, you know, what we're looking at in this base-case forecast relative to other things that are out there on the horizon, which have similar implications.

So, my basic question is, you know, can we work together going forward to try to understand whether this amount of energy efficiency savings is realistic, you know, given what we know thus far.

And in particular, even though there was a lot of movement made on looking at the peak-to-energy ratio for energy efficiency savings from the last forecast to this forecast, I think there's still some work that needs to be done in that area.

So, between the last forecast of the incremental uncommitted and this projection, the peak-to-energy ratio for the savings was lowered, you know, pretty dramatically, and for good reason.

But when I look at what the peak-to-energy ratio is that's implied for the -- in, particularly, the uncommitted period, I see that's still -- that's still pretty high.

So, that's what I have at the very bottom of the slide here, which is that, you know, if you look at the

committed period right now what you see is that -- I'm sorry, the uncommitted period, it's 50 percent higher, the peak-to-energy ratio, than in the uncommitted period, and it's actually 100 percent higher than what you would derive if you looked at the EM&V results. So, again, just wanted to point that out.

MR. GORIN: Can I make a comment?

MR. ASLIN: Sure.

MR. GORIN: Your middle goals and EE mid case, and EM&V savings are all based on assuming they are savings from current practices; correct?

MR. ASLIN: Can you say that again?

MR. GORIN: Well, the top savings that you calculated are based assuming that anything built, or any appliance purchases in 2011 is -- those savings are estimated assuming that they're compared to what was available in 1975?

MR. ASLIN: I'm not sure, is that -- is that the way that your tables are constructed? Because what I -- what I was doing was I was taking your numbers off that table that says here's 2010, and here's the savings --

MR. GORIN: That's the stock in 2010, right?

MR. ASLIN: Correct.

MR. GORIN: Any new appliance or new construction in 2011 is compared to what was available

in 1975.

MR. ASLIN: Okay, so that's -- that's exactly the kind of thing we need to, yeah, make sure that we are touching base with so that we understand the numbers. Because when you just look at the numbers on the surface of them, in the tables, you know, I'm not getting that implication from it.

So, I would like to explore that further as to, you know, what is the incremental committed that's embedded? That is a very, very important issue because for the AB 32 analysis and the things that have to do with the greenhouse gas emissions, you know, that understanding what's actually embedded in the base-case forecast is one of the most critical parts of that whole analysis.

Let's see, the final thing I wanted to do was just to say I think it's a really good idea to put in something about climate change, and I do appreciate that.

One thing that I think that could be done is that we could go a little bit further with that. I think the kind of results that -- I had a couple questions, really, kind of just real questions about why things were implemented in a certain way.

So, what I recall is that when you calculated

the temperature statistic what you did was that you said, okay, we have these simulations from Scripps, eight simulations, and then you took a 30-year average. And the 30-year average was actually 1990 through 2020. So, out of the 30-year average, 20 years of that was history. Is that --

MR. GORIN: That's my understanding because the -- well, the forecast goes to 2022.

MR. ASLIN: Right.

MR. GORIN: Right.

MR. ASLIN: Right. So my question is whether you would consider not including so much of the history. Because if it's the case that the real concept here is that there's non-stationarity in the history, then using two-thirds of history in order to create the temperature statistic seems like it's going to give you a little bit of a bad start to begin with.

So, I'm not sure how the simulations are actually constructed, but if you could just use the simulations directly, you might get something that's more reflective of climate change. It's just a suggestion.

The other thing is that in the work that we've done with this climate change statistic and trying to estimate what the impacts of climate change might be, we

had much more success with using the cooling degree day statistic, rather than just looking at maximum temperatures.

And the reason is because a lot of the impact of climate change has to do with higher minimum temperatures and unless you construct the statistic in a way that you can incorporate the minimum temperature into that statistic, I don't think you'll really see that impact. It won't be actually coming into the model because the maximum temperatures, they tend to be higher, but the real difference is that it doesn't cool off at night, so you've got this much higher minimum temperature.

Once you put that into the model I think you might see that the impacts of climate change are quite a bit larger than what you're estimating, currently.

And that's all I have.

CHAIRPERSON WEISENMILLER: That's good. I was going to ask the question; obviously, we talked about sort of the long-standing issues with Edison on commercial forecast. I'm just trying to understand if there are any sort of long-standing differences between PG&E and the Energy Commission on forecasting, that we can try to make progress on?

