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11-IEP-1C

DATE May 18 2011

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Chair Robert Weisenmiller and Commissioner Karen Douglas
California Energy Commission
1516 9th Street
Sacramento, CA 95814

RE: Comments on CEC's Estimates of Energy Efficiency in the Demand Forecast

Dear Chairman Weisenmiller and Commissioner Douglas:

On behalf of the California Energy Efficiency Industry Council, I write to offer our perspective on the California Energy Commission's (CEC) estimates of energy efficiency savings in the demand forecast to be considered within the 2011 Integrated Energy Policy Report (IEPR) at the May 25, 2011 Staff Workshop. We appreciate the opportunity to offer these comments and commend the CEC staff for its ongoing efforts to accurately summarize the impacts of California's historical and ongoing energy efficiency activities.

The Efficiency Council is a statewide trade association of non-utility companies that provide efficiency products and services in California. Our member businesses, now numbering over 50, employ over 4,000 Californians throughout the state, and they include energy service companies, engineering and architecture firms, contractors, implementation and evaluation experts, financing experts, workforce training entities, and manufacturers of energy efficiency products and equipment. The Efficiency Council's mission is to support appropriate energy efficiency policies, programs, and technologies that create sustainable jobs and foster long-term economic growth, stable and reasonably priced energy infrastructures, and environmental improvement.

California's more than three decades of energy efficiency policies and programs have saved Californians millions of dollars through reduced energy bills, reduced the demand for additional electricity generation and transmission capacity, and supported a thriving sector of the clean economy that continues to grow at a pace well above the state average by employing out-of-work Californians and driving the economic recovery. The CEC's estimates of energy savings are one of California's central avenues to illustrate the state's historic energy efficiency accomplishments through a variety of approaches. California must continue its leadership in innovative energy policy and uphold energy efficiency as the state's top priority resource.

Concerns with Significant Changes to CEC Representation of Historical Energy Efficiency Savings

The Efficiency Council strongly urges the CEC to be extremely cautious as it works to update its past estimates of historic energy savings, and to be keenly aware of the broader policy implications of doing so. While we support ongoing efforts to more accurately summarize the impacts of California's historical and ongoing energy efficiency activities, the Efficiency Council has the following concerns about the energy efficiency savings estimates presented thus far in the CEC's updates to the energy efficiency savings impacts:

- Energy efficiency savings attributed to efficiency programs were drastically reduced between the 2005 and 2009 CEC IEPR reports (see Attachment A for further background) without a clear explanation of the methodology used to arrive at these radically different figures.
- The more recent estimates of energy efficiency savings resulting from utility programs are incommensurate with estimates from the CPUC and from neighboring regions that share a similar history for energy efficiency.
- The revised graphical depiction of the sources of energy savings, which previously showed roughly equal wedges for historic savings from utility programs and codes and standards, is highly misleading in its seeming replacement of the majority of the utility program savings wedge with “naturally occurring savings.” This change from previous depictions of this graph stands to be extremely confusing to the public, both inside and outside of California. The more recent graph does not promote confidence in the relative contribution of each source of efficiency savings, while both are essential components of California’s energy efficiency policy.

Ultimately, the Efficiency Council is very concerned about the underlying message, or perceived message, of the most recent CEC graph of historical energy efficiency impacts. Without further explanation of what “naturally occurring savings” may mean, the graph risks implying to the casual observer that a laissez-faire approach to energy efficiency, in which efficiency programs are unnecessary, is significantly more effectual than sustained investment in efficiency programs to overcome market barriers to wide-spread adoption of energy efficiency. This argument is diametrically opposed to an abundance of academic literature that describes the various market failures associated with energy efficiency, and the need for policy and program invention to address them.¹ In addition, the conclusion that efficiency programs are unnecessary, which some may reach after seeing the revised graph, is contrary to the experiences of our member companies who have found their programs to be successful in motivating customers to make energy efficiency improvements and providing substantial energy and bill savings to those customers.

