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California Energy Commission
Dockets Office, MS-4
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Re: Docket No. 09-IEP-1C

Docket Office:

Please find attached PG&E's comments on the IEPR – Electricity Demand Forecast workshop, held February 17, 2010. Please contact me should you have any questions.

Sincerely,

Attachment

JOINT IEPR AND ELECTRICITY AND NATURAL GAS COMMITTEE WORKSHOP
INCREMENTAL IMPACTS OF ENERGY EFFICIENCY POLICY INITIATIVES RELATIVE TO THE ADOPTED DEMAND FORECAST
February 17, 2010
Docket No. 09-IEP-1C

Pacific Gas and Electric Company (PG&E) welcomes the opportunity to provide comments on the February 17th California Energy Commission (CEC) Joint IEPR and Electricity and Natural Gas Workshop regarding Incremental Impacts of Energy Policy Initiatives Relative to the Adopted Demand Forecast. PG&E would like to thank the Energy Commission Staff, the California Public Utilities Commission (CPUC) Staff, and stakeholders in the Demand Forecast Energy Efficiency Quantification Project (DFEEQP) Working Group for their diligent and ongoing efforts in this area. PG&E would also like to commend Itron for their considerable work in providing the public with quantitative estimates of uncommitted energy efficiency (EE) savings incremental to those adopted by the CPUC in their 2008 Goals study.

As outlined in our comments in response to the February 3rd staff workshop, our primary concern in this undertaking is with several inputs and assumptions that underlie the Staff/Itron analysis, particularly the peak-to-energy ratio assumption which differs from the CPUC's work in the 2008 Goals Study. The implication of this assumption is that, even in the "Low Case" scenario as currently constructed in Itron's study, the net result would amount to zero additional capacity need between now and 2020. This is a highly unlikely outcome and one not seen historically in California. During this same time period California's population is expected to grow by an additional 5 million people and California's real economic output is projected by increase by 40%[1]. PG&E has serious concerns that California's future will be jeopardized by a failure to plan for energy demand growth consistent with the projected growth in population and economic output.

In order for the State to reach its environmental and energy goals, an accurate and transparent load forecasting process is crucial from both an operational and investment-based perspective. Indeed, SB 1389 requires that the California Energy Commission "…conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety."[2] High levels of uncertainty surrounding such forecasts ultimately have problematic implications for reliability, costs to customers, and the ability of the State to ensure the proper programs, measures, and resources are deployed in order to meet State goals.

The staff's draft report itself acknowledges that, because the incremental EE impacts are not firm, nor dependable, they cannot be relied on to meet future customer demand. EE savings to be included in resource need determinations should be "reasonably expected to occur"; otherwise, there could be serious reliability consequences.

As outlined in the February 17th workshop agenda, staff has requested that stakeholders provide responses to the following policy questions. PG&E's detailed responses are below:

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[1] Moody's-Economy.com, December 2009.
[2] State of California Public Resources Code, Section 25301(a).

1. **This project's origins derive from confusion about "overlap" between committed savings in the Energy Commission forecast and uncommitted savings. Has this report resolved the overlap issue for this IEPR/LTPP cycle, or do questions remain?**

PG&E does not feel that this report has resolved the overlap issues between the CEC's adopted base case energy and peak demand forecast, and the CPUC's energy efficiency savings goals adopted in D.08-07-047. As explained in the comments of PG&E and other stakeholders subsequent to the February 3rd workshop, none of the scenarios shown in the analysis accomplishes the goal of producing an "incremental uncommitted" adjustment which can be used in the Long-Term Procurement Plan (LTPP) to produce a fully mitigated energy or peak demand forecast that is consistent with the energy efficiency savings goals as adopted in D.08-07-047. We think, as mentioned previously, that this is most evident in the peak energy savings scenarios where Itron has apparently doubled the adopted energy savings goals in it low, mid and high case scenarios during the uncommitted period. This results in peak energy savings projected in all three scenarios that are far beyond those that were adopted in the 2008 goals decision during the period 2012-2020.

What the report does effectively is highlight the vast amount of uncertainty in the analysis regarding both what is embedded in the adopted base case energy and what the future energy efficiency savings potential may be. In addition, the analysis revealed the sensitivity of models projecting "potential" energy savings. For example, Itron suggested at the February 3rd workshop that simply changing the "calibration" base year in the analysis could cause the resulting potential peak energy efficiency savings to double.