MR. ASLIN: You know, I don't think we've really

had that many issues. I think it tends to be the case that our forecasts are relatively close and that, you know, where we've had the most issues over the last several cycles has been the question of the incremental uncommitted energy efficiency and how much efficiency is already embedded in the forecast.

And I think that's why I was kind of circling back on that is because I want to make sure that we're still working on that one. I don't think we're still completely confident that we fully are capturing how much energy efficiency is embedded in the forecast.

CHAIRPERSON WEISENMILLER: Right.

MR. ASLIN: And if you aren't really confident on that, then you can't be really confident on what the incremental uncommitted is because those two things are linked.

CHAIRPERSON WEISENMILLER: That's good. I think the other issue, which I think people have illustrated in some of the forms, is to say that, obviously, one looks at the PUC effort on an EMB, you know, there's sort of a pretty wide range of issues there. But, generally, the slopes tend to be the -- you know, that we're -- presumably capturing the low-hanging fruit and moving to more difficult periods in terms of the energy efficiency, and so part of the question is how much

we're capturing that?

You know, again, that going forward presumably we need to look at innovative technologies as another way to, again, keep increasing it, but that the benefits of the program seem to be somewhat -- seem to be falling off over time.

MR. ASLIN: Yeah, I think it's -- it is possibly true that the low-hanging fruit is harder to find or you have to reach a little higher on the tree to get it and, you know, some of the questions around that is just sort of what resolve do we have to get it, and how do we fund it, those sort of things.

So, I do agree with statements made by, you know, several people earlier that for PG&E, I think we mentioned this also, that we do very much discount the Big Bold Energy Efficiency strategies in our -- in our base-case forecast, particularly the zero net energy homes.

CHAIRPERSON WEISENMILLER: Right.

MR. ASLIN: Because we don't really see the funding for those and we -- right now I think most of our analysis shows that they're not really cost effective, so we also discount those. I think San Diego Gas and Electric mentioned that they discounted those, also. And I don't know what Edison does with that

but --

CHAIRPERSON WEISENMILLER: Yeah.

MS. WINN: Right. But on some of these strategies and I know it's a -- it's a different discussion when you start talking about climate generally, and the cost impacts of climate -- climate change. Because we've talked a lot about energy efficiency even beyond what the Commission currently says is cost effective, you could do a lot more in that space that's still cost effective versus doing some of the renewables mandates that we're doing.

So, you know, are we trying to overarchingly reduce carbon, or just look at things in their silos?

CHAIRPERSON WEISENMILLER: Yeah, good point.

MS. WINN: And how can we best manage customer cost from that perspective.

CHAIRPERSON WEISENMILLER: Good, thanks.

MR. ASLIN: One final thing -- or I'm sorry, did you have another question?

CHAIRPERSON WEISENMILLER: No, go ahead.

MR. ASLIN: You mentioned a couple of times about the uncertainty in the forecast and that you thought the bands were fairly tight. But when I was looking at -- I think it was Nick. Nick had two slides, he had the slide 16 and slide 17 that showed, you know,

what the dispersion on the forecast is in 2022 once you include the various scenarios on incremental uncommitted energy efficiency. And I think that's where you start to see that the forecasts diverge quite dramatically.

So, I was just looking at the slides and trying to, you know, note these down. So, Nick, you might be able to tell us what the actual numbers is.

But it looked like on the gigawatt hours, statewide, the high forecast was 325,000 gigawatt hours and it looked like the low forecast was something more like 275,000 gigawatt hours. So that's -- that's quite a large difference, I think.

MR. FUGATE: I don't have the numbers in front of me but, I mean, if you've got the chart right there in front of me, that sounds reasonably close.

MR. ASLIN: Okay, so that sounds pretty close. And then when I was looking at the megawatts I was seeing it was something more like 70,000 megawatts for peak, for the high case, and then it was more like 62,000-ish for the low, so that's like an 8,000 megawatt dispersion.

CHAIRPERSON WEISENMILLER: Ten percent, yeah.

MR. ASLIN: Yeah, and that kind of brings me to what I was actually going to also mention, if I had a second, was just the whole notion of uncertainty

analysis. And since you have the econometric models built, I'm wondering if you can do something with those econometric models in order to give us a better understanding of what the distribution of the forecast error might be?

That's one of the advantages of using the econometric models, if you can incorporate that, you can calculate the standard error of the forecast and then you can -- or you can just, you know, put it inside a Monte Carlo simulation type of model and just run it, and see what kind of forecast you get out of it.

So, I would like to know what amount of uncertainty there is in a 12-year forecast at this point in time?