Recommendations

- The Efficiency Council recommends that the Commission consider presenting a single total estimate of energy savings produced from the Demand Forecast model, since the current model may not be well suited to identify and parse the causes (utility programs versus price effects versus standards) associated with these savings categories. The Efficiency Council strongly supports the staff recommendation to present a sum of the total historical savings from all categories.²
- However, if the CEC wishes to present a parsed energy efficiency savings impact graph by type of savings as the staff also recommends, the Efficiency Council recommends that the CEC do so in a highly transparent and clear manner within the report. We recommend that the Commission provide confidence intervals for these individual savings estimates and acknowledge key methodological issues,

¹ Two resources include:

Sweeney, James (2010). Webcast on *Energy Efficiency and Renewables: Market and Behavioral Failures* (http://www.youtube.com/watch?v=Uvitql8CQv4&feature=player_embedded_)

Golove, William and Joseph Eto (1996). *Market Barriers to Energy Efficiency: A Critical Reappraisal of the Rational for Public Policies to Promote Energy Efficiency*. UC Berkeley.

² CEC Draft Staff Paper (May 2011). “Efficiency Programs: Incorporating Historical Activities into Energy Commission Demand Forecasts.” CEC-200-2011-005-SD.

including price and program entanglement effects, as discussed in greater detail in Attachment A. Without careful analysis and presentation of conclusions, the results can be inappropriately construed when interpreted for policy purposes.

It is critical that the Commission carefully consider the broader implications of any changes from its past practice in its depictions of impacts of energy efficiency savings from various approaches. The Efficiency Council is grateful for the Commission's attentiveness to this issue and is committed to supporting the development of sound and accurate estimates of California's energy efficiency savings that will ensure that California remains the leader in effective, innovative, and sound energy efficiency policy.

Thank you for your consideration of our views.

Sincerely,

A handwritten signature in black ink, appearing to read "Audrey Chang". The signature is fluid and cursive, with the first name "Audrey" written in a larger, more prominent script than the last name "Chang".

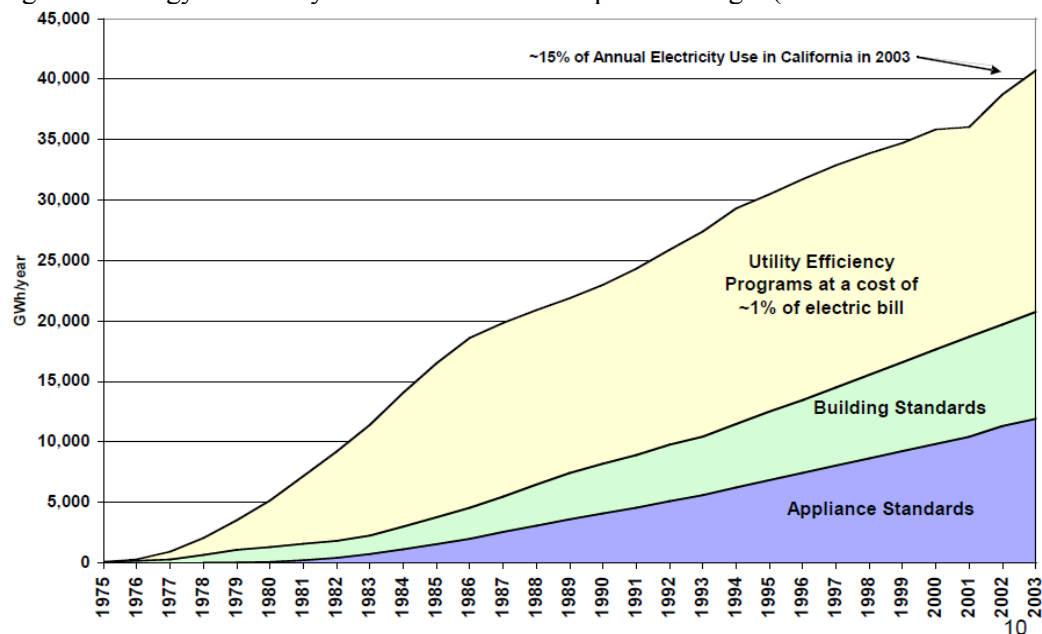
Audrey Chang
Executive Director

ATTACHMENT A: KEY ISSUES AND CONCERNS REGARDING CEC DEMAND FORECAST

Context

For reference, below are the 2005 and 2009 CEC publications of historical program savings. Figure 1 depicts the graph that was used for the years leading up to IEPR 2009. The figure does not disaggregate naturally occurring savings from efficiency programs. These numbers are consistent with estimates from our Northwest counterparts, who have shared similar commitments to efficiency programs and codes and standards work over the decades, as depicted by Figure 2.

