

**The Senate Committee on Energy Utilities & Communications
Informational Hearing, March 16, 2010
Senator Alex Padilla, Chairman**

The Negawatt: Utility Energy Efficiency Programs and Progress

*The Negawatt: A contraction of negative watt;
a unit of saved energy;
the energy we don't use is the cheapest energy of all.*

The term negawatt is reported to have been first coined by Armory Lovins, chairman of the Rocky Mountain Institute, as a contraction of negative watt on the model of similar compounds like megawatt. Unlike any other state, California has made the negawatt a mantra.

ENERGY EFFICIENCY IN CALIFORNIA

Energy efficiency measures are generally considered some of the most cost-effective ways of meeting California's growing energy needs, because it is generally less expensive to conserve electricity than it is to build new power plants to meet demand. Energy efficiency typically refers to the installation of energy efficient technologies or tools to reduce energy usage and eliminate energy loss in homes, businesses, or new construction.

By reducing demand, EE increases the reliability of the electricity system because it reduces stress on existing power plants and transmission and distribution infrastructure. Efficiency also reduces the demand for new power plants, which can also help reduce the state's dependence on natural gas. Further, less demand for electricity will help soften potential reliability impacts on the electricity system from the retirement of the state's fleet of aging power plants and plants that use once-through cooling. Finally, less overall demand for electricity could mean less renewable energy will be needed to meet California's Renewables Portfolio Standard, which can indirectly buffer the impacts of integrating large amounts of renewables into the system.

California has pursued its energy demand reduction goals through two primary avenues: utility-sponsored programs to reduce end-user consumption, and codes and standards designed to lower the energy use of buildings and appliances. By 2004, these efforts had cumulatively saved more than 40,000 GWhs of electricity and 12,000 MW of peak electricity, equivalent to 24 500-MW powerplants. More than half of the statewide savings has come from the building and appliance standards, with the balance resulting

from programs implemented by the state's investor owned utilities (IOUs) and local publicly owned utilities (POUs).

As a result of these efforts California's energy use per capita has remained stable for more than 30 years while the national per capita average has steadily increased and is nearly double that of California.

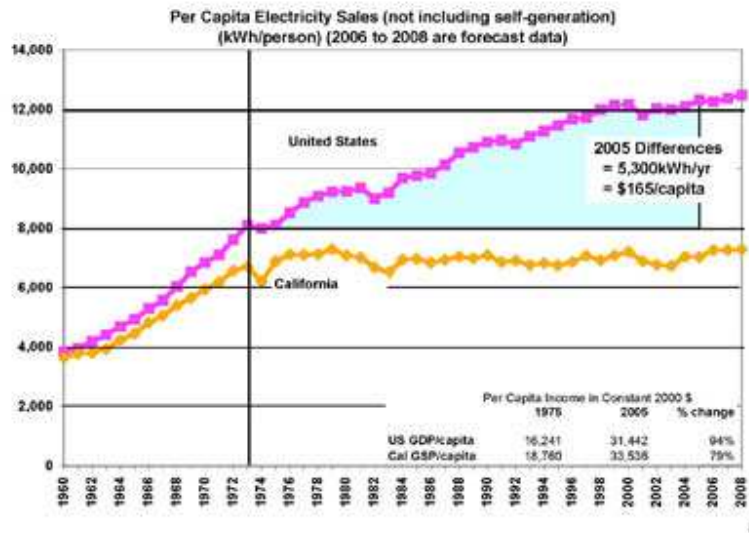


Figure 1: Energy efficiency has helped to flatten the state's per capita electricity.

However, stabilizing per capita electricity use will not be enough to meet the carbon reduction goals of AB 32. The Air Resources Board has established a statewide EE target of at least 32,000 gigawatt hours and 800 million therms by 2020. If achieved, emission reductions from these efficiency savings would result in over 25 million metric tons of greenhouse gas emissions reductions, making them the second largest component in the State's overall emissions reduction program.