MR. GORIN: I think those statistics are available, but we don't have them right now. Chris has those available.

MR. ASLIN: Okay.

CHAIRPERSON WEISENMILLER: Okay.

MR. ASLIN: Okay. Well, thank you.

CHAIRPERSON WEISENMILLER: Thank you.

MS. WINN: Thank you and thank you for the additional time to be able to consult with staff.

CHAIRPERSON WEISENMILLER: Oh, sure.

MS. WINN: And if you have any other questions,

we'd be happy to answer them.

CHAIRPERSON WEISENMILLER: Okay, thank you. All right.

MR. FUGATE: Okay, so we're going to take a look at the LADWP Planning Area. This is going to be a very similar presentation to Tom's previous three.

Just a quick overview of some of the slides we're going to be looking at. The 2010 Report of Consumption was five percent lower than previously, and weather-adjusted peak was two percent above the consumption. Mid case grew at a rate similar to what we saw last time.

The peak growth rates are higher than last time. Household growth rates, all three cases higher. We've got some charts that sort of lay all this out coming up.

Load factors continue to decline. And per capita consumption and peak are lower than previously.

And this is a slide I took off the DMV website. I think if you hold up one hand over your eye, and read left to right, I can tell you if you need glasses or not.

The consumption forecast, we have a lower starting point than previously, and higher growth rates for all three scenarios.

Like I said, the 2010 recorded consumption was

five percent lower than we forecasted last time.

The peak forecast, the weather-adjusted peak was two percent higher than we forecasted in 2009.

And we see higher growth rates this time, than previously, and that's due to economic -- projected economic recovery in the near term, and then the impacts of electric vehicles towards the end of the forecast period.

So here we have load factors. The load factors, you know, the historical trend has load factors decreasing and we continue to see that in the beginning part of the forecast period, and then it flattens out towards the end. That's residential consumption.

Residential consumption, which has a lower load factor than all the other sectors, comprises a larger portion of the total load.

The forecasted load factors increase in the later years, again due to electric vehicle penetration.

The planning are peak forecast; the higher growth rates are due to faster household growth in all three cases.

Electricity consumption; we're starting for a lower point and we see higher growth rates for each scenario.

I'm going backwards. The residential forecast

results; in 2010 consumption was over eight percent below what we projected last time. The growth rates are similar, higher household growth rates in all three cases.

Use per household increases and electric vehicle consumption drives growth towards the end of the forecast period.

Here's a -- you see the lower starting point, the recorded consumption is quite a bit lower than we projected last time.

Households in all three cases were projecting higher households. And the growth rates, the growth rate in the low case is similar to what we projected last time.

Tom touched on this in his presentations, but the low and the mid case are basic trend analysis and the high case is taken from Economy.com.

Persons-per-household actually drives the household forecast, and so when I talked about the trend analysis, it's done for persons-per-household, and that's divided into population to get households.

As we saw in all three of Chris's -- or Tom's presentations, household income is relatively tight for all three scenarios. And we have a lower forecast for residential use but, again, that's primarily the lower

starting point.

I'm just going to go right into the graphs for the commercial building sector. So, all three cases grew faster than previously.

The preliminary forecast starts slightly above what we projected last time, it grows at a faster rate. We have higher projected population growth this time around and that directly affects the commercial floor space, which is a key driver to this forecast.

You can see here we have higher projections for commercial floor space, but still a very compact set of scenarios and it's because the commercial floor space is tied pretty closely to population growth.

In the industrial sector reported consumption was ten percent below what we projected last time. In low and mid cases, you know, the growth rates are similar to what we projected in 2009.

And there's a graph there that you can see the much lower starting point.

Other sectors only comprise eight percent of the total consumption, with seven percent of that coming from the transportation, communications and utility sector.

And I don't have charts for these sectors, but they have similar growth rates to what we saw in 2009.

And electric vehicle use is projected to increase the total by two percent towards the end of the forecast period and most of that's residential.

And here we see the electric vehicle forecast. I think we might have seen this in Asish's -- or, no, I'm sorry, that's self-gen.

Peak impacts from electric vehicles are projected 20 megawatts in the low scenario by 2022, 25 in the high.

Committed efficiency savings amount to 25 percent of consumption by the end of the forecast period. And Asish talked earlier about the self-generation adoption model.

So, there's the committed efficiency savings estimates and peak savings estimates, and these are numbers that came out of Asish's self-gen model. The mid case reduces peak by three percent in 2022.

