

The Utility Reform Network (TURN) Comments on the Draft 2011 IEPR

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Overview

The Draft IEPR contains the following statement:

"California's commitment to energy efficiency through programs and standards has resulted in the lowest per capita electricity use of any state in the nation,..."¹

A similar argument was presented in the 2009 IEPR.

"Because of the state's energy efficiency standards and efficiency and conservation programs, California's energy use per person has remained stable for more than 30 years while the national average has steadily increased."²

TURN contends that both of these claims are misleading. We recommend that the above statement either be struck from the 2011 IEPR or modified to clearly show that EE has been only one of several factors that have contributed to the relatively low per capita electricity consumption in California. The document should be revised to state that not only is EE just one of several reasons for the pattern of electricity use in California but it is not even the most significant factor driving the current trend. Our reasons for this are outlined below.

California's Electricity Consumption and Energy Efficiency Savings

California's Energy Action Plan of 2003 introduced an era of increased interest in the savings from energy efficiency programs. For almost three decades prior to 2003, California had been promoting various kinds of energy efficiency initiatives, but the energy crisis of 2001 rapidly elevated the state's interest in the efficacy of those programs. The 2003 Energy Action

¹ California Energy Commission, 2011. *2011 Integrated Energy Policy Report*. Publication Number: CEC-100-2011-001-LCD, page 3

² California Energy Commission, *2009 Integrated Energy Policy Report*, Final Commission Report, December 2009, CEC -100-2009-003-CMF, page 4.

Plan codified this increased significance by making energy efficiency the resource of first choice for meeting California's forecast energy needs.³

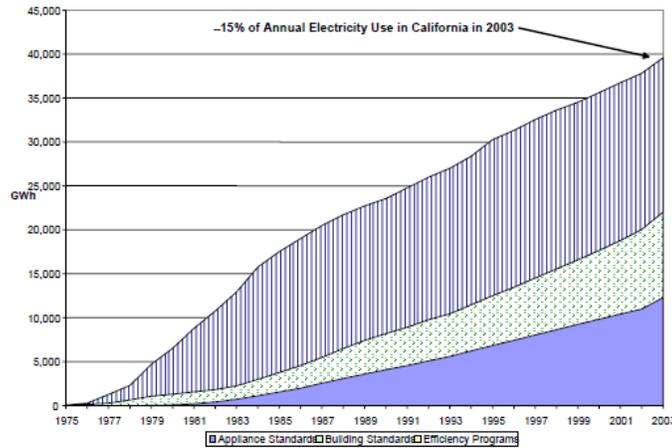
The increased attention being paid to energy efficiency also raised the issue of accounting for the savings from EE programs and estimating their impact on consumption (and load requirements). In response to a Commissioner's request for data, CEC staff created an estimate of the total quantity of savings from energy efficiency programs and initiatives dating back to 1975. While the CEC had substantial experience in estimating the impact of building codes and appliance standards (the main focus of its efficiency work in the last quarter of the twentieth century⁴), its role in efficiency program activities had been mainly advisory. As a result, verified and measured data on the savings from utility programs going back to 1975 were not available. CEC staff therefore relied on *utility unverified reported* savings data to estimate savings from EE programs, and added these estimates to existing estimates of the savings from codes and standards. The results were displayed in the following figure.

³ See Kavalec, Chris and Don Schultz. 2011. *Efficiency Programs: Historical Activities and Incorporation in Energy Commission Demand Forecasts*. Staff Paper. California Energy Commission, Electricity Supply Analysis Division. CEC-200-2011-005-SD, May 2011: <http://www.energy.ca.gov/2011publications/CEC-200-2011-005/CEC-200-2011-005-SD.pdf> for an excellent overview of the history of the CEC's involvement in measuring the efficacy of California's energy efficiency programs and initiatives.

⁴ Kavalec, Chris and Don Schultz. 2011. *Efficiency Programs: Historical Activities and Incorporation in Energy Commission Demand Forecasts*. Staff Paper. California Energy Commission, Electricity Supply Analysis Division. CEC-200-2011-005-SD, May 2011, page 6: <http://www.energy.ca.gov/2011publications/CEC-200-2011-005/CEC-200-2011-005-SD.pdf>.

