

Comments of the Natural Resources Defense Council (NRDC) on the *California Energy Demand 2010-2020, Staff Revised Forecast, Second Edition*

Docket Number 09-IEP-1C

November 13, 2009

Submitted by: Lara Ettenson and Devra Wang

DOCKET

09-IEP-1C

DATE NOV 13 2009

RECD. NOV 13 2009

I. Introduction and Summary

The Natural Resources Defense Council (NRDC) appreciates the opportunity to offer these comments on the California Energy Commission's (CEC) *California Energy Demand 2010-2020, Staff Revised Forecast, Second Edition* (Staff Forecast). NRDC is a non-profit membership organization with a long-standing interest in minimizing the societal costs of the reliable energy services that Californians demand. We focus on representing our more than 124,000 California members' interest in receiving affordable energy services and reducing the environmental impact of California's energy consumption. Our comments focus solely on the energy efficiency estimates in the Staff Forecast, and are summarized below:

- NRDC believes it would be premature for the Commission to adopt the energy efficiency components of the Staff Forecast until the significant outstanding questions outlined below are resolved.
- The Staff Forecast's energy efficiency estimates would dramatically change past CEC estimates of efficiency program savings without a clear explanation.
- The efficiency estimates appear to "second guess" the California Public Utilities Commission's (CPUC) program evaluation protocols and reporting requirements.
- NRDC urges the staff to elaborate on the price effects methodology and to provide the underlying data and assumptions, including the price elasticity values.
- Clarify net-to-gross data and what steps were used to avoid double discounting.
- Reevaluate using the realization rate derived from the 2006-2007 verification report on historical data.
- Clarify whether the expected useful life values are appropriate for the different data sets used in different time periods.
- Elaborate on the methodology used to estimate energy savings post-expected useful life.
- Clarify or modify the treatment of utility efficiency program commercial lighting and industrial savings.
- Incorporate utility program effects on advancing codes and standards, and compliance.

II. Discussion

NRDC acknowledges the challenging task of determining the amount of energy efficiency savings attributable to codes and standards, utility programs, and naturally occurring effects and greatly appreciates the hard work of the demand forecast working group over the past year. We regret that we were not able to fully participate in the working group due to the challenge of staffing numerous concurrent regulatory proceedings, and plan to be more actively engaged in the process moving forward.

While we believe the working group has made progress on these key issues, there are significant questions that remain, and some assumptions that could dramatically affect the analysis are unclear or not included in the Staff Forecast. As such, *we believe it would be premature for the Commission to adopt the energy efficiency components of the Staff Forecast until these issues are resolved.* Instead, we urge the CEC to proceed with the demand forecasts, if appropriate (NRDC has not reviewed and does not take a position on the demand forecasts in the Staff Forecast), and urge the CEC staff to continue the working group to resolve the many outstanding questions on the energy efficiency estimates discussed below.

