

Success with Energy Efficiency Resource Standards

January 2009

Over the past decade, six states have taken the lead on enacting, implementing, and achieving significant energy savings with an Energy Efficiency Resource Standard (EERS).

- **Texas** became the first state to establish an EERS in 1999, requiring electric utilities to offset 10% of load growth through end-use energy efficiency. After several years of meeting this goal at low costs, in 2007 the legislature increased the standard to 15% of load growth by 2009, 20% of load growth by 2010 and directed that higher targets be investigated. A recent report commissioned by the PUCT found that raising the goal to 50% of load growth is feasible.
- Efficiency **Vermont** was created in 2000 as an independent “efficiency utility” that delivers efficiency programs for the state. It is contractually required to achieve energy savings and demand reduction goals. EV cumulatively met over 7% of Vermont’s electricity requirements by the end of 2007, with programs in that year alone meeting 1.75% of the state’s electricity needs. New goals for 2009-2011 call for saving about 2% per year.
- In 2004, **California** set energy savings goals for investor-owned utilities for 2004 through 2013, which are expected to save more than 1% of total forecast electricity sales per year. In the early years, savings were less than 1% per year, but in 2007, measures installed that year met 1.5% of the state’s electricity needs.
- Under **Hawaii’s** Renewable Portfolio Standard (RPS) requirements, in place since 2004, energy efficiency qualifies as an eligible resource. Utilities must meet 20% of electricity sales with eligible resources by 2020, with no limit on how much may be met by energy efficiency. In recent years, Hawaii has been achieving between 0.4 – 0.6% energy savings per year through energy efficiency.
- In June 2005, the **Connecticut** legislature modified its RPS to include efficiency. Starting in 2007, the state’s utilities must procure a minimum 1% of electricity sales from “Class III” resources such as energy efficiency and CHP, with an additional 1% required in 2008, 2009, and 2010. Savings in 2007 were 1.04% of sales. In 2007, the Connecticut legislature added a requirement for utilities to acquire “all cost-effective efficiency.” In response, the state’s utilities filed a plan with savings averaging about 1.5% per year over the 2009-2018 period.
- In 2001, the **Nevada** legislature enacted RPS legislation. In 2005, the RPS was expanded from 15% to 20% of electricity sales by 2015, and was amended to allow energy efficiency to meet up to 25% of the total portfolio standard. The state’s utilities are quickly ramping up efficiency programs to hit the maximum allowed efficiency threshold. Energy efficiency measures installed in 2006 accounted for 0.6% of sales.

CASE STUDIES

Vermont

Efficiency Vermont (EV) is the nation’s first statewide provider of energy efficiency services. EV is operated by an independent, non-profit organization under contract with the Vermont Public Service Board and funded by an energy efficiency charge on customers’ electric bills. Technical assistance and financial incentives are provided to Vermont households and businesses, helping reduce their energy costs with energy-efficient equipment and lighting and with energy-efficient approaches to construction and renovation.

Since its inception in 2000, EV has helped Vermonters reduce annual energy costs in their businesses and homes by more than \$31 million, which is more than EV’s annual budget. Between 2000 and 2006, Vermont businesses and homeowners who worked with EV have saved more than 307 million kilowatt hours (kWh) in annual electric energy. Households and businesses are expected to see these savings continue for an average of 13 years. Moreover, the cumulative lifetime economic value of efficiency investments in Vermont totals more than \$313 million.

HEART – Hardwick, VT

The Hardwick Energy Action Resource Team (HEART) was formed in 2006 by community residents and business owners who wanted to reduce the town's energy use and environmental impact. HEART has committed to decreasing Hardwick's overall energy use by 3% by the end of 2008, with at least 35% of Hardwick's 3,226 residents participating in the campaign. At the end of 2007, Hardwick had met 90% of its participation goal and 300% of its energy savings goal.



EV provided energy audits and efficiency project incentives to local businesses to help with energy efficiency projects. HEART also held special promotions at local retailers to provide affordable energy-efficient light bulbs; educated local students through special events and school energy audits; conducted do-it-yourself workshops to teach residents how to make their homes more energy efficient; installed efficient holiday lights throughout the downtown area; and promoted effective participation with EV services.¹

California

PG&E, one of California's major investor owned utilities, offers a full package of energy efficiency products and services for its customers, including rebates and incentives, energy analyses, demand response programs and more. Beginning in 1976, PG&E has expanded its energy efficiency portfolio to offer programs in all sectors reaching residential, commercial, industrial, and institutional customers. As of July 2008, PG&E's annual energy efficiency program expenditures totaled over \$850 million with net annual energy savings of over 4 billion kWhs. These programs have also saved 44 million net annual therms of natural gas. (Projected energy savings include energy savings stream through 2012.)²

Juniper Networks – Sunnyvale, CA

Juniper Networks, a provider of high performance networking solutions, is the latest example of how PG&E is partnering with its customers to save money and the environment. Juniper received a \$327,000 rebate from PG&E for installing energy-sipping equipment that will save the company more than \$262,000 in energy costs annually. As a global company, Juniper conducts vital stages of its product development at labs scattered in various locations with engineers testing new products and product upgrades at facilities that typically run around the clock.



