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To: California Energy Commission
From: Carmen Best, Energy Division Staff, California Public Utilities Commission, Prepared by Carmen Best, Senior Regulatory Analyst Energy Efficiency
Subject: California Historical Energy Efficiency (Investor-Owned Utility Programs)

Stakeholder Pieces

1. Introduction – EE History: Why is the issue important? – All

An accurate record of the historic accomplishments of energy efficiency in the state is important to the extent that the history informs future savings expectations or the persistence of these savings in future years to meet savings goals. The value of the information is less important as the analysis stretches back in time because the continued availability of those savings is so small it is not likely relevant to either of these questions.

2. Which version of the "utility EE program history" information should be used for IOU programs (*ex ante* reported, *ex post* evaluated, an estimate of *ex post* evaluated prepared by CEC, other?) -- All

The "version" of history that should be used should be compiled of the best available information for any given time period. The criteria for best available should consider the detail necessary, the completeness, and reflecting field-based research on the likely savings achieved. In an ideal world, evaluated results for every program (or portfolio) implemented would be on record with an expected savings for the lifetime of the measures that were installed during that period or the actions that were taken during that period. This type of detailed, complete, and evaluated result is not available prior to the 2006-2008 program cycle (though there is some compiled evaluation information available for 2004-2005). In lieu of such data it is appropriate to use reported savings for any given program period as the basis of an estimate, and applying professional judgment to adjust those savings may be appropriate based on available evidence from that time period's evaluation results. It is generally not appropriate to arbitrarily assign evaluation adjustments to vintages of savings for which the evaluation was not conducted, unless there is a strong case that the programs, market conditions, and implementation strategies were essentially equal.

This approach is in keeping with current CPUC policy as articulated in D 10-12-049 December 16, 2010. Here the Commission affirmed the importance of adjusting utility-reported savings when using those estimates for purposes such as demand forecasts that affect supply-side planning:

For purposes of determining the actual impacts of energy efficiency programs in reducing demand and obviating the need for supply side resources, it is clearly incumbent on the Commission to update the assumptions used to quantify the impacts of the utilities' efforts. Because the actual impacts of energy efficiency play a key role in determinations of supply side resource need, it would be inappropriate to assess savings achieved from energy efficiency based on outdated assumptions in this context (p. 33).[1]

2a. Should there be additional effort to compile a more refined EE program history beyond that contemplated by CEC staff and described above?

Compiling a more refined estimate of energy efficiency program history would provide marginal benefits to the accuracy of the forecast, and would take a significant effort on the part of CEC, CPUC, and IOU staff. Annual savings that were achieved in the years prior to 2000 are small relative to more recent portfolio efforts. For the achieved savings, an even smaller portion would still persist today and affect current demand. Furthermore, some of these savings are already accounted for in the increasing baseline efficiency through improved codes and standards and the naturally occurring customer actions within the forecast. Parsing out attribution or the incremental elements of the forecast and the savings estimates is even more difficult for past savings than for current and forecast savings.

2b. If yes to 4a how should the information be compiled if it does not already exist? Please be very specific about who should do this work, how will policy decisions about what "counts" or does not "count" be made, estimate how much time it will take (or how much time is appropriate to spend), what sources will be used, how this information would be used in the IEPR and *what the value of additional work beyond that currently contemplated by CEC would be. Please describe for each of the following program eras – All*

- Pre-1990
- 1990-1993
- 1994-1998
- 1998-2001
- 2002-2005
- 2006-2008+9

3. The traditional EE categories for the historic period are: building codes, appliance standards, program effects, and naturally occurring

[1] California Public Utilities Commission. Decision 10-12-049 December 16, 2010. http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/128879.htm

conservation. How specific should the write-up be about attribution between these categories and why? -- All

3a. Which savings categories should be included and why?

The categories of building codes, appliance standards, energy efficiency program effects and naturally occurring conservation should be included to the extent that there is a reasonable source for estimating the impact. The effects of building codes, appliance standards and program effects are the most clearly delineated in the historic period. Naturally occurring conservation is less concrete and therefore methodologies to include that effect should be carefully considered with respect to how they overlap with other effects.

3b. Should a new category, "market effects" be included, if so why, and if so, how should these effects be estimated?

Including this effect would depend on how it is defined and whether or not it is quantifiable. For the historic EE record there is no clear source for an estimate, and the ability to isolate this effect from the other savings would be very difficult, and may already be captured in the models (depending on definition).

3c. How should the impacts of programs vs. standards be portrayed – in tabular form and visually?

Program impacts should be portrayed as distinct from standards. Program activities and outcomes are the responsibility are generally within the control of the utilities that implement them. While standards are "advocated" by these entities they represent very different means of improving efficiency in the state. IOU programs already report savings separately from codes and standards.

4. The CEC's proposal is to characterize the effects of the 2006-2008 programs using the CPUC/ED's *ex post* evaluated results. Should the CEC use the *ex post* evaluated results or some other characterization of 2006-2008 programs? If some other characterization is proposed, please describe the characterization and the rationale for using it. -- All

Energy Division supports the use of evaluated energy efficiency savings results in procurement planning and forecasting efforts when the information is available. Evaluation-based estimates provide a more accurate reflection of the savings that were achieved for the time period and the likely impacts of the installed technologies over their lifetime, rather than planning assumptions. [For more detail see formal comments submitted by the CPUC Energy Division to the IEPR proceeding filed 5/13/2011.]

5. CEC is proposing to characterize the current 2010-2012 program cycle in three scenarios to characterize 2010-2012 programs:

- **Low EE impacts:** Applying 2006-08 CPUC/ED EM&V "realization rates" to the IOU program plans
- **Mid EE impacts:** 2009 IEPR adjustments to 2010-2012 programs
- **High EE impacts:** IOU forecast results for 2010-2012

For 2010-12 and beyond should there be a deterministic estimate or scenarios? If scenarios, should they differ from CEC's proposed scenarios, and if so, how and why -- All

Presenting the estimated savings for the 2010-2012 program cycle in the proposed scenarios is an appropriate approach to reflect and compare the possible outcomes and policy direction. Since these programs include many elements that are carried over from the 2006-2008 program cycle it may be appropriate to apply realization rates, however this would only be appropriate with careful review of the program and technology similarities. A portfolio level application of 'realization rates' would not be appropriate or accurate.

8. Forecast results for energy efficiency are sensitive to assumptions about "decay" – how energy efficient measures are replaced at the end of their useful life. What percent are replaced with non-efficient technologies? With equally efficient technologies? With more efficient technologies? What additional information would be required to improve treatment of decay in the CEC staff forecast? -- All

CPUC Staff will be conducting a decay study as part of the 2010-2012 evaluations but this study has not yet been scoped. It could potentially cover any of the research questions of what typically replaces a rebated measure. Market studies that inform the knowledge of available technologies upon replacement would also help develop these estimates. In lieu of that information, the CEC should use the policy assumptions for IOU programs (of 50% retention of the savings) for their modeling of the likely energy efficiency impacts.

9. Add any additional information desired – All