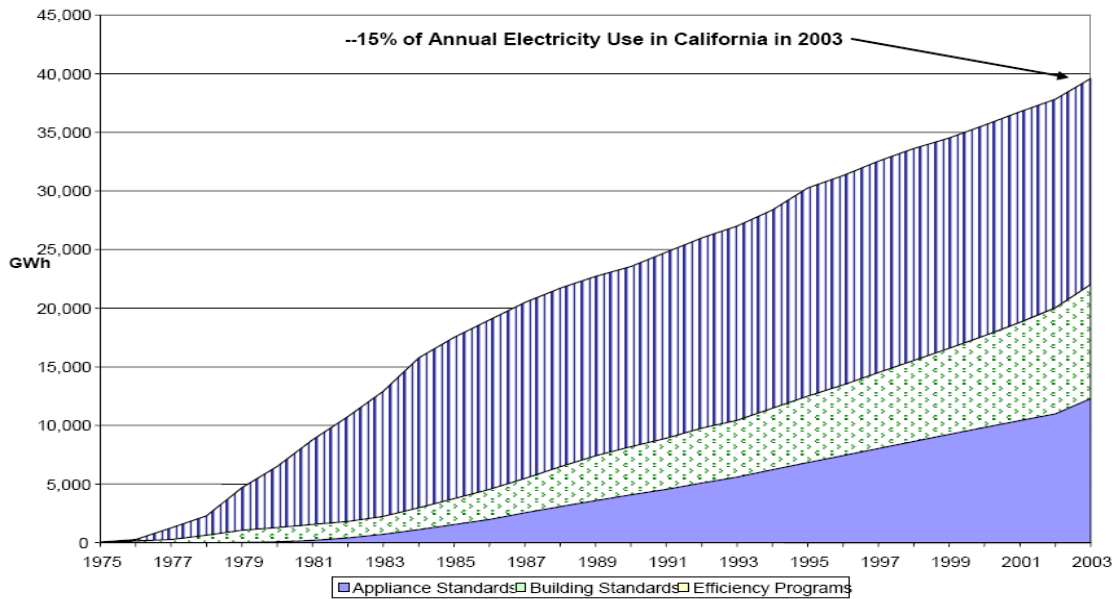
If the Commission is not inclined to delay adoption of the efficiency components of the Staff Forecast pending resolution of the issues we have identified, *at minimum, we urge that a discussion of these concerns and outstanding questions be included in the final demand forecast and the relevant section of the 2009 IEPR* to indicate that uncertainty remains around the various assumptions used to derive the current forecast, and that further adjustments may be made which could significantly alter the allocation of energy savings among the various categories.

1. The energy efficiency estimates in the Staff Forecast would dramatically change past CEC estimates of efficiency program savings without a clear explanation.

The CEC has published estimates of the cumulative impact of energy efficiency programs and codes and standards over the years. For example, in 2005, the CEC published the following graph:¹

¹ California Energy Commission. "Implementing California's loading order for electricity resources. CEC-400-2005-043." July, 2005. <<http://www.energy.ca.gov/2005publications/CEC-400-2005-043/CEC-400-2005-043.PDF>>

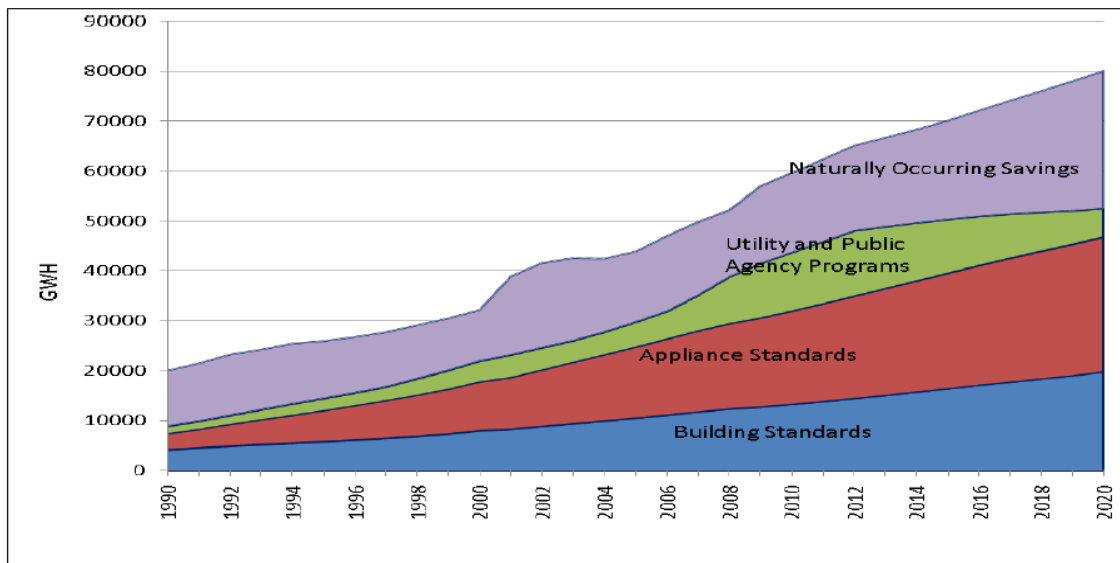
Figure E-1. Cumulative Efficiency Savings



Source: Energy Commission DSM forecast model output

Figure 159 below in the Staff Forecast would dramatically change these past estimates, yet there is no clear explanation for why these changes are so dramatic.

