

NRDC Documentation of Concerns With the CEC's Graph of Historical Energy Efficiency Savings To Be Addressed on the January 6, 2010 and January 13, 2010 DAWG Energy Savings Subgroup Calls

Lara Ettenson, January 3, 2010

On the December 16, 2010 Demand Analysis Working Group (DAWG) Energy Savings Subgroup call, NRDC was asked to provide this memo to summarize the significant concerns that NRDC raised over the past few years regarding the historical energy efficiency savings attribution graph in the CEC's demand forecast (CEC graph). Given the limited time over the holidays, this memo only provides a brief overview of our concerns. NRDC looks forward to addressing these critical issues in more detail with the CEC and the DAWG over the coming months. NRDC urges the CEC to make it a top priority to ensure that it is accurately representing the significant energy savings that have resulted from several decades of the state's efficiency programs, codes and standards.

I. Background

Energy efficiency is the state's top priority energy resource because it provides numerous benefits including utility bill savings for consumers, job creation, and pollution reductions. As such, we urge the CEC to make it a high priority to gauge the state's progress at improving efficiency as accurately as possible, both in reporting historical achievements and forecasting future gains.

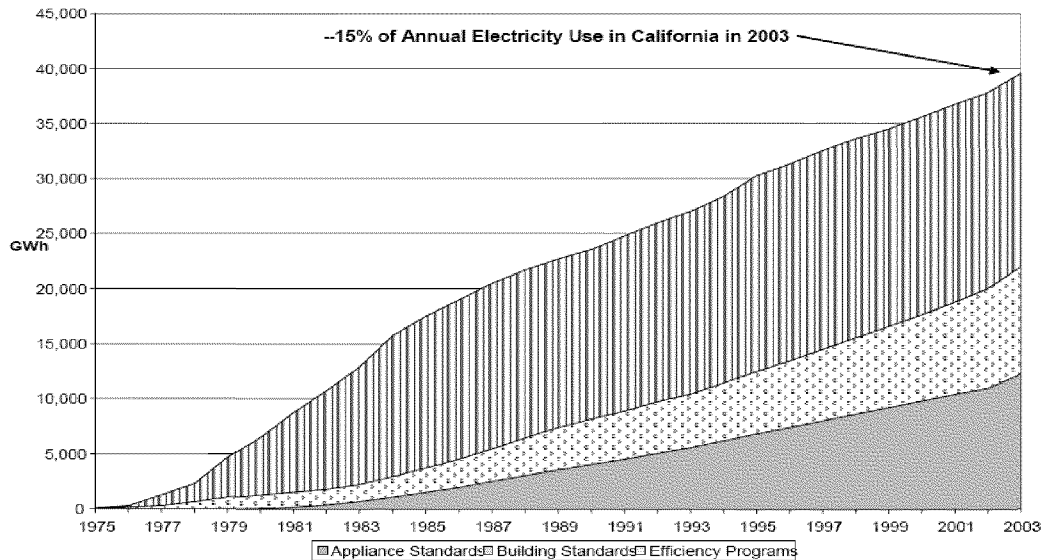
It is important to emphasize at the outset that the CEC graph looked very different until recently (see Figure 1 below), and stood as a strong affirmation of the combined (and roughly equal) contribution of utility programs and efficiency standards to cost-effective electricity savings in California over three decades. This result was consistent with similar estimates produced in other leading regions such as the Northwest, which had a similar commitment to efficiency programs and codes and standards over decades.

The CEC's new methodology employed for the 2009 IEPR demand forecast yields a graph (see Figure 2) that would dramatically reduce the CEC's previous estimates of historic programmatic savings *by roughly 80%*, claiming that the balance was "naturally occurring." The new version of the CEC graph effectively contends that the cumulative contribution of California utility efficiency programs over the last *three decades* is a low 8,661 GWh in 2008, or less than 40% of the cumulative Northwest impacts estimated by the Northwest Power and Conservation Council over a smaller base of programs and investments (even though many of the programs are very similar).¹

¹ 8,661 GWh is about 989 average MW. See www.nwcouncil.org/library/releases/2009/1030.htm (estimating that from 1978 to 2008, Northwest utility programs have saved 2,400 aMW).