So, I'll get into the comparison between our forecast and LADWP's. LA submitted only an unmanaged sales forecast, so I only have a couple slides to look at.

So, the orange, the very bottom line there is LADWP's unmanaged forecast, so you can see that our forecast is higher in all three scenarios, with the low case and LADWP's arriving at about the same point in

2022.

And a very similar graph here for the peak comparison. Again, the low case and LADWP's forecast are relatively close towards the end of the forecast period, but all three of our scenarios are higher.

So that was a very quick run through of the LADWP Planning Area. Is there anyone here who would like to discuss LA at all? Dave?

MR. WALDEN: Good afternoon and thank you for the opportunity to speak --

THE REPORTER: Pull the mic a little closer to you.

MR. WALDEN: Good afternoon, thank you for the opportunity to present. I represent Southern California Public Power Authority. We are a joint powers agency that includes the 12 municipal cities in California, LADWP being the largest.

A couple comments on the entire process today, we appreciate the collaboration and the opportunity to communicate back and forth with CEC staff, that's been very successful in comparing notes.

As far as the trends that you see with regards to the publicly-owned utilities, and in this case LADWP represented, in all cases when we compared our forecast deliveries to the CEC models we were lower for each and

every one of the smaller utilities.

And there's two considerations for that. One is that we do carry a slightly more pessimistic view of the economic recovery, and the second is that by the nature of the beast the smaller utilities are more impacted. A single commercial/industrial customer departing from a service territory of only 10 megawatts makes a pretty big number. So, we do see those regularly and consistently.

The other activity that we see is that our models all include energy efficiency, in this case shown as unmanaged. But energy efficiency is included as a line item within our forecasts.

What we do is we take the historic profile, which assumes all embedded standards, California building standards and what have you, carry that forward, which includes the assumption that those will continue. And then on top of that we add our programs and the actual reductions, and those are taken above the line so to speak.

This year, on the forms we actually included energy efficiency as a line and distributed generation demand response as a line before we actually began our demand forecast.

So, that might be some of the reasons you see

the slightly lower numbers.

The other thing that I wanted to bring up is that within the forecast the CEC includes a realization rate based on IOU patters, and the realization that we have and that we report every year under SB 1037 is much higher, and so we reflect those in our forecasts as well.

So with that, I have no other comments. Thank you, Nick.

MR. FUGATE: All right, thanks Dave.

CHAIRPERSON WEISENMILLER: Thanks for being here. And certainly encourage you to continue the dialogue with the staff on trying to understand the differences.

MR. WALDEN: Thank you.

CHAIRPERSON WEISENMILLER: Thank you.

MR. FUGATE: Are there any other questions or comments on this? Okay.

CHAIRPERSON WEISENMILLER: No. Thank you.

MR. FUGATE: All right, we'll move on to SMUD's service area then.

So, this table should be a little easier to read. Consumption forecast results and basically split the tables that you've been seeing into two slides, so peak is shown in the next table.

And what you see in the mid case is that we have a slightly higher growth rate than projected previously. The same with the peak forecast.

And you can see it visually here in the chart, the lower starting point, higher growth rates.

Consumption in 2010 was actually three percent lower than projected previously. The preliminary forecast was 1.2 percent lower than the previous forecast by 2015. And by 2020 the mid case and the -- I'm sorry, the low case and CED 2009 are roughly the same by 2020.

Per capita consumption starts at a lower point. Again we see the impacts of projected economic recovery in the near term. Growth in the high case is due to the high projected growth in income and manufacturing.

Here's the peak forecast; again the lower starting point and higher growth rates.

Through 2020 the peak demand is expected to grow at a rate of 1.5 percent. Previously, it was 1.2 percent. This is primarily due to growth in the residential and commercial sectors.

Per capita peak is relatively constant in the historical series and was in the previous forecast, as well. Since 2008, though, the per capita peak declined by about five percent, 5.3 percent and it's not

projected to recover to CED 2009 levels for the mid and the low cases.

We have very flat load factors. So, the residential consumption, again, we start from a slightly lower point and we see higher growth rates.

So that was 1.6 percent lower and grows at about two percent, and the higher growth rate is driven by income and electric vehicle penetration.

We have residential use per household. So you can see back in 2008 it's kind of interesting, the residential use per household was relatively close to the maximum in the historical series and in 2010 it drops to almost the minimum in the historical series there.

And again, the high growth in the out years is driven by electric vehicles.

Here's our persons-per-household projections; we see the same sort of household income, the tight -- the tight three scenarios.