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



Source: California Energy Commission, 2009

The Staff Forecast discusses numerous detailed assumptions whose cumulative effect is illustrated in Figure 159 above, but it does not include a ‘big picture’ explanation of the changes in the results. NRDC has numerous remaining questions about the detailed assumptions, discussed below, and we believe it would be premature for the CEC to

adopt the revised efficiency estimates which differ so dramatically from the Commission's own past estimates without further analysis or explanation.

2. The efficiency estimates appear to “second guess” the California Public Utilities Commission’s program evaluation protocols and reporting requirements.

The Staff Forecast’s efficiency program estimates make numerous adjustments to program saving results that have either been reported by the utilities using protocols and requirements established by the California Public Utilities Commission (CPUC) through extensive public processes, or verified results using CPUC evaluation protocols. The result of the subsequent CEC adjustments is that the Staff Forecast seems to essentially “second guess” the CPUC’s evaluation protocols and reporting requirements. For example, the Staff Forecast appears to eliminate all savings in the industrial sector attributable to the programs (p.245), in essence assuming these were all “free riders,” which directly contradicts the CPUC’s longstanding methods that *already* reduce program results to account for free ridership and still report substantial industrial sector savings. We believe these types of unilateral revisions to results based on CPUC protocols and reporting requirements, without a more extensive public process to evaluate whether the CPUC’s procedures need to be changed, are not appropriate.

3. NRDC urges the staff to elaborate on the price effects methodology and to provide the underlying data and assumptions, including the price elasticity values.

The Staff Forecast includes “naturally occurring” efficiency savings, which appear to be primarily derived from the staff’s estimate of “price effects.” The estimates of price effects are quite large (for example, more than 15,000 GWh by 2010), however, it is not clear from the Staff Forecast discussion on price effects (pp.250-251) how these values were derived. Specifically, the price elasticity assumptions used to determine the price effects of increasing rates over time are not clearly indicated in the related section. Since electricity consumption is generally quite inelastic², we urge the CEC to provide a much more detailed explanation of the methodology, data (e.g. rate increases in real dollars) and assumptions (e.g. price elasticity estimates) that form the basis for these significant price effect estimates.

² Bernstein, M.A. and J. Griffin, *Regional Differences in the Price-Elasticity of Demand For Energy*, RAND, for the National Renewable Energy Laboratory, 2005. p.xiii
<www.rand.org/pubs/technical_reports/2005/RAND_TR292.pdf>

In addition, the Staff Forecast notes that rate increases “provide a greater incentive to participate in utility programs and help improve standards compliance rates.” (p.250) Moreover, the draft report states that “at least some price impacts *could* be attributed to programs and standards.” (p.250, *emphasis added*) However, there is no discussion of ‘if’ or ‘how’ this situation was addressed in the final delineation of program impacts. It is therefore unclear if increased utility program participation, and therefore increased savings, was attributed to the utility programs or remain attributed to price effects.

4. Clarify how net-to-gross (NTG) was applied and how the analysis avoided double discounting.

NRDC recommends that the Staff Forecast include a more explicit discussion of how the net-to-gross values were applied to utility reported data. Historically, utility data was reported as net and it is therefore unclear if all the program data was received as gross in advance of applying the general NTG value of 0.80 for 1998-2002. (p.244) Moreover, it is unclear what NTG values were applied for 2003-07 and how those values were derived by ITRON. In addition, there is no information on whether or how adjustments were made to the 1975 – 1997 data. There is a great chance of double discounting during this step of the methodology and therefore NRDC believes a clear discussion of the methodology to address this issue should be included in a revised efficiency estimate.