2. **Are the three scenario analyses undertaken by the staff team sufficiently consistent with the policy initiative groupings established by the CPUC in the original *2008 Goals Study* that underlies D.08-07-047?**

No, as is discussed by PG&E and other stakeholders in the comments to the February 3rd workshop on this same topic, the three scenarios that Itron developed for this analysis are inconsistent with the adopted D. 08-07-047 goals. This is particularly problematic with respect to the peak energy efficiency savings where, apparently, Itron has effectively doubled the adopted D.08-07-047 goals decision in all three scenarios during the uncommitted period 2013-2020. Further, we recommend that the CEC incorporate the updated goals adopted by the CPUC in D.09-09-047. Finally, the CEC should acknowledge the CPUC's recently released EM&V studies that would result in further changes to the CPUC goals to acknowledge any necessary changes to potential EE savings and the studies underlying inputs.

3. **Does the staff report and its multiple appendices provide sufficiently detailed results such that the CPUC can understand the broad assumptions and use the results in the forthcoming 2010 LTPP proceeding?**

The narrative portion of the Staff report does a very good job at outlining the major areas of uncertainly around the analysis. However, the vast amount of uncertainty that is discussed in the narrative is not captured in the numerical scenarios analysis. This is a critical flaw in the analysis which must be addressed before the final report can be utilized in the LTPP.

On the crucial issue of the change in the peak/energy ratios, the Staff/Itron reports do not include sufficient data to allow stakeholders to understand what the drivers or the uncertainty around these estimates really are. This change in the peak/energy ratios is the primary driver in the Staff/Itron report reaching the conclusion that, even in the low EE scenario, peak EE savings will be sufficient to offset all load growth over the next decade. No stakeholder in this process has the information to verify that this change in the peak/energy ratio has been done correctly nor what the uncertainties around the estimates really are.

4. **The policy uncertainties associated with major, sustained efforts to increase energy efficiency savings have been addressed by developing three scenarios, but other uncertainties are only qualitatively described. Is it the policy or the technical uncertainties that are more likely to dominate the overall uncertainty of achieving large energy efficiency savings goals?**

It is both depending on whether you are focused on reducing energy demand or reducing peak demand. On the energy demand reduction side, policy is the factor that dominates uncertainty with the key policy variable being whether we continue to rely primarily on voluntary programs and incentives, or whether we will move towards a policy which is primarily relying on standards and mandates. The majority of energy savings projected over the next decade flow from technologies that are already available and tested. The question, in either achieving large savings as captured in the current goals or even going beyond that, is how to achieve significant market penetration for these existing technologies. While policy is a significant uncertainty with respect to future peak demand savings, technological uncertainty may dominate in this area. Peak savings are dominated by BBEES and in particular by zero-net-energy (ZNE) homes and buildings. There is little experience with these types of technologies and certainly not on the scale in which they would need to be deployed even to meet the currently adopted goals per D. 08-07-047.

The staff report and the Itron Attachment identify replacement savings from decay of committed programs as an analytical issue for the CPUC to address. While the report attempts to explain the concept of "decay" in the context of the analysis, there remains a great deal of uncertainty around how "decay" as defined by the CEC staff was treated in the adopted base case energy and peak demand projections, how it was treated in the Itron analysis and how those two treatments can be reconciled to produce the fully mitigated energy and peak projections that are to be used in the LTPP. PG&E's understanding of the analysis and report as presented is that decay is an issue the CEC staff recommends needs further study. Unfortunately, it is a significant issue resulting in a potential gap in the analysis amounting to several thousand GWh and MW of energy and peak demand over the next decade. The complexity and lack of transparency in the CEC's end-use modeling framework may make it difficult, if not impossible, to sort out how much decay is actually embedded in the underlying forecasts.