Figure 1: Cumulative Efficiency Savings – 1975-2003⁵

Figure E-1. Cumulative Efficiency Savings



The large wedge of savings attributed to utility efficiency programs (the top wedge) was simply a tally of utility unverified reported savings for the years 1975-2003.⁶ The utility data were not subject to independent measurement and verification and included substantial savings from information and education programs which are not resource programs.⁷ These utility estimates, especially those from the early years of the programs, could not therefore be viewed as the equivalent of supply-side resources for planning purposes.⁸

A version of Figure 1 above (see Figure 2) was then paired with data on the trend in per capita electricity consumption in California relative to the US as a whole (Figure 3) to create the impression that California’s relatively stable pattern of electricity use since 1975 was due to the savings accomplishments of energy efficiency programs, codes, and standards. Commissioner Rosenfeld suggested a causal relationship between the two sets of data, an interpretation that

⁵ Source: Implementing California’s Loading Order for Electricity Resources, CEC-400-2005-043, July 2005, Figure E-1, page E-5.

⁶ The savings were adjusted for EUL but were not based on verified estimates; utility reported ex-ante estimates were used.

⁷ CEC documentation suggests that the bulk of savings in the period of most rapid increase in utility reported savings from efficiency programs (from the latter half of the 1970s to about 1985) were ascribed to programs focused on information and audits. These activities have little long-term, measured and verified savings associated with them. Cash rebates were not introduced until 1982, and even then programs continued to comprise a mix of information and audits on the one hand and rebates on the other (Mike Messenger, Discussion of Proposed Energy Savings Goals for Energy Efficiency Programs in California, September 2003, CEC 400-03-022D, p.15).

⁸ The bulk of IOU efficiency program savings occurred in the first ten years, with three quarters of the cumulative savings from 1975-2003 (16,528 GWh) taking place between 1975 and 1985. As a result, the curve for utility programs rises rapidly and then levels off over the next 20 years.

found its way into the 2007 IEPR and other documents: “While the United States increased per capita electricity consumption by nearly 50 percent over the past 30 years, California’s per capita electricity use remained almost flat, demonstrating the success of a variety of cutting-edge energy efficiency programs and cost-effective building and appliance efficiency standards.”⁹

Figure 2: Iconic Graph of California Annual Energy Efficiency Savings 1975-2003¹⁰

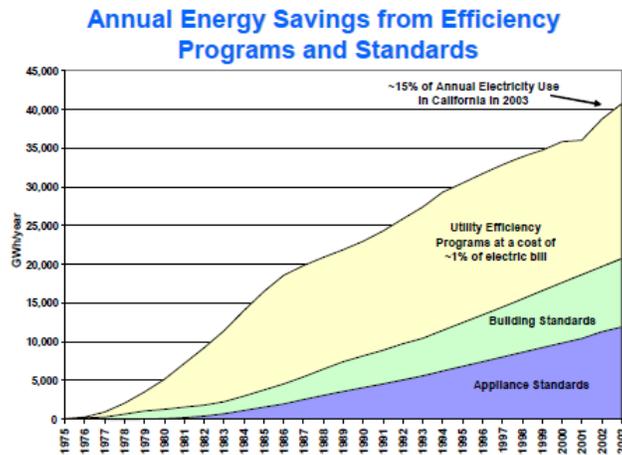
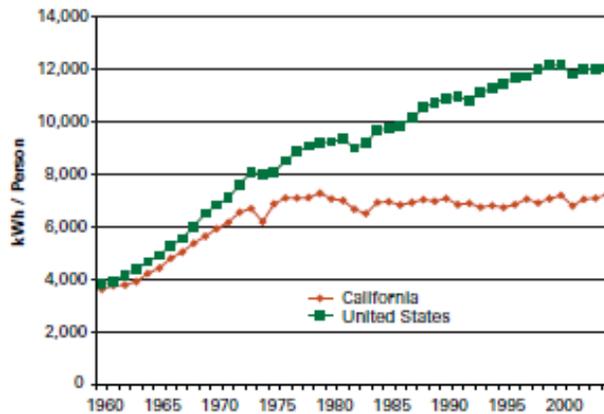


Figure 3: Per Capita Electricity Use in the United States and California (1960-2004)¹¹



⁹ Integrated Energy Policy Report: 2007 Summary, CEC, page 3: <http://www.energy.ca.gov/2007publications/CEC-100-2007-008/CEC-100-2007-008-CMF-ES.PDF> ; see also Energy Efficiency: California’s Highest-Priority Resource, CPUC and CEC, August 2006, page 2: “Because of its energy efficiency standards and program investments, electricity use per person in California has remained relatively stable over the past 30 years, while nationwide electricity use has increased by almost 50 percent.”