Recognizing the continued importance of EE to the energy procurement and the state's environmental goals, the Legislature required the state's IOUs and POUs, in procuring energy, to first acquire all available EE and demand reduction recourses that are cost-effective, reliable, and feasible before renewable and conventional generation. (SB 1037, Kehoe, Chapter 366, Statutes of 2005)

One year later, the Legislature called upon the state's utilities to reduce customer energy demand by 10 percent over 10 years. (AB 2021, Levine, Chapter 734, Statutes of 2006)

The purpose of this hearing is to evaluate the progress of the utilities in meeting the 10 percent in 10 years EE goals. Specifically:

- *What are the most cost-effective EE programs and what programs may not have sufficient benefits for the costs?*
- *What is the basis for measuring a successful EE program?*
- *How are the utility's reported EE savings measured and verified?*
- *Are the EE programs cost-effective; is the Public Goods Charge assessment on ratepayers a good investment?*
- *What reductions in GHG emissions can EE programs achieve?*
- *What impact do EE programs have on the green economy in the way of job creation?*
- How do utilities meet the EE needs of all ratepayers including low-income customers?

INVESTOR OWNED UTILITIES (IOUs)

Over the years, successive CPUC decisions have created a policy framework to motivate IOUs to develop and continuously expand EE programs on behalf of their customers. This policy framework is composed of a number of elements including: the State's adopted loading order; aggressive goals set based upon up-to-date potential studies; decoupling of sales from revenues for electric and gas utilities; performance-based incentive mechanisms; and a robust dual funding stream comprised of a public goods charge and procurement funding.

A portion of the CPUC's EE programs are funded by the electric Public Goods Charge (PGC) and natural gas Demand Side Management charge applied to each customer's bill within each utility's service territory. These surcharges comprise approximately 1.0% and 0.7%, respectively, of each customer's bill and provide the CPUC and the CEC with a total of approximately \$540 million to fund public purpose programs.

Prior IOU Program Cycles

In 2005, the PUC issued a decision that required the three major IOUs to make significant new investments in EE in order to meet growing demand. This program was incentivized via a CPUC directed shareholder incentive mechanism whereby money collected from the PGC is distributed to the IOU shareholders based upon their EE successes as *evaluated, measured and verified* by the PUC and up to 23 different

private evaluation contractors. If these EE goals in 2005 were met, the estimated load growth would offset the need to build 11 major power plants per CPUC calculations.

During the CPUC's 2006-2008 efficiency program cycle, IOUs reportedly succeeded in meeting their goals as required in the CPUC's rulemakings. Combined, all IOUs reported 10,514 gigawatt hours of annual energy savings, 1,810 megawatts of peak savings, and 141 million therms of natural gas savings. These reported accomplishments substantially exceeded their CPUC-required goals. However, measurement and verification studies completed on 2006–2007 programs indicate the possibility of *verified* efficiency program savings being less than those *reported* and highlight the critical importance of a robust measurement and verification system.

In 2008 the IOUs filed program applications setting forth EE goals for the planned 2009-2011 program cycle. However the applications were deemed inadequate for reasons such as not sufficiently supporting the CPUC's strategic plan, and the IOUs were ordered to revisit their portfolio design. In 2009 the CPUC approved new EE portfolios for the IOUs for a cycle running from 2010 to 2012. The year of 2009 was deemed a transition year and previously approved 2008 programs continued through 2009.

2010-2012 IOU Program Cycle

Funding for IOU efficiency programs continues to be a high priority for the state. On September 24, 2009, the CPUC approved the 2010–2012 IOU EE portfolios for \$3.1 billion of ratepayer-supported EE programs for 2010–2012 to be administered by the IOUs. The three-year program is estimated to avoid the construction of three 500-megawatt power plants, save almost 7,000 gigawatt hours of electricity and 150 million metric therms of natural gas, and avoid 3 million tons of GHG emissions. The program launches the nation's largest home retrofit program, which targets 20 percent savings for as many as 130,000 homes during 2010–2012.

Although the reported EE savings achieved are laudable, the programs have not been without question.