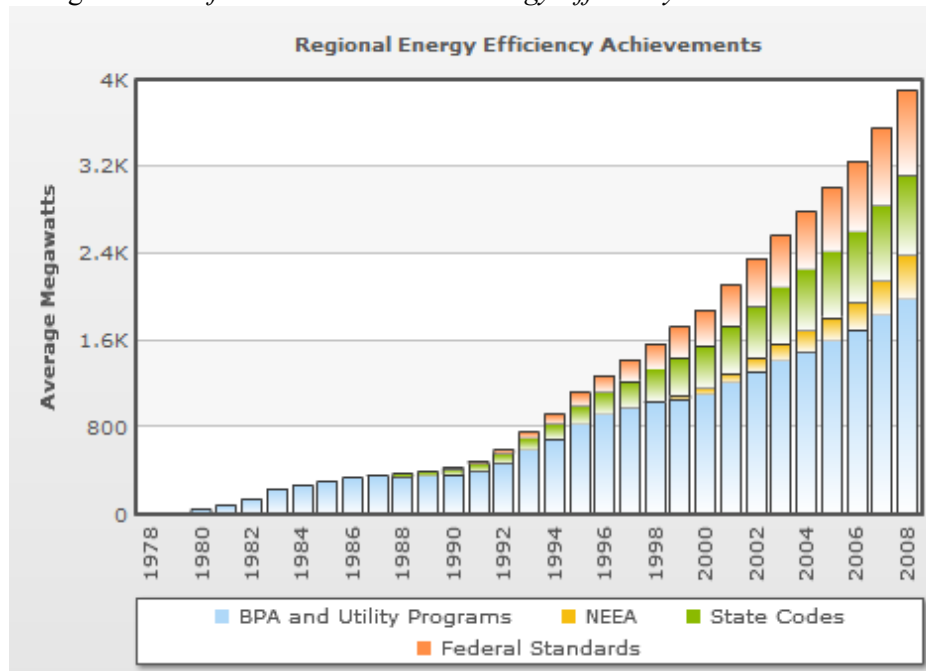
Figure 1. Energy Efficiency/Conservation Consumption Savings³ (2005 CEC Publication)



In Figure 2, the Northwest Energy Conservation Council (NECC) attributes regional energy efficiency achievements to various categories. In comparing these two charts, California utilities were credited with contributing 42% of total savings while the northwest utilities were credited with contributing about 50% of total savings in Figure 2. The similarity in results seems reasonable given the similar shared commitment to and history of energy efficiency programs.

³ California Energy Commission. "Implementing California's loading order for electricity resources. CEC-400-2005-043" July, 2005. P12: www.energy.ca.gov/2005publications/CEC-400-2005-043/CEC-400-2005-043.PDF.
High resolution version taken from: <http://www.energy.ca.gov/2008publications/CEC-999-2008-032/CEC-999-2008-032.PDF>

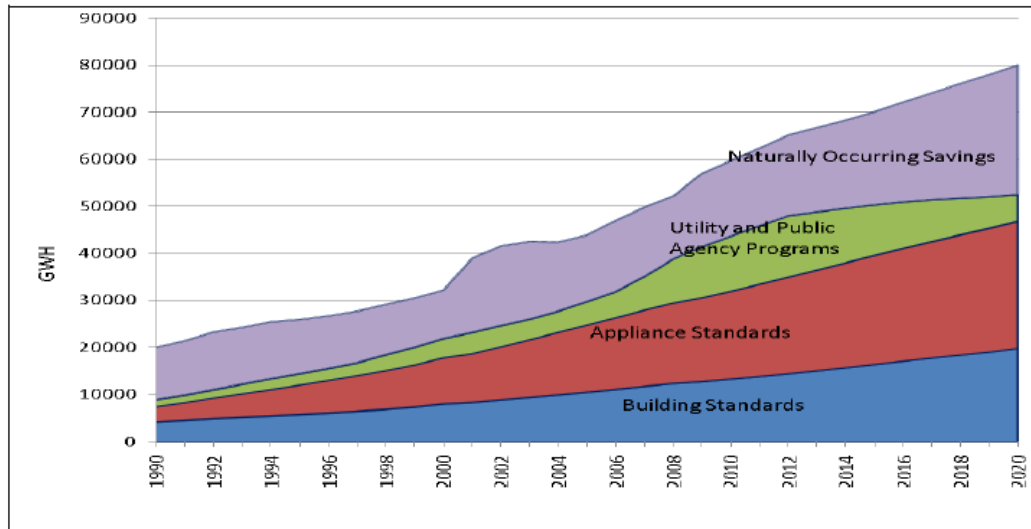
Figure 2: *Pacific Northwest Annual Energy Efficiency Achievements*⁴