Figure 1: CEC’s Graph of Historical Energy Savings Using Original Methodology

Figure E-1. Cumulative Efficiency Savings

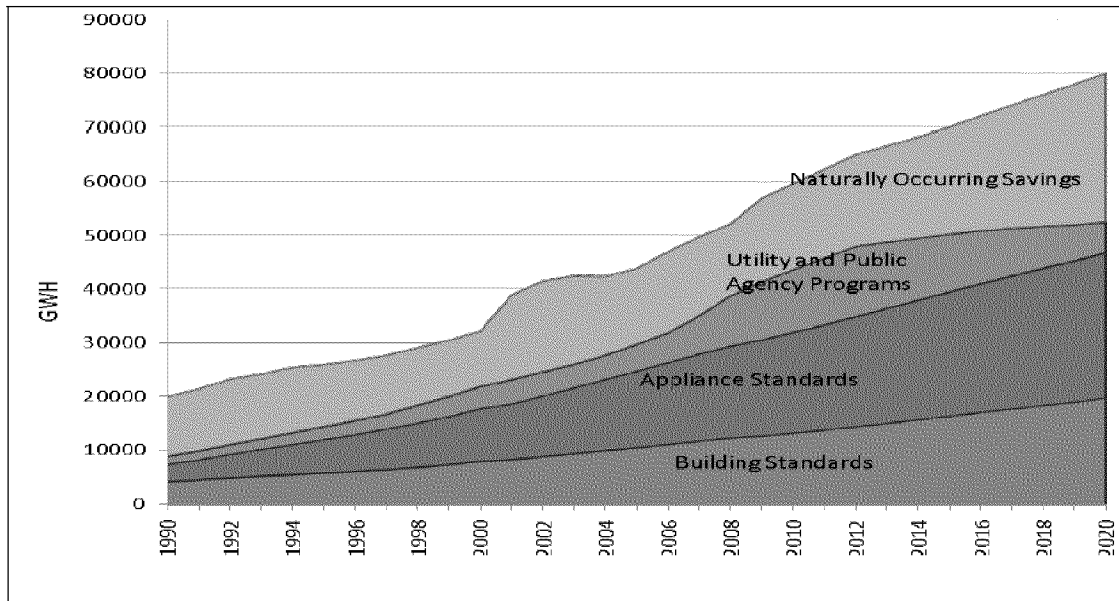


Source: Energy Commission DSM forecast model output

Re-printed from: California Energy Commission. "Implementing California's loading order for electricity resources. CEC-400-2005-043." July, 2005. www.energy.ca.gov/2005publications/CEC-400-2005-043/CEC-400-2005-043.PDF.

Figure 2: CEC’s Graph of Historical Energy Savings Using 2009 IEPR Methodologies

Figure 159: Distribution of Efficiency/Conservation Consumption Savings by Source



Source: California Energy Commission, 2009

This new graph's assertion that much of the energy savings "would have happened anyways" is highly suspect for a number of reasons. To name just a few: first, such a remarkable drop in program savings relative to what the CEC and CPUC historically reported would require some dramatic new revelations about what would have been "naturally occurring" in the absence of the state's concerted efforts to improve efficiency over the past several decades, yet none have been provided. Second, the CEC and CPUC have long recognized the numerous (non-price) market barriers to energy efficiency that the programs overcome. In addition, experience in many other states that have not made a concerted effort to improve efficiency show that relatively little progress is actually "naturally occurring," and that efficiency programs do in fact contribute significant savings. Moreover, the CPUC has long provided guidance for reporting energy savings that yielded much higher savings results over several decades; it would require a much stronger factual basis to reasonably reduce those savings and deviate from the CPUC's historical findings.

If policymakers were to erroneously conclude based on this graph that efficiency programs have had little effect and that savings would have largely "naturally occurred," despite three decades of evidence to the contrary, it could severely undermine the state's commitment to energy efficiency. The state cannot afford to reduce its efficiency efforts; in fact, significantly increased efforts are needed to stimulate the economy, provide jobs, and meet the state's air quality and AB 32 goals. As such, it is essential that the CEC accurately describe the state's historical track record on energy efficiency.

The following list highlights some of the major outstanding questions with respect to the

historical energy savings methodology. While some aspects of attribution are understandably challenging to define (e.g., the savings associated with changing a whole market), it is crucial that the lack of information or lack of methodology to determine attribution not result in omission of known program impacts. The CEC should strive to provide the most accurate picture as possible of the overall impact of the state's efficiency policies.

II. Summary of Concerns

Below is a summary of the detailed concerns NRDC raised over the past few years regarding the historical energy efficiency savings attribution graph in the CEC's demand forecast.

1. Change in methodology: The CEC's previous energy savings estimates show significant savings due to utility programs. It is unclear why the Commission applied a new methodology and why a new methodology was only applied to the utility programs (and not also to codes and standards). As discussed above, it is also unclear (at the "30,000 foot" level) what factors could explain such a dramatic reduction in estimated savings.
2. Dismissal of previous CPUC reporting rules and evaluation processes: The new energy efficiency estimates would dramatically change past CEC estimates of efficiency program savings that were based on CPUC rules, without a clear explanation of why those savings should now be considered unreasonable. The CEC's response (in November of 2009) that stated the current EM&V process is more robust than what was used historically does not provide a reasonable basis for using the recent CPUC staff results to change historical savings estimates. First, as noted in various comments over the past few years, NRDC highlights the fact that there are still significant outstanding questions regarding the final 2006-2008 EM&V results that the CPUC has yet to resolve and therefore it is premature to use those results. (Indeed, the CPUC recently acknowledged the disputes over the EM&V results and used ex-ante values instead to assess the final incentive mechanism for 2006-08.) While we continue to urge the CPUC to resolve those disputes and adopt final ex-post values, until that happens it would be premature for the CEC to use the CPUC staff report values.