Evaluation, measurement and verification – The EE programs are implemented using over \$3 billion dollars of ratepayer funding. Utility programs can include distribution of CFL lightbulbs, the retrofit of a commercial building, residential EE audits, appliance rebates. How are the energy savings of these programs measured and verified?

Risk/Reward Incentive Mechanism (RRIM) – EE programs are structured around the RRIM which encourages the IOUs to pursue cost-effective EE in lieu of supply side investments. IOU shareholders receive incentive payments or are penalized based on whether they reach their EE goals for a program cycle. The RRIM is in addition to financial incentives full program cost recovery and can equate to as much as 20% to

25% of the EE program costs. Does the current nature of the shareholder incentive program short-term energy savings at the expense of long term EE investments?

What are the IOUs' average administrative costs for running the EE programs? Typically, the state caps admin costs at 5%. Is there a cap on the IOUs' admin costs? Is there a justification for the IOUs having higher admin costs?

LOCAL PUBLICLY OWNED UTILITIES (POUs)

Because POU's represent approximately 22% of statewide electricity consumption, their contribution to meeting the state's EE goals is critical. Beginning in 2007, and every third year thereafter, AB 2021 requires that each POU identify all potentially achievable cost-effective electricity EE savings and establish annual targets for EE savings and demand reduction for the next 10-year period. The CEC evaluates and reports to the Legislature on the annual progress of 39 POU's EE program investments and savings as part of the Integrated Energy Policy Report.

In its 2009 AB 2021 report, the CEC reported that from 2007 to 2008, POU expenditures in EE programs increased 65% and totaled \$104 million. Annual efficiency savings reported by the POU's in 2008 increased by nearly 58 percent for energy savings and nearly 46% for peak savings over 2007. Despite these gains the POU's collectively fell short of their adopted targets for 2008 by 34% for annual energy savings and by 66% for their peak savings target.

The POU's are on the right long-term track and are successfully demonstrating their commitment to EE as part of a larger responsibility to reduce carbon emissions. The CEC staff is concerned, however, about the POU's ability to meet adopted goals for 2009–2010 given challenges with California's weak economy that are stressing local government budgets and diminishing consumer willingness to invest in energy efficiency. The POU's must achieve an increase of 90% from their 2008 reported energy savings and an increase of 164% from their 2008 reported peak savings to reach their 2009 adopted targets.

The goal is steep, and the CEC has questioned whether the POU's are making adequate investments in EE programs. The CEC opined that "there is reason to believe POU's could benefit from increased utility investment beyond the use of Public Goods Charge funds. If publicly owned utilities expanded using procurement funds for energy efficiency, they may be able to reach their targets."

Are the POU's on track to meet the AB 2021 goal of 10% EE improvement in 10 years?

Are the POU's making an adequate investment of ratepayer funds to achieve the 10% goal?

There are no penalties or rewards for the POU's based on EE achievements. Should there be?

RELATED REPORTS/STUDIES

On Sept. 18, 2008, the CPUC adopted *California's first Long Term Energy Efficiency Strategic Plan*, presenting a single roadmap to achieve maximum energy savings across all major groups and sectors in California. This comprehensive Plan for 2009 to 2020 is the state's first integrated framework of goals and strategies for saving energy, covering government, utility, and private sector actions, and holds EE to its role as the highest priority resource in meeting California's energy needs. Read the full plan at:

<http://www.cpuc.ca.gov/NR/rdonlyres/D4321448-208C-48F9-9F62-1BBB14A8D717/0/EEStrategicPlan.pdf>

Achieving Cost-Effective Energy Efficiency For California: 2008 Progress Report, December 2009, California Energy Commission

<http://www.energy.ca.gov/2009publications/CEC-200-2009-008/CEC-200-2009-008-SF.PDF>

California Restores it's Energy Efficiency Leadership: Smart Policies Provide Enormous Economic and Environmental Benefits, Natural Resources Defense

http://switchboard.nrdc.org/blogs/smartinez/california_restores_its_energy.html