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California Energy Commission
Dockets Office, MS-4
RE: Docket No. 09-IEP-1C
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Docket Number 09-IEP-1C:
2009 Integrated Energy Policy Report (IEPR) Electricity Demand Forecast

To Whom It May Concern:

Southern California Edison (SCE) appreciates the opportunity to provide comments on the February 17, 2010 California Energy Commission (Energy Commission) Joint IEPR and Electricity and Natural Gas Committee Workshop on Incremental Impacts of Energy Policy Initiatives Relative to the Adopted Demand Forecast. SCE would like to thank Energy Commission Staff, California Public Utilities Commission (CPUC) Staff, Itron, Inc. and the stakeholders in the Demand Forecast Energy Efficiency Quantification Project (DFEEQP) Working Group for their efforts in this study.

The CEC Energy and Demand Forecast estimates electricity and gas consumption, peak electricity demand for California as a whole, and peak electricity demand for each major utility planning area within the State. This forecast will be used in a number of forums, including the California Public Utilities Commission (CPUC) 2010 procurement process, California Independent System Operator (California ISO) controlled grid studies, other transmission planning studies, and electricity supply-demand assessments. As such, this forecast is a critical input in the development of the California electricity system resource portfolio and forms the basis for many State policy decisions. Because of the potential impacts of these policy decisions, it is important that the forecast be developed in a manner that creates an accurate picture of future need in California. Since achievement of statewide policy objectives is so important, realistic planning to meet those objectives is equally important.

Both CPUC and CEC Staff recognize the importance of the Energy and Demand forecast, and have led a major effort to improve the measurement and attribution of efficiency impacts within the energy demand forecast. Those efforts culminated in the CEC draft report, *Incremental Impacts of Energy Efficiency Policy Initiatives Relative to the 2009 Integrated Energy Policy Report* (Draft Report). The Draft Report correctly states:

> In general, decision makers must consider the implications of efficiency-induced projections of very low or even negative energy and peak demand growth through 2020…. If decision makers postpone decisions to invest in supply-side resources and energy efficiency fails to deliver as forecasted, then serious reliability (and cost) consequences could result, unless such shortfalls have been anticipated and contingency actions identified.[1]

This summarizes SCE's concerns well. Unless there is a sufficiently wide range of potential energy efficiency results reflected across the various forecast scenarios, decision makers will not have the information necessary to identify contingency plans for dealing with a shortfall or delay in achieving energy efficiency goals. With that in mind, SCE identifies two major concerns regarding the incremental uncommitted forecast contained in the Draft Report. First, the ability to achieve any of the established scenarios is highly uncertain, as highlighted by the numerous caveats to the Draft Report. Staff should develop at least one scenario based on conservative and reasonably certain assumptions for resource planning purposes. Second, the Draft Report's incorporation of unvetted assumptions that dramatically change the outcome at the end of the process without sufficient opportunity for review or input by stakeholders, further casts into doubt the reliability of the forecast. Consequently, SCE cannot support using the resulting estimate of demand savings from the incremental uncommitted energy efficiency forecast for resource planning purposes.

Forecast Uncertainties

The *Incremental Impacts of Energy Efficiency Policy Initiatives Relative to the 2009 Integrated Energy Policy Report Adopted Demand Forecast, Attachment A - Technical Report*[2] (Technical Report) includes many caveats in the assumptions used for the new programmatic activities. Specifically, the Technical Report identifies significant uncertainties in the assumptions used to generate energy and demand savings for Big, Bold Energy Efficiency Strategies (BBEES), AB 1109 (the Huffman Bill), and Codes & Standards.

In the case of the BBEES, the Technical Report caveats include the following:

- "[N]o specific delivery mechanisms currently exist."[3]

- "[R]egardless of the assumed delivery mechanism, achieving the specific market penetration rates for ZNE [Zero Net Energy] new construction reflected in the BBEES targets requires, by the CPUC's own characterization, 'an aggressive and creative action plan.' Relative to IOU programs, Title 24, the AB 1109 lighting standards, and federal appliance standards, therefore, it is reasonable to describe

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1 Incremental Impacts of Energy Efficiency Policy Initiatives Relative to the 2009 Integrated Energy Policy Report, Draft Staff Report, CEC 200-2010-001-D, p. 52.