5. **The difficulties in meshing two complex analytic efforts to produce consistent savings estimates are described in the staff report and the Itron Attachment. How might efforts to develop such estimates in future IEPR/LTPP cycles be revised to improve consistency?**

The first step PG&E recommends is for the CEC/CPUC to agree on a common set of definitions and modeling conventions with respect to the base case demand forecast. The need for the extensive additional analysis done over the past several years could have been avoided if the CEC had simply adopted the same definition of "committed" energy efficiency programs as the CPUC and IOUs have. Savings consistent with the currently adopted CPUC goals are "committed" and therefore should be included in all long-term planning analysis and only energy efficiency savings that are above and beyond the currently adopted goals are "uncommitted." Had the CEC staff adopted that convention rather than continuing with the definition of "committed period" and "uncommitted period," which is a legacy from a period before we adopted long-term goals, then all stakeholders could have used the IEPR process and workshops to talk about the fully mitigated energy and peak demand forecasts. Instead, as reflected in the comments of stakeholders during the IEPR process, no party could make any definitive comments or comparisons between the CEC staff forecast and the IOU/POU-developed forecasts because all the IOU/POU forecasts are fully mitigated (the CEC staff could not determine the extent to which their base-case forecast was mitigated). In essence parties were left to make comparisons between apples (the IOU/POU forecasts) and some as yet to be determined fruit (the CEC base case forecast). This inconsistency between the CEC staff's and stakeholder's definition of committed and uncommitted has been brought up by stakeholders as an issue in the 2003, 2005, 2007 and 2009 IEPRs. PG&E hopes that more progress will be made prior to the 2011 IEPR, and that can be accomplished very simply by CEC staff adopting for their analysis the same definition that stakeholders and the CPUC have adopted.

Second, reduce the complexity of the modeling efforts and increase transparency and verifiability. This can be achieved if the CEC staff immediately moves from the end-use modeling platform to an econometric-based modeling platform. Much like the committed period/uncommitted period distinction, the need for end-use modeling as a demand forecasting platform is a legacy from a pre-CPUC goals decision era. In the current era energy efficiency gains that are to be included in long-term planning are decided in the proceedings in which parties (including the CEC, CPUC, IOUs and a host of other stakeholders) review the scenarios from the potential studies and collectively determine what the targets should be, and these targets are subsequently codified in CPUC decisions. As the IOUs/POUs explained in the DFEEQP meetings, historic energy efficiency savings and adopted goals can easily be included in econometric demand forecasting models and produce forecasts that are timely, transparent and verifiable by outside parties. Rather than spending the enormous amount of time and resources that are currently being spent on the end-use forecasting model, those same resources could be better spent in developing a consistent history of energy efficiency savings and producing a historic and forecast "energy efficiency index" that incorporates the currently adopted goals. This index could then be used in an econometric based forecasting platform. PG&E's understanding is that this is something that Itron has some experience with using the DOE/EIA end-use modeling results and what Itron calls the Statistically Adjusted End-Use (SAE) forecasting platform. As PG&E indicated in the DFEEQP meetings, PG&E supports the creation of a California Users Group to work with Itron and other stakeholders to explore whether such an energy efficiency index could be crafted for California and the IOUs as a regular part of the potential studies and goal setting analysis.

6. **The staff demand forecast analyses and the energy efficiency studies of both potential savings and expected savings from hypothetical programs are highly complex topics. Transparency, constructive criticism, collaborative projects, etc. are means by which stakeholders can engage in the details and improve analytic products compared to efforts by staff alone. What might serve as a workable standard of transparency to satisfy the legitimate concerns of stakeholders and policy makers? What elements would be critical? How might it be created? Given the current absence of such a standard, does the published documentation satisfy such legitimate concerns?**

PG&E does not believe that the published documentation satisfies the concerns of transparency and verifiability that are required to achieve both understanding and consensus around such important analysis. While the published documentation generally focuses on the results of the analysis and secondarily the inputs, rarely does the documentation describe how the inputs were treated within the modeling structure in order to produce the outputs. This is understandable since the modeling platform being used includes literally thousands of interaction variables, and it is the aggregate of all those interactions that produce the results. Furthermore, because of the complexity of the modeling framework, apparently even the model builders themselves are unsure exactly what has caused the results that they see.

PG&E suggests that a minimum standard for any analysis that is to be used for such an important purpose is that it can be replicated by third parties. This is consistent with all scientific analysis whether in the hard sciences or the social sciences. Results of studies and analysis must, at a minimum, be replicated before they can be validated. Of course, parties may still disagree with the results and propose competing models that they believe are more accurate but replication is the minimum standard. Replication and verifiability is also the standard the CPUC has established in most proceedings. When a party puts forth a demand forecast in a CPUC or FERC filing, that model must be constructed such that a third party, with reasonable effort and expertise, can replicate and thereby verify the results of modeling efforts. As suggested in the response to question 5, above, the most expedient way to do this without giving up forecasting accuracy is for the CEC staff to move to an econometric based forecasting platform.