¹⁰ Source: California Energy Action Plan II: Implementation Roadmap for Energy Policies, October 2005, page 5: http://docs.cpuc.ca.gov/word_pdf/REPORT/51604.pdf

¹¹ Energy Efficiency California’s Highest Priority Resource, CPUC and CEC, August 2006, page 3

The story of California's much heralded success in leveling per capita consumption via energy efficiency programs and policies was built on an inadequate foundation.¹² The assumed connection between the two trends has never been empirically verified, although a study conducted in 2005 did seek to establish the extent to which factors other than energy efficiency programs could have contributed to the stabilization of California's electricity consumption on a per capita basis. It concluded that only around a quarter of the difference between the US and California could be attributed to energy efficiency programs¹³ A few years later, Energy Economics, Inc. published a paper in Public Utilities Fortnightly (March 2009) that investigated the relationship between per capita electricity consumption and the price of electricity, among other factors. A simple regression in the study showed that about 40% of the change in California's residential electricity consumption could be correlated with changes in the price of residential electricity.¹⁴ Demographic factors and changes in the structure of the California economy were also identified as important contributors to keeping the state's per capita consumption of electricity relatively low and stable.

Despite these new findings, a widespread perception of the singular impact of utility energy efficiency programs on per capita electricity consumption remains. This is partly due to the attractive message that the original CEC graphs relayed. It is, however, also due to a misplaced faith in the reliability of utility reported savings from energy efficiency programs. California's utilities reported savings without regard to their sustainability or the extent to which they would have occurred in the absence of the programs. It has become clear that the original graph based on utility reported savings (Figure 1) did not fully capture the details of the story. In 2009, the CEC reassessed and reanalyzed the data on reported savings from utility energy efficiency programs and created a very different picture of the actual level of savings from these programs. In essence the CEC revised its assessment of the impact of the first decade of utility programs and substantially reduced the savings that could be attributed to utility efforts. The first years of California's experience with energy efficiency focused on activities such as audits,

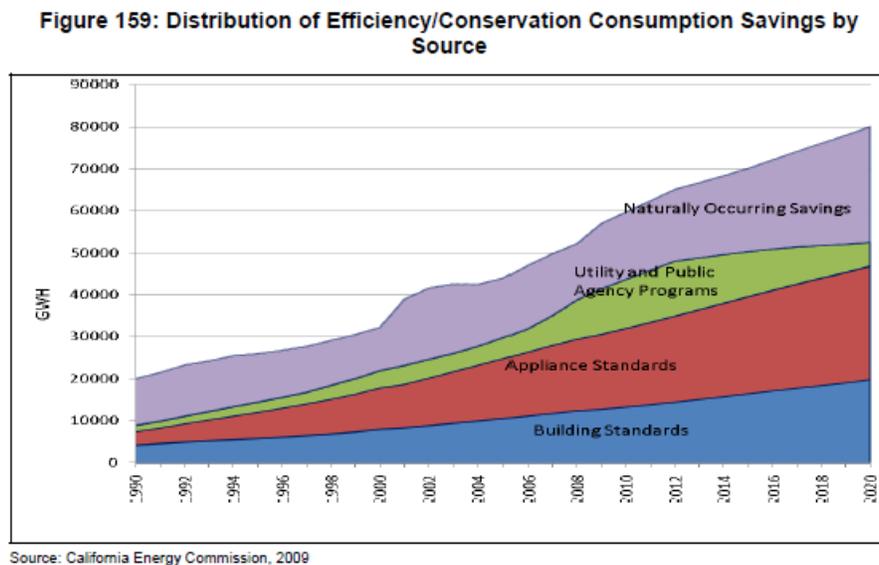
¹² The context within which California's electricity consumption stabilized after 1975 and some of the factors that, in addition to EE, can account for this trend are discussed in Cynthia Mitchell et al, "Stabilizing California's Demand: The real reasons behind the state's energy savings," Public Utilities Fortnightly, March 2009, pp. 50-62.