2 Incremental Impacts of Energy Efficiency Policy Initiatives Relative to the 2009 Integrated Energy Policy Report Adopted Demand Forecast, Attachment A: Technical Report, CEC 200-2010-001-ATA.

3 *Id*., p. 68.

> the outcomes associated with the BBEES initiatives for ZNE homes and buildings as highly uncertain."[4]

- "[T]he current estimates of total incremental uncommitted peak demand savings are highly sensitive to one's expectations about whether and to what extent the BBEES targets can be achieved."[5]

The BBEES represent a significant departure from the current incentive-based voluntary programs that comprise the vast majority of the current IOU program portfolios or current procedures and mandates that govern Title 20 and Title 24.[6] The cross jurisdictional nature of the BBEES new construction initiatives makes it difficult to forecast potential savings attributable to particular actors or program mechanisms.[7] Relative to IOU programs and State/Federal codes and standards, the outcomes of the BBEES are characterized by Itron as highly uncertain.

Although the BBEES forecast includes a "relatively modest share of total incremental uncommitted energy savings by 2020 (approximately 20%), the BBEES represent nearly half of total, uncommitted peak demand savings."[8] The fact that nearly half of the incremental uncommitted peak demand reductions is represented by an untested EE savings mechanism with significant uncertainty exposes customers to unacceptable reliability and cost risks. Given this high level of uncertainty, it would be more prudent to evaluate a scenario with lower energy efficiency levels. In particular, a lower efficiency scenario should incorporate lower penetration rates for BBEES because of the high levels of uncertainty associated with these strategies and their significant impact on peak demand reduction.

While achievement of the forecast savings related to the Huffman Bill, AB 1109, involve less risk than the BBEES, the assumptions concerning compliance are still speculative, as acknowledged in the Technical Report:

> Currently, sufficient market data is not readily available that allows the residential and commercial lighting market to be reasonably segmented according to lumen output. As such, Itron was not able to directly estimate the expected temporal dynamics associated with the new lighting standards, particularly over the period covered by the interim standards, and relied on indirect proxies and simplifying assumptions.[9]

Finally, the savings attributed to Building Codes and Appliance Standards includes savings from "IOU code compliance programs."[10] These programs are intended to minimize noncompliance with Title 24 in the residential new construction segment, and the incremental EE analysis performed by Itron includes scenarios that estimate energy savings from these IOU

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4 *Id*., p. 68.
5 *Id*., p. 69.
6 *Id*., p. 68.
7 *Id*., p. 22.
8 *Id*., p. 69.
9 *Id*., p. 66.
10 *Id*., p. 29.

programs. The Technical Report correctly notes that "[c]urrently, the IOUs do not administer any programs focused on increasing compliance with Title 24 in the new construction segment."[11] Although no comprehensive approach to increase codes and standards compliance rates currently exists in the State of California, the CPUC recently approved the funding for a Statewide Codes and Standards Compliance Enhancement subprogram for the 2010 – 2012 budget cycle. The IOUs are currently collaborating on developing a series of role-based code compliance training workshops that will target building officials, plan examiners, energy consultants and other specific audiences. In addition, the IOUs are preparing a White Paper that will address evaluation measurement and valuation issues for this new subprogram. Until this White Paper is reviewed and vetted by the CEC and CPUC, any forecast savings estimates attributed to the Compliance Enhancement subprogram should be very conservative.

SCE recommends performing additional scenario cases that reflect the risk associated with the uncertainties outlined above. This would provide important information for decision makers by demonstrating the potential impacts of the uncertainties.