5. Reevaluate using the realization rate derived from the 2006-2007 verification report on historical data.

NRDC understands that the realization rate of 70% is intended to be consistent with the recent California Public Utilities Commission (CPUC) 2006-07 verification report. However, it is unclear why this realization rate was also applied to 1998-2005 data (p.244) and which realization rate, if any, was applied to the pre-1998 data. It seems inappropriate to apply this rate to the entire historical record; for example, the CPUC approved final ex-post savings results for the investor-owned utilities’ efficiency programs for 1994-97, but it is unclear in the text of the Staff Forecast whether those savings are being further reducing using this assumed realization rate. We therefore recommend that more details on this step of the methodology, as well as how using

different realization rates on pre-2006 data would affect the attribution of utility programs, be included in a revised efficiency estimate.

6. Clarify whether the expected useful life (EUL) values are appropriate for the different data sets used in different time periods.

NRDC recognizes the challenge associated with determining the appropriate EUL to use for the various data sets incorporated into the efficiency estimate. It appears that the Staff Forecast used average EULs by end-use category from the 2006-08 program years, and applied those EULs to other years in the historical record. While this may be a reasonable estimate for years that have disaggregated end use data, we would be concerned if the portfolio average EUL from 2006-08 is applied to prior years. However, it is unclear from the Staff Forecast whether that was done. Since the portfolio average EUL for 2006-08 was significantly shorter than the portfolio average EUL historically (which tended to be about 12 years on average), applying the average EUL for 2006-08 to the full historical record would significantly reduce cumulative annual savings.

7. Elaborate on the methodology used to estimate energy savings post-EULs.

As noted in the Staff Forecast, staff assumed a logistic decay of measure savings such that “50 percent of installations remain in operation at the end of the estimated expected useful life.” (p.243) However, this section does not include a discussion of what savings are assumed to persist thereafter. It appears that staff assumes no further savings are attributable to the programs post-EUL. However, this is inconsistent with the CPUC’s recent Decision 09-09-047, which states that “Until Evaluation, Measurement, and Verification results inform better metrics, PG&E, SCE, SDG&E, and SCG may apply a conservative deemed assumption that 50% of savings persist following the expiration of a given measure’s life.” (Ordering Paragraph #49, p.390) Moreover, it is unclear what assumptions the staff make to determine the longevity of savings from the codes and standards. NRDC urges the CEC to clarify the methodology used in the Staff Forecast, and recommends further exploration of the appropriate EUL assumption to be applied to program savings and codes and standards.

8. Clarify or modify the treatment of utility efficiency program commercial lighting and industrial savings.

The Staff Forecast states that non-CFL commercial lighting savings were eliminated because they were “redundant with existing lighting standards.” (p.245)

However, a number of utility programs seek to improve lighting efficiency beyond code or capture additional savings due to early replacement. As such, it seems unrealistic that 100% of non-CFL commercial lighting utility programs would be redundant with the standards. In addition, the Staff Forecast appears to eliminate all savings in the industrial sector attributable to the programs (p.245), in essence assuming these were all “free riders” attributable to natural competitive market forces. As noted above, this directly contradicts the CPUC’s protocols and reporting requirements. Therefore, NRDC urges the CEC to clarify the derivation of those conclusions or modify the treatment of these savings.

9. Incorporate utility program effects on advancing codes and standards and compliance.

Last, it is unclear if utility programs that influence the advancement of codes and standards were considered in the attribution of energy savings. It is also unclear which compliance rates were used to determine the codes and standards savings estimates and therefore would be difficult to include attribution to utility programs that improved compliance rates, thus resulting in increased codes and standards savings, yet attributable to utility programs. These influences are significant and should be included in the discussion of energy saving impact attribution.

III. Conclusion

NRDC thanks the CEC for the opportunity to comment on the 2009 Staff Forecast. It is crucial that the CEC regularly publish accurate estimates of the cumulative impact of the state’s numerous efficiency efforts, and we greatly value the efforts and extensive task undertaken by the working group to date. We regret our inability to actively participate in the working group and the demand forecast proceeding, and look forward to more active participation moving forward.

However, we believe more work remains to address the issues identified above and think it would be premature for the Commission to adopt the energy efficiency components of the Staff Forecast until the noted issues are resolved. We urge the CEC to continue the working group to resolve the many outstanding questions on the energy efficiency estimates, and to publish the revised results in the 2010 IEPR Update. We thank you for considering our recommendations.