¹³ Anant Sudarshan and James Sweeney, Deconstructing the 'Rosenfeld Curve', Precourt Institute for Energy Efficiency, Stanford University, June 1, 2008: http://piee.stanford.edu/cgi-bin/docs/publications/Deconstructing_the_Rosenfeld_Curve.pdf.

¹⁴ Cynthia Mitchell et al, "Stabilizing California's Demand: The real reasons behind the state's energy savings," Public Utilities Fortnightly, March 2009, pp. 50-62.

information, and education that do not generate long-term, sustained savings. Once the reliability of utility reported savings was assessed and factored in to the analysis, the quantity of savings that could be attributed to utility programs dropped (Figure 4). A recent report that discusses the process that the CEC took to revise the estimates of savings from past utility programs notes that, "...most of the early run-up in utility-reported savings came from information and education programs (around 90 percent of the "excluded" area through 1985)."¹⁵ The CEC presented the results of the new analysis (and a detailed explanation of how they were arrive at) in the forecast of energy demand for 2010-2020 for the 2009 IEPR.¹⁶

Figure 4: Revised Assessment of Energy Efficiency Savings by Source¹⁷



The decline in savings attributable to IOU programs was mainly due to the exclusion of residential and commercial information and education program savings estimates from total

¹⁵ Kavalec, Chris and Don Schultz. 2011. *Efficiency Programs: Historical Activities and Incorporation in Energy Commission Demand Forecasts*. Staff Paper. California Energy Commission, Electricity Supply Analysis Division. CEC-200-2011-005-SD, May 2011, page 8: <http://www.energy.ca.gov/2011publications/CEC-200-2011-005/CEC-200-2011-005-SD.pdf>.

¹⁶ Kavalec, Chris and Tom Gorin, 2009. *California Energy Demand 2010-2020, Adopted Forecast*. California Energy Commission. CEC-200-2009-012-CMF, Chapter 8: <http://www.energy.ca.gov/2009publications/CEC-200-2009-012/CEC-200-2009-012-CMF.PDF>

¹⁷ Source: Kavalec, Chris and Tom Gorin, 2009. *California Energy Demand 2010-2020, Adopted Forecast*. California Energy Commission. CEC-200-2009-012-CMF, Figure 159, page 242: <http://www.energy.ca.gov/2009publications/CEC-200-2009-012/CEC-200-2009-012-CMF.PDF>

utility reported savings.¹⁸ That is, the CEC took utility unverified reported program savings and reanalyzed them to ensure that the savings included in the 2009 IEPR forecast represented a resource that the state could rely upon to contribute to load reduction. A recent report that discusses the process that the CEC took to revise the estimates of savings from past utility programs notes that, "...most of the early run-up in utility-reported savings came from information and education programs (around 90 percent of the "excluded" area through 1985)."¹⁹

In summary, savings from energy efficiency programs have contributed to California's relatively low per capita electricity consumption but they are only a small part of the story. The state's demography, economy, and climate, coupled with trends in the price of electricity, are equally important in explaining why Californian's use less electricity on a per capita basis than the rest of the United State. The role of these factors should be delineated in the 2011 IEPR if the document is to reflect reality.

¹⁸ Kavalec, Chris and Don Schultz. 2011. *Efficiency Programs: Historical Activities and Incorporation in Energy Commission Demand Forecasts*. Staff Paper. California Energy Commission, Electricity Supply Analysis Division. CEC-200-2011-005-SD, May 2011, page 7: <http://www.energy.ca.gov/2011publications/CEC-200-2011-005/CEC-200-2011-005-SD.pdf>.

¹⁹ Kavalec, Chris and Don Schultz. 2011. *Efficiency Programs: Historical Activities and Incorporation in Energy Commission Demand Forecasts*. Staff Paper. California Energy Commission, Electricity Supply Analysis Division. CEC-200-2011-005-SD, May 2011, page 8: <http://www.energy.ca.gov/2011publications/CEC-200-2011-005/CEC-200-2011-005-SD.pdf>.