Thus, it is disconcerting that the CEC's revised graph released in the 2009 CEC Demand Forecast publication would radically diverge from these results, as depicted in Figure 3. Here, the graph reflects savings attributed to a new category of savings due to naturally occurring causes, which is implied to be mutually exclusive to the original categories but also seems to drastically reduce utility program contributions.

⁴ <http://www.nwcouncil.org/library/2010/2010-08.htm>

Figure 3 *Energy Efficiency/Conservation Consumption Savings (2009 CEC Publication)*⁵

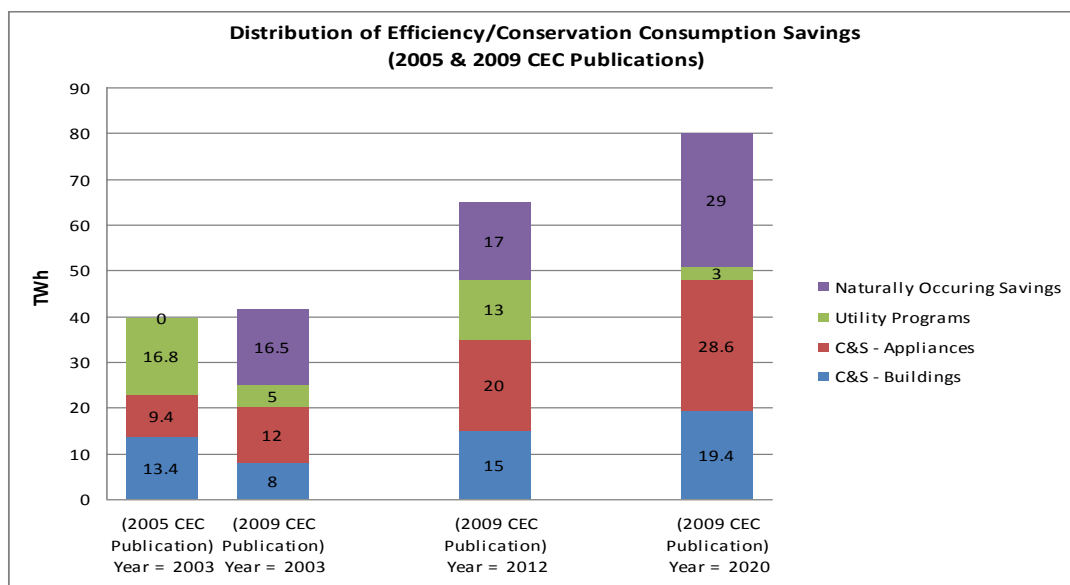


Source: California Energy Commission, 2009

Figure 4 captures the dramatic reduction in both historic and future programmatic savings. In comparing the 2005 and 2009 CEC publications for the year 2003, one can see that **savings attributed to efficiency programs decreased from 42% of the total to just 12% of the total; this is a 75% reduction in savings attributed to programs**. Likewise, projections from the 2009 publication reduce program impacts down to just 4% of the total in 2020, while naturally occurring savings account for 36% of the total.

⁵ Kavalec, Chris and Tom Gorin, 2009. California Energy Demand 2010-2020, *Adopted Forecast*. California Energy Commission. CEC-200-2009-012-CMF

Figure 4. Difference in Distribution of Savings



Issues Warranting Concern

Modeling Demand vs. Identifying Causes of Savings

The Efficiency Council is concerned that this dramatic reduction in utility program impacts could be inaccurate due to the modeling methodology. Significant portions of savings previously attributed to voluntary utility programs were removed from the model without consistent justification. The CEC's Demand Forecast model is designed to forecast California's electricity demand, but we are concerned that it may not be equipped to make assertions about the underlying causes of historical demand levels. To increase the model's transparency, we recommend that the CEC perform sensitivity analyses to identify the variables that most significantly impact the relative magnitude of energy savings attributed to each of the categories. In addition to sensitivity, we also recommend tests that would check the robustness of the model's outputs. For instance, does the model output different results depending on the order in which variables are manipulated in the model? While we are confident in the modeler's capabilities and commend them for the work they've done, we feel that these recommendations will help all invested parties understand the model's capabilities, functionality, and validity of outputs more thoroughly.