The commercial building consumption; again, lower starting point, higher growth rates. And we see, again, that tight floor space projections that are tied to population growth.

In the industrial sectors the mid and low cases are very similar in the out years, and not all that

different from 2009, either.

So we have agriculture and water pumping consumption. You know, the last couple of years of history have been declining, so it's sort of lowered the trend line a bit, and the lower starting point.

And transportation, communications and utilities forecast has a very similar growth rate to the previous forecast, but a lower starting point.

Here's our electric vehicle consumption forecast. Peak savings from self-generation, and here's the consumption savings, and peak savings. It's very similar to all the other charts we've seen.

The unmanaged forecast comparison, so -- so SMUD submitted both a managed and an unmanaged forecast, so I've got a few more charts than I had for LADWP.

So, you see it's -- it's maybe tough to see, but there's a red dash line almost underneath the purple, low-case scenario, so that's SMUD's forecast. So that's in line with what Dave was just saying, SMUC's forecast is coming in along the lines of our low forecast.

And this is the managed forecast comparison, so the savings in -- uncommitted savings are included in this one.

Unmanaged peak forecast, which again is closer to our low-forecast scenario.

And the managed peak forecast.

Do we have anyone from SMUD that would like to say anything make any comments? Anyone that would like to make any comments or -- I think after the SMUD forecast we're just going to open the floor to anyone who would like to comment on the process, in general.

Any questions from the Commissioners?

CHAIRPERSON WEISENMILLER: No, not now.

MR. FUGATE: We have a -- it doesn't look like we have any comments and -- oh.

MR. STEWART: I would like to comment.

MR. FUGATE: Oh, okay, good.

MR. STEWART: Hi, I'm Jim Stewart, a volunteer from the Sierra Club. And I really want to hand a great round of applause to this great staff here because they've done an amazing tour de force to combine all of these different disparate sources of information into quite simple slides. So, congratulations to you guys, it's a great job.

So, I have a series of questions and I'm hoping that Tom can be at a microphone and respond to them, if there's any chance of that?

One of the questions that popped out when PG&E raised their -- you know, put up their slides about the comparison of the rates of growth. They had like seven

percent -- a .7 percent in their energy growth and the CEC had 1.3 percent, and they had .9 percent in their peak growth and you had 1.2.

And I was trying to figure out why there's such a huge difference between the PG&E forecasted annual growth rates and yours? And maybe you don't have an answer off the top of your head there?

MR. GORIN: For the projected?

MR. STEWART: Yeah, that's what I saw when PG&E and put it up, but maybe I didn't write it down right.

MR. GORIN: No, I would believe you. That's what we're trying to figure out is how we would -- part of the purpose of this process is to figure out where the differences occur and try and resolve those differences.

Sometimes we look at the world differently.

MR. STEWART: Okay, great. So, we'll looking forward to seeing that. So, when are you going to get those kinds of discrepancies clarified by?

MR. GORIN: Some of them we've been working on for 30 years.

MR. STEWART: Great.

MR. GORIN: We're trying; we have a Demand Analysis Working Group that meets probably monthly.

MR. STEWART: Great.

MR. GORIN: We have forecast discussions to examine our input and the -- our forecast results. We use -- sometimes we use the same economic forecast and sometimes we use different vendors and have --

MR. STEWART: Yeah. Okay, well, I mean we'll raise that question in written comments, and then I guess that sometime between now and the November report you'll try to clarify this.

MR. GORIN: Well, we're -- the November report is the IEPR?

MR. STEWART: Isn't that when you're next going to report this?

CHAIRPERSON WEISENMILLER: I'm sure we're going to have workshops, but at this point the schedule's sliding a little bit, so maybe further along. We've been talking today about doing some updating and having some things a little bit later.

MR. STEWART: Ah, okay.

MR. GORIN: This forecast, we're going to revise our forecast because the purpose of the revised forecast is to provide the Public Utilities Commission a forecast, an adopted forecast that they can use for their --

MR. STEWART: Right.

MR. GORIN: -- 2012 LTPP proceeding, so that

will be in January or February.

MR. STEWART: Okay. Then I wanted to ask you, Tom, about this strange occurrence that seemed to have occurred in 2009-2010, where the demand went way down and, yet, the peak significantly rose. Was that like just one bad day, one hot day throughout the State that made that peak go up over between 2009 and 2010? It's just like in just every single one of your scenarios all the way across each of the utilities.

MR. GORIN: 2009, to my recollection, had no really hot spells.

MR. STEWART: Yeah, okay.