Reliance on Unvetted Assumptions

The starting point for the incremental uncommitted EE forecast ("uncommitted forecast") was the CPUC's 2008 EE Total Market Gross (TMG) goals established in D.08-07-047. Adjustments to the assumptions in the inputs to the forecast of EE demand savings, however, have significantly changed the savings results causing them to deviate substantially from the TMG goals. These adjustments were made very late in the process and therefore were not completely vetted by the DFEEQP stakeholder working group. For meaningful stakeholder review, it is imperative that Staff's forecasting methods be fully transparent. All stakeholders should have an opportunity to review and comment on assumptions that significantly affect results. The uncommitted forecast energy savings from the mid-case scenario is largely consistent with TMG goals. SCE's 2020 cumulative energy savings from the uncommitted forecast is 5,900 GWh[12] as compared to 6400 GWh for the TMG goals. However, the peak demand reduction in the uncommitted forecast deviates significantly from the TMG goals. The mid-case scenario cumulative demand savings is approximately 1,000 MWs higher than the established TMG goals for SCE in 2020.

The difference in peak demand savings results from a change to the peak-to-energy ratio assumption. Instead of using the peak-to-energy ratio from the 2008 Goals Study,[13] Staff relies on the peak-to-energy ratio for 2009. This change greatly impacts SCE, as shown in the Graph below.

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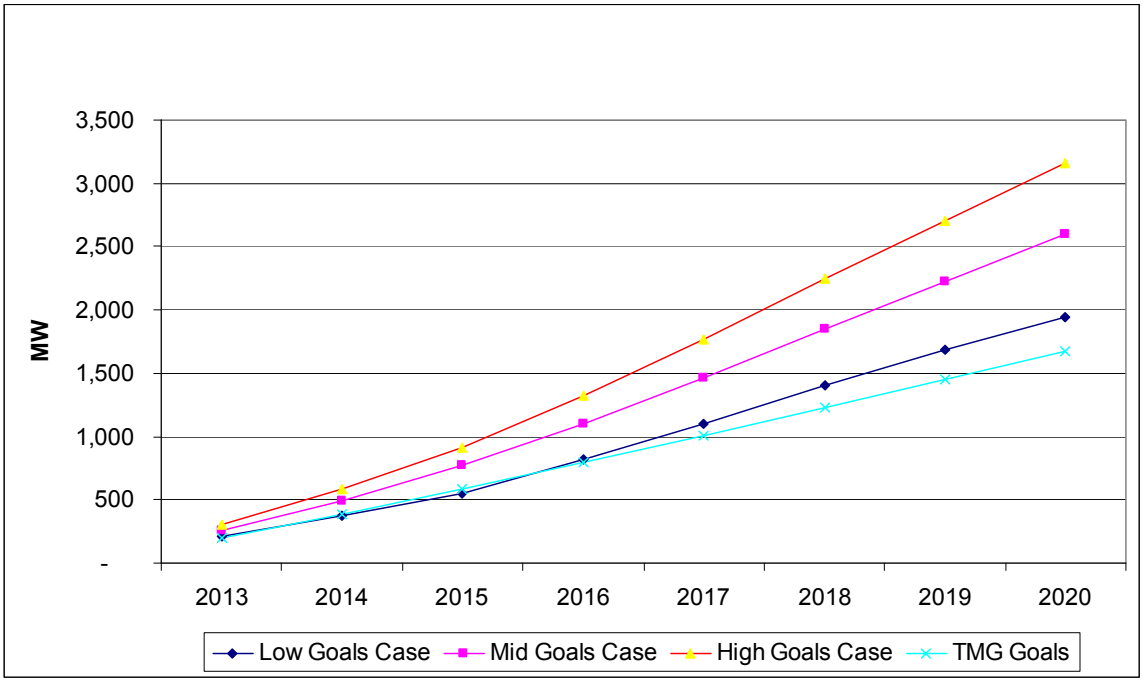
11 *Id*.

12 *Id*., p. 153, Table 8-7.