Entangling other Causes for Savings with Program Efforts

In the 2009 Demand Forecast Report the CEC asserts that industrial program savings are particularly entangled with market-based savings. Yet, in another instance in the report the CEC asserts that market effects dwarf the impacts of utility programs. This suggests that there may be a discrepancy in how these causes of savings are

attributed in the theory of the model and the Commission's belief in what happens in reality. Likewise, commercial and residential program savings are also entangled with market-based savings and codes and standards development, and still, large portions of reported utility program savings were eliminated without an explicit rationale.

We are also concerned about an underlying assumption around naturally occurring savings, which is that increased energy costs would increase conservation and/or natural market adoption of more efficient technologies. While true, it is also incomplete; (1) higher rates do nothing to overcome non-price market barriers, and (2) higher rates may spur both voluntary actions and participation in utility programs, and thus some naturally occurring savings may be attributable to utility programs. This was stated in the 2009 Demand Forecast Report; however, this thinking does not appear to be reflected in the model. Moreover, the existence of utility programs may drive sales by validating products on the market, even when no incentive is received, meaning utility savings reported by IOUs do not fully capture impact of utility programs ("announcement effect"); also utility programs can serve to provide consumers with experience with technological innovations that pave the way for state and national standards; savings captured through these routes are also not attributed to utility programs.

The issue at large is that the entangled nature of the relationship between utility programs and the other attribution categories makes it extraordinarily difficult to accurately quantify the independent contribution of any one category using the Demand Forecast model. For this reason, we believe the energy efficiency savings graph showing and implying categorical attribution (like the one released in the 2009 publication, Figure 3) is misleading since there is a definite but poorly understood overlap among these categories of savings.

While we understand that there is no quick and easy solution to this problem, the issue of entanglement remains significant, which is why the Efficiency Council suggests that the Commission examine the potential consequences of publishing a graph that does not clearly communicate the significant uncertainties that exist in the underlying analysis. While we strongly support the Commission's efforts to continually improve the quality of the information it provides to the public, we are very concerned that there is more to lose than gain from a publication of this sort since this report informs California policy (as well as those of other states). For instance, Figure 3 suggests that the lack of any market interventions is a highly successful approach to savings in electricity consumption. If policymakers and other decision-makers in California and elsewhere buy into this notion, they may be far less inclined to support efficiency programs, even when there is a definite possibility that utility programs were much more effectual and successful than attributed. Ultimately, this could severely undermine the state's commitment to energy efficiency as well as progress as a whole for those states that model their energy plans on California precedent.

A Single Total Estimate for Savings from Energy Efficiency

One solution would be to publish a single total estimate of energy efficiency over time since it would be more accurate given the capabilities of the model and information at hand, less misleading given the uncertainties associated with program savings and market-based savings entanglement, and more commensurate with what similar regions of the country are reporting in terms of energy efficiency savings from similar programs. At the very least, we recommend that the Commission include an estimate and discussion in its Demand Forecast of how confident it is in its estimate of the magnitude of each of the identified causes.

Summary of Recommendations and Conclusions

The CEEIC believes that addressing the following recommendations will ensure better publication of a report that is most supportive of California's aggressive energy policies and goals:

- The final demand forecast should utilize a single total estimate of energy savings since the current model is not suited to identify and parse the causes associated with savings.
- If the CEC does attempt to include the parsed energy-efficiency savings graph, it should be done in a highly transparent manner. The CEC should provide confidence intervals for their estimates and acknowledge issues like the discrepancy in results based on what the model inputs first, and as well as price and program entanglement effects.
- Conduct sensitivity analyses on the most uncertain factors associated with both the savings from energy efficiency and the demand forecast to assess the magnitude of the impact on model results. At a minimum, we suggest the CEC assess sensitivity to price elasticity market and utility program entanglement.