MR. GORIN: 2010, in Southern California, you could argue was --

MR. STEWART: Right, got it.

MR. GORIN: -- San Diego would call it a one in 35 event.

MR. STEWART: Got it.

MR. GORIN: So the peaks from year to year are highly variable depending on the temperature.

MR. STEWART: Yeah. And those kinds of peaks are going to -- likely to increase with the climate change?

MR. GORIN: That's one scenario.

MR. STEWART: Ah. Are there other scenarios?

MR. GORIN: The peaks are based on the maximum temperatures of the year and, as Rick allude to, the minimums are going up.

MR. STEWART: Yeah.

MR. GORIN: The minimums in climate change are projected to go up higher than the maximum temperature.

MR. STEWART: Right.

MR. GORIN: So, the peak may not increase as fast as one would think.

MR. STEWART: And then my final question has to do with the -- what seems to me to be a very optimistic economic forecast because of, you know, there are -- I mean I think it's okay to have some economic optimism, but you'd think that the low case would be more in line with some pessimistic stuff that, you know, a lot of people are talking about, double dips and various kinds of disasters, the stock market's not doing well, et cetera.

Are you going to take another look at your low economic forecast?

MR. GORIN: I think in our revised forecast we're going to look at all the scenarios provided by the vendors that we -- by our economic forecasts from -- they revise their forecasts monthly, as far as I know, and right at the moment the recovery seems to be being

pushed off a little bit.

MR. STEWART: Right.

MR. GORIN: Than we predicted -- than they predicted last year, or even in April.

MR. STEWART: Okay, so that we can expect some lower ranges then in the next out -- the next iteration?

MR. GORIN: I wouldn't -- you know, I'm not the economic forecaster.

MR. STEWART: Okay.

MR. GORIN: That's the -- that's why we rely on these economic services to provide us forecasts of economic growth and we'll see what they say. It doesn't appear that there's going to be some over-optimistic viewpoint coming out in the next two months, but I'm not the one to answer that question.

MR. STEWART: And, really, you know, you don't have to answer this one either, but related to this issue is the fact that you predict a quite a significant increase in number of households across the State, which implies a rather large housing boom, which I don't see.

MR. GORIN: We're hoping before our revised forecast that the Department of Finance comes out with a new long-term population projection. If that doesn't occur, we're going to end up using the Census projection, which indicates about 425,000 people --

person increase annually for the State.

MR. STEWART: Yeah, well, I see that population growth, but I don't see the housing growth. In other words, you project a lower per-household size, at the same time as the house -- as the population is growing up and I don't see that.

MR. GORIN: Well, our -- the population forecast -- the persons-per-household forecasts that we develop in-house are either constant or increasing.

The decrease in persons-per-household was provided -- was what Moody's Analytics uses. You know, if you listen to the economic workshop we had in February of this year, there was kind of a divergence of opinion of whether household formation was going to increase or decrease. There's thought that the Asian population will move into their own houses. There's another thought that children and aging parents are going to move back into consolidated families.

So, I'm not sure there's a definite -- well, definite consensus around that.

MR. STEWART: But, you know, we do know at the current, you know, construction rate of housing and it doesn't look like there's very many extra households.

MR. GORIN: I would agree with that currently --

MR. STEWART: Okay.

MR. GORIN: -- but there have been booms in the past and there will probably be booms in the future.

MR. STEWART: Well, let's hope so, but I'd like to see a low forecast somewhere that reflects that data. Thank you very much.

MR. GORIN: Thank you.

CHAIRPERSON WEISENMILLER: Thank you.

MS. YUCEL: Zeynep Yucel, PG&E. So, I just wanted to highlight that the focus shouldn't be around .7, .9 percent to the CEC growth rates, but the order of it because ours is sales fully mitigated, yours is planning area, I think just covers the uncommitted -- sorry, the committed.

So, you know, I think the focus that we want to give here is that, you know, peak grows a little bit faster than energy in our case, but it's vice-versa for CEC. So not the differences, okay, just to clarify.

CHAIRPERSON WEISENMILLER: Thanks.

MR. GORIN: Any comments from the phone?

Any other comments? I think that's it

CHAIRPERSON WEISENMILLER: Okay, this meeting's adjourned, thanks.

(Thereupon, the Workshop was adjourned at 3:33 p.m.)

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REPORTER'S CERTIFICATE

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

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

IN WITNESS WHEREOF,

I have hereunto set my hand this 14th day of September, 2011.

Peter Petty

PETER PETTY
CER**D-493
Notary Public