At its Sunnyvale headquarters, Juniper installed energy-efficient "chillers" and "airside economizers" to help keep its lab at an effective operating temperature 24 hours a day. The chillers are used during the day. At night, when temperatures typically average 50 degrees, the chillers are turned off and "free" air from outside is drawn in to cool the lab.

Juniper is also swapping out old servers that used only 20 – 30 percent of their capacity in favor of new, energy-efficient servers capable of server virtualization. Virtualization allows multiple applications to run concurrently on computing equipment, enabling companies to consolidate their data centers and remove many of their existing servers. Juniper's new servers ensure full utilization, so instead of running eight servers in a lab, they can run one.³

Juniper Networks' upgraded lab

¹ http://www.encyvermont.com/stella/filelib/2007%20Highlights%20Piece%20FINAL_09_08.pdf

² http://www.pge.com/includes/docs/word_xls/about/rates/rebateprogrameval/monthlyreports/08-07_cpuc_ee_monthly_report.xls

³ <http://www.next100.com/2008/12/proof-you-can-stay-lean-and-gr.php>

Connecticut

The Connecticut Energy Efficiency Fund (CEEF) is an initiative created to help homeowners and renters, small and large businesses, and state and local governments alike get in the habit of using energy more efficiently. The CEEF is the result of a partnership with the state's utility companies and is funded by a small charge on customers' bills. The United Illuminating Company (UI) is an electric transmission and distribution utility based in New Haven, Connecticut, serving approximately 35% of Connecticut's total population.

XtraMart – North Haven, CT

XtraMart, a chain of gas stations and convenience stores, headquartered in Thompson, Connecticut, is a UI customer. The XtraMart store in North Haven, Connecticut exemplifies how energy conservation measures can significantly cut energy consumption. This store has a walk-in cooler with glass doors and two free-standing freezers with glass doors. They installed new controls to better control operation of refrigeration system evaporator fans and door heaters, reducing fan energy use by 35-45% and door heater energy use by 45% for freezers and 75% for coolers.

By installing energy saving control systems on the cooler and freezers, this store is saving just over 26,000 kWh per year – a savings of approximately \$2,500 in the first year of operation. The new controls cost \$5,600. The project costs were reduced by a \$4,500 incentive UI paid under its small business program.⁴ In the first year, XtraMart is saving about \$1,400 (\$2,500 savings minus \$1,100 cost after rebate). Thereafter, the store should save \$2,500 per year.

Nevada

The Sierra Pacific Power and Nevada Power Companies offer the "Sure Bet Program" to commercial business, industrial and institutional customers. The Sure Bet Program is an incentive program designed to facilitate the implementation of cost effective energy efficiency improvements in businesses.

John Ascuaga's Nugget – Sparks, NV

In 2006, John Ascuaga's Nugget in Sparks, Nevada, received an incentive of about \$10,000 from the Sierra Pacific Power Company under the Sure Bet Program. Through this program, the Casino replaced over 5,000 incandescent lamps with LED lamps. These lamps use a fraction of the energy of incandescent lamps and last 50 times longer, saving the Casino both maintenance and energy costs.

As a result, the Casino anticipates saving over 244,000 kWh and a peak demand reduction of about 28 kW annually. The project cost was about \$64,500, including the incentive from Sierra Pacific. After a payback period of about 2.5 years, the Casino will be saving approximately \$26,800 per year in electricity costs.⁵



John Ascuaga's Nugget, Sparks, Nevada

⁴<http://www.uinet.com/uinet/connect/UINet/Top+Navigator/Your+Business/UI+Products+%26+Services/Small+Biz+Energy+Adv./Bar+gain+Hunting+Convenience+Store+Crosses+%242%2C500+in+Energy+Costs+Off+Its+Shopping+List>

⁵ Nevada Sure Bet Program, John Ascuaga's Nugget, LED Casino Lighting Retrofit. Available at http://www.nvenergy.com/saveenergy/business/incentives/surebet/documents/studies_techInfo/LEDCasinoLighting.pdf