
July 10, 2012

Utility Energy Efficiency Best Practices

- Leading utilities are spending 3-5% of their revenues on cost-effective energy efficiency and load management (DSM) programs for their customers. Leading utilities are attempting to maximize customer participation and electricity savings, without budget caps on their cost-effective energy efficiency programs.

- Leading and are achieving electricity savings equal to 1.5-2% of retail sales from DSM programs each year, and adopting savings goals or requirements equal to 15-20% of electricity use by 2020 (AZ, IL, MA, MN, NY, RI, VT).

- Leading utilities offer a full range of programs to their customers, promoting both energy-efficient technologies and behavior change. Leading utilities conduct effective marketing campaigns and pay sizable incentives in order to achieve large-scale program participation. Municipal utilities such as Seattle City Light, SMUD and Austin Energy are among the leading utilities in the nation with respect to DSM program funding and achievement.

Colorado Experience

- House Bill 07-1037, passed in 2007, directed the Public Utilities Commission (PUC) to establish energy savings goals for investor-owned electric and gas utilities. The bill also directed the PUC to provide utilities with the opportunity to earn a profit from implementing cost-effective energy efficiency programs for their customers.

- The Colorado PUC established energy savings goals and a performance-based incentive mechanism for Xcel Energy in 2008 and for Black Hills Energy in 2009. In response, Xcel Energy and Black Hills Energy spent $166 million on energy efficiency and load management programs for their customers during 2009-2011, far more than was spent the previous three years. Xcel now spends about 3% of its revenues on energy efficiency programs for its customers.

- As a result of the utilities’ efforts, households and businesses reduced their electricity use in 2011 by over 800 million kWh per year, equivalent to the electricity use of 100,000 typical households. The peak demand reduction from programs implemented during 2009-2011 was over 200 MW.
The electric efficiency programs of Xcel Energy and Black Hills have been very cost effective with an overall benefit-cost ratio of more than three-to-one. Households and businesses in the state are expected to save about $640 million net as result of Xcel’s and Black Hill’s electric efficiency programs in 2009-2011. Programs implemented in 2012 are expected to result in an additional $215 million in net economic benefits.

In 2011, the PUC raised the energy savings goals it had previously set for Xcel Energy during 2012-2020 by 30%. The savings goals increase every year and equal 1.35% of sales in 2015 and about 1.7% of sales in 2020. As a result, Xcel is continuing to expand its energy efficiency programs; the total budget for electric DSM programs was $77 million as of 2012. If Xcel achieves the goals set through 2020, electricity use as of 2020 will be reduced by about 4 billion kWh per year—equivalent to 14% of the total electricity consumption by Xcel’s customers today.

Energy efficiency is not just something for large utilities like Xcel Energy. Along the Front Range, both Black Hills Energy (serving Pueblo) and the Fort Collins municipal utility operate well-funded, comprehensive energy efficiency programs. BHE, serving about 95,000 customers with electricity sales that are 35% as large as those of CSU, is planning to spend $4.3 million per year on EE programs during the latter half of 2012 and 2013 and save 19.3 GWh per year, equivalent to about 1.1% of its retail sales. The Fort Collins municipal utility saved about 20 GWh per year, equivalent to 1.4% of its electricity sales, as a result of energy efficiency programs implemented in 2011.

Non-Energy Benefits

Jobs are created through the production, sales and installation of energy-efficient products as well as through households and businesses spending utility bill savings on other labor-intensive goods and services. Considering all effects—including reduced employment in power plant operation and fuel supply as well as the jobs created in selling and installing energy efficiency measures—there is a net increase in jobs in the local economy when utilities implement robust energy efficiency programs.

Utility energy efficiency programs reduce operation of fossil fuel-based power plants and thus reduce all types of pollutants associated with conventional electricity generation. SWEEP estimates that Xcel Energy and Black Hills avoided over one million tons of carbon dioxide emissions during 2009-2011 as a result of their energy efficiency programs. This is equivalent to taking 110,000 cars off the road.

As part of their energy efficiency programs, Xcel Energy and other utilities provide incentives for energy and water-saving devices such as low-flow showerheads and resource-efficient clothes washers. Water savings also occur when utilities reduce electricity generation and operation of power plant cooling systems. In total, the energy efficiency programs implemented by Xcel Energy and BHE reduced water consumption by around 1.5 billion gallons in 2011 alone, equivalent to the water use of 11,500 typical households in the metro Denver area.
Opportunity for Colorado Springs Utilities

- Colorado Springs Utilities (CSU) already operates a variety of energy efficiency programs for its customers. However, these programs are not as comprehensive or well-funded as programs implemented by other electric utilities in the Front Range (normalizing for utility size).

- Expanding energy efficiency programs significantly would benefit CSU and its customers. Doing so would help more households and businesses reduce their utility bills, would postpone investment in new power plants, and would facilitate shutting down older, dirtier power plants such as the Martin Drake plant. Comprehensive, well-funded efficiency programs also result in more program participants and thus enhance equity since all customers pay for the programs as part of their utility bills.

- SWEEP recommends that CSU ramp up to DSM budget of at least $10 million per year, on par with what Black Hills, Xcel Energy and the Fort Collins municipal utility are spending as a fraction of sales revenue. Furthermore, electricity savings should be increased to at least 1% of sales (45 GWh per year) in the near term and increase to 1.5-2% of sales, each year, over time.

- By 2020, it should be possible to reduce electricity consumption for the utility as a whole by 10-15% as a result of DSM programs implemented during 2012-2020. If savings are in the middle of this range, it means saving around 600 GWh per year in 2020 as a result of programs and measures implemented during 2012-2020. And based on the ratio of peak demand reduction to energy savings achieved by other utilities in the Front Range, peak demand in 2020 should be reduced by around 150 MW as a consequence of DSM programs implemented during 2012-2020, assuming 600 GWh of electricity savings are realized by 2020.

- If the savings goals outlined above are realized, and CSU’s DSM programs are as cost effective as those implemented by other utilities in the Front Range, households and businesses served by CSU should realize net economic savings of $400-500 million over the lifetime of energy efficiency measures installed during 2012-2020.

- By implementing aggressive energy efficiency programs, water savings will result from both reduced operation of power plant cooling systems and greater adoption of energy and water-saving devices by households and businesses. Total water savings in Colorado Springs during 2012-2020 could exceed 2 billion gallons.

- Last but not least, hundreds of additional jobs will be created and supported in Colorado Springs by implementing aggressive utility energy efficiency programs. The jobs will result from selling and installing energy efficiency measures, and from households and businesses spending utility bill savings on other labor-intensive goods and services in the local economy.