Second, it is inappropriate to take EM&V results from one time period and apply them backwards to historical savings. Over time, the CPUC has had EM&V processes in place and rules for reporting final savings from programs using its approved values *at the time*. Since efficiency markets are constantly changing, it is inappropriate to take more recent values and apply them historically. For example, a measure's unit energy savings will change over time as the measure's efficiency changes and as baseline conditions change. However, the fact that those values change does not mean that past values were incorrect; the past values reflected the best information available at the time and should continue to be used. The CEC should not "second guess"

the CPUC's past rules for reporting savings based on EM&V results that look only at a more recent time period.

For example, the new CEC results would call into question historical savings that were approved in the CPUC's Annual Earnings Assessment Proceedings (AEAP) in the mid-90s that conducted a rigorous ex-post EM&V process. For example, in the 1998 Annual Earnings Assessment Proceeding the official CPUC agency finding was that the electricity savings from the 1996 and 1997 IOU programs alone amounted to 1,800 GWh based on measured ex-post impacts.² The Office of Ratepayer Advocates agreed with the final utility earnings claims except on one extremely narrow issue (the administration of the gas boiler replacement project in PG&E's DSM bidding project at the Presidio). However, according to the new graph, the cumulative savings from all programs from 1990 to 1998 was only 1,792 GWh. In other words, the CEC's new graph would say that cumulative savings over 8 years were about the same as the savings the CPUC verified for 2 years alone. This is just one illustration that raises significant questions about the difference between the CEC's new graph and the CPUC's historical findings.

3. Naturally occurring methodology: The naturally occurring methodology assumes that the majority of savings would have occurred without the intervention of the utility programs. Moving markets and getting products and practices widely accepted in the market (ultimately leading to updated codes or standards) greatly depends on the utility programs that are explicitly designed to address existing barriers to achieving greater energy savings. While we recognize the challenge in quantifying the utility programs' impact on the market that ultimately leads to the development and adoption of codes and standards, it is not reasonable to assume that they have zero impact on either of these two activities. Indeed, as the CEC and CPUC have long recognized, the efficiency programs have been instrumental in paving the way for numerous efficiency codes and standard upgrades at both the CEC and at the federal level.
4. Possible double discounting: It appears that historical savings that were already discounted to account for things such as net-to-gross were "double discounted" by applying NTG, realization rates, etc *again*. While the table provided by the CEC in the November 2009 response is useful for 1998-current data, it does not address methodology questions prior to 1998. Specifically:
 - The CEC applied an 80% NTG to savings from 1998-2002. Although the CEC noted the NTG ratios that were used for 2003-2007 came from the IOU quarterly reports, it is not clear why 80% was also used for the 1998-

² Annual Earnings Assessment Proceeding (AEAP) Application 98-05-001, Decision 99-06-052, Attachment 1. June 10, 1999.

2002 data.

- Were NTG ratios applied to pre-1998 years? If so, how did the CEC determine what NTG to use for those years? Were they applied to gross savings as they were for the 1998-2002 data?
 - The CEC applied a 70% realization rate (RR) to savings from 1998-2002. We would like to know how the CEC determined the 70% for those years, and are concerned about double counting due to RRs already used during those years when the IOUs determined their savings.
 - We would like to know if the CEC applied new RR to pre-1998 years. If so, how did the CEC determine what RR to use for those years? And we are concerned about double counting realization rates already used during those years.
5. Attribution of savings to price effects: A large portion of the savings is attributed to price effects. However, even after further review of the 2005 methodology document that describes how elasticity was used in the 2009 demand forecast, the elasticity methodology is still unclear. Since energy demand is highly inelastic, and the CEC and CPUC have long recognized that significant non-price market barriers impede consumer adoption of energy efficiency measures, we have significant questions about this approach.

III. Conclusion

In conclusion, until these concerns are resolved, NRDC strongly objects to using the identical methodology for the 2011 IEPR Demand Forecast as was used for the 2009 demand forecast (as proposed on the December 23, 2010 DAWG call). We strongly urge the CEC to take a comprehensive look at its methodology, and to revise it to ensure it is accurately representing the significant energy savings that have resulted from several decades of the state's efficiency programs, codes and standards.