13 Assistance in Updating the Energy Efficiency Savings Goals for 2012 and Beyond, Task A.4.1 Final Report: Scenario Analysis to Support Updates to the CPUC Savings Goals; Itron, Inc., March 24, 2007, available at: http://www.cpuc.ca.gov/NR/rdonlyres/D72B6523-FC10-4964-AFE3-A4B83009E8AB/0/GoalsUpdateReport.pdf.

Incremental Uncommitted Peak Demand Savings for SCE (MW)[14]



Using the uncommitted study's mid-case scenario results, the total peak demand growth estimated in the 2009 IEPR demand forecast between 2012 and 2020 is zero. [15] In comparison, SCE's annual peak demand growth rate for 2013 – 2020 averages approximately 1% after considering the effect of the CPUC's adopted TMG goals. SCE recommends that Itron run an additional mid-case scenario using the same peak-to-energy ratio from the TMG goal analysis. Running the additional recommended scenario would inform the current process by quantifying the potential risks related to uncertainty in the achievement of program goals and identifying the impact of changing the peak-to-energy ratio assumption. This information would be useful for decision makers to balance options before rendering statewide policy decisions.

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14 *See* Technical Report, p. 150, Table 8-3 (Low Goals Case), p. 153, Table 8-7 (Mid Goals Case), Technical Report, p. 156, Table 8-11 (High Goals Case); D.08-07-047, Appendix: IOU Individual Service Territory Goals for 2012-2020, p. 3 (TMG). Note that SCE recalculated its TMG to start in 2013 for purposes of comparison to the CEC uncommitted forecast period.

15 *Id*.

Responses to the questions posed by Staff are enclosed. Should you have any questions or need additional information about these written comments and responses to questions, please contact me at 916-441-2369.

Very truly yours,

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Enclosure

Questions for Stakeholders

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?

Questions remain regarding the overlap issue. Staff and their consultants have performed a rigorous analysis in an attempt to quantify future levels of incremental uncommitted energy efficiency. However, they have not separated the impacts of removing overlap from assumption changes, so it is not possible to actually identify the amount of overlap between the committed savings in the Energy Commission forecast and uncommitted savings that were identified by Staff and their consultants.

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?

Although the scenario analyses are defined similarly to the policy initiative groupings used in the 2008 Goals Study, they are not sufficiently consistent with the quantitative results of the 2008 Goals Study. Specifically, the Mid-Case scenario in the Itron Technical Report does not reflect the Total Market Gross (TMG) energy efficiency goals adopted in D.08-07-047, which were based on the Mid-Case Scenario. The IOUs were ordered to use 100% of the TMG goals in future long-term procurement planning proceedings.[16] *For the Low and High scenarios to be truly meaningful, they should be defined relative to the adopted TMG goals. Consequently the Low and High scenarios, as currently defined, are not relevant. Further, the current High and Low scenarios do not reflect the full level of uncertainty portrayed in the caveats in the report. For example, given the uncertainty associated with the BBEES, there should be a scenario that reflects lower penetration assumptions than those used in Itron's current Low Scenario.*

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 staff report and its appendices provide a substantial amount of detail. However, much of this detail is in the form of "data," rather than "information." Additional explanations are still needed regarding the application of this detailed data. For example, more information is needed regarding the peak-to-energy

[16] D.08-07-047, Ordering Paragraph 3.

ratio calculations. In addition, comparisons with the assumptions in the CEC's Energy and Demand Forecast should be performed to assess the reasonableness and consistency of the results.

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?

To a large degree, the technical uncertainties reflect the policy uncertainties. These uncertainties are well described by Staff and Itron in the Staff Report and Technical Report, respectively. To better guide policymakers, additional analyses should be undertaken to quantify the uncertainty associated with the incremental uncommitted EE forecast, for example, by expressing it as a probability-of-occurrence or realization rate. Additional scenarios should be developed that reflect the uncertainty bands resulting from these analyses.

5. The staff report and the Itron Attachment identify replacement savings from decay of committed programs as an analytical issue for the CPUC to address. Is the concept of savings lost through measure decay sufficiently described for the CPUC to understand the choices it must consider about savings decay with respect to cumulative goals?

No, sufficient description has not been provided for the CPUC to thoroughly understand the appropriate treatment of measure decay. In addition to the treatments of decay presented in the Staff and Technical Reports, SCE recommends that for long-lived measures, "decay" should be considered a transition from EE programs level savings to appliance and building standard savings which are significantly higher. As a result, EE savings from these long-lived measures will not decay. For shorter-lived lighting measures, Federal and state standards will supplant lighting savings from IOU rebate programs so, once again, total energy savings do not decay.

It could potentially be beneficial for CPUC and CEC policymakers or Staff (or their consultants) to show how much future savings from appliance and building standards are due to replacement of previously rebated equipment. An analysis of this issue would help clarify whether the concept of decay as applied to EE savings is accurate or if it causes EE savings to be unnecessarily understated.

6. 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?

Steps that could be taken to improve the consistency of future EE savings estimates include:

1. *Eliminating the distinction between committed and uncommitted EE. While this distinction was relevant when it was originally developed, the policy direction for energy efficiency is much different today. Energy efficiency is the cornerstone of all major energy policies and strategies in California, and the IOUs have energy efficiency goals that extend to 2020. There is little value in maintaining what is an increasingly artificial and outdated distinction between committed and uncommitted energy efficiency.*
2. *Using the same end-use forecast model for calculating energy savings in the load forecast (CED) and for calculating incremental EE. Models that would enable contemporaneous and integrated end- use forecasting of energy consumption and energy efficiency savings would eliminate many of the problems that have been examined by the DFEEQP Working Group.*

7. 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?

*As part of the standard process, Staff should vet and strive to obtain stakeholder concurrence for all technical and policy assumptions **before** the final analysis is completed. While the DFEEQP Working Group was able to review **most** of the technical and policy assumptions used to develop the incremental uncommitted EE forecast, some of these assumptions (e.g., peak-to-energy ratios) were not available until after the analysis was completed. Unless there are funds in the project budget for additional analysis by Itron, there would appear to be no opportunity for further examination of potentially significant issues identified by DFEEQP stakeholders during the review process.*

What elements would be critical?

Critical elements to ensure adequate transparency include:

- *Consistency with goals: As described in SCE's response to Question #2, there should be consistency with the CPUC's adopted EE goals in determining the "base case" for analysis. Any additional scenarios evaluated should be relative to the adopted EE goals.*
- *Managing uncertainty: As described in SCE's response to Question #4, to better guide policymakers, additional analyses should be undertaken that quantify the uncertainty associated with the incremental uncommitted EE forecast, for example, by expressing it as a probability-of-occurrence or realization rate. Additional scenarios should be developed that reflect the uncertainty bands resulting from these analyses.*
- *Longer review cycle: The effectiveness of the vetting process would be greatly enhanced by using a longer review cycle. The brevity of the review period and the limited opportunity for Q&A with CEC and Itron Staffs led to incomplete understanding of the input data and analytical results.*

How might it be created?

The DFEEQP Working Group should be maintained going forward. The Working Group should provide guidance regarding future analyses and should review future work in progress. The Working Group should look for opportunities to increase the transparency of future analyses, including providing access to data and models used by CEC and CPUC Staffs and their consultants.

Given the current absence of such a standard, does the published documentation satisfy such legitimate concerns?

No, the published documentation does not fully satisfy these concerns. While the published documentation is thorough and addresses many areas in sufficient detail, it is not complete. As described in SCE's response to Question #3, the staff report and its appendices provide a substantial amount of detail. However, much of this detail takes the form of "data," rather than "information." Additional explanations are still needed regarding the application of this detailed data. For example, more information is needed regarding the peak-to-energy ratio calculations. In addition, comparisons with the assumptions in the CEC's Energy and Demand Forecast should be performed to assess the reasonableness and consistency of the results.