



Municipal Utility Energy Efficiency Programs: Leading Lights

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This review spotlights municipal utility demand-side management (DSM) programs which have demonstrated significant success. SWEEP believes that these DSM programs serve as models that can be replicated by other municipal utilities in the country. The essential element behind these high performance DSM programs is a vibrant commitment to promoting cost effective energy efficiency by the utilities themselves which are not regulated. Each municipal utility profiled below has demonstrated success in delivering DSM services to its customers, irrespective of service area or community demographics.

Fort Collins Utilities

Fort Collins Utilities (FCU) is a municipal utility providing electricity to 65,000 residential and business customers in Fort Collins, Colorado. While this utility is small in scale, its DSM programs are large in stature, outperforming most municipal and many investor owned utility DSM programs across the country. In 2010, FCU more than doubled its DSM efforts, increasing program funding from 0.7% to 1.5% of total revenue. In addition to its own DSM funding, the utility receives \$1.9 million per year for DSM programs from the Platte River Power Authority, the utility's wholesale power provider. The utility's \$5M total DSM budget produces energy savings equal to 1.5% of its total annual per capita electric use, or 14.5 GWh. At a cost of just 2 cents per kWh saved, FCU's DSM efforts clearly represent the lowest cost electricity resource for the City.

FCU has developed some effective DSM programs to satisfy the city's demand for energy efficiency. In the spring of 2010, FCU created an interesting whole house residential retrofit program. What makes this program unique is the attention to technical detail, a comprehensive approach and the ability to deliver 20 to 50 percent reduction in participants' heating and cooling energy usage. Program standards similar to BPI and RESNET were created by FCU to guide contractors through the audit process, installation of qualified weatherization products, as well as quality control procedures. Similar whole house programs are planned for low income and multifamily customers in 2011. To encourage participation, FCU developed a zero interest loan program. While financing for this program is currently external to FCU, the utility is looking to offer on bill financing which would allow customers to make loan payments via their monthly utility bills.

In an effort to meet the goals outlined in the city's energy policy and sustainability plan, FCU is sponsoring the Fort Zed project, a municipal/business collaboration designed to create a net zero energy district in the city's historic downtown

area. The project will assist over 7,000 residential and commercial customers in reducing energy consumption with a targeted 35% reduction in electricity demand. The U.S. Department of Energy contributed \$6.3M to fund this effort, with private contributions of \$8M and nearly \$1M contributed from the state. FCU hopes that lessons learned from the Fort Zed project can be integrated into future DSM programs to continue sustained excellence.

Sources:

Personal communication with John Phelan, Energy Services Manager, Fort Collins Utilities

<http://www.fcgov.com/utilities/residential/conserve>

http://www.fcgov.com/utilities/img/site_specific/uploads/2009_Energy_Policy_annual_update_7.10.pdf

http://www.fcgov.com/utilities/img/site_specific/uploads/2009_GRI_Sustainability_Report.pdf

Austin Energy

Austin Energy is the country's ninth largest municipal electric utility, serving more than 400,000 customers in Austin, Texas. The utility is an established leader in the energy efficiency industry earning numerous accolades for some of the most comprehensive DSM programs in the industry. Between 1982 and 2007, the company's DSM efforts saved over 700 MW, effectively eliminating the need to construct a new power plant that was planned to meet predicted demand. In 2003, the city of Austin established an electric load reduction goal of saving an additional 800MW by 2020, clearly demonstrating its commitment to supporting strong DSM efforts into the future. Austin Energy spent \$36 million or 2.8% of its \$1.28 billion total revenue on DSM programs in 2010. In 2011, the DSM budget is expected to grow to \$39 million with over 58 MW in load reduction as a result of 2011 DSM programs.

A program of particular interest is Austin Energy's Commercial Power Savers, which takes a comprehensive approach to capturing cost effective energy savings opportunities for commercial customers. The multifamily segment provides up to \$100,000 in rebates to encourage weatherization, lighting upgrades, duct sealing/replacement, high performance air conditioning and other cost effective energy saving improvements. This program helps multifamily property owners to improve the overall efficiency of their buildings, an action which is not likely to occur without this program. Participants experience 10 to 40 percent reduction in energy use, which reduces the burden of energy costs on tenants while improving building comfort, durability and value.

Austin Energy has clearly recognized the energy savings potential that exists within customers' homes and has effectively captured this savings through its Home Performance with Energy Star effort. In 2010, this residential retrofit program offered rebates of up to 40 percent with a \$1,575 cap. The program is on track to weatherize 2000 homes and produce 4.3MW in load reduction, all within a \$2.3M budget. To supplement program rebates, the company offered low interest loans to finance qualified weatherization improvements. Austin Energy also partners with area realtors to deliver audits and energy efficiency upgrades at the time of home sale.

Sources:

<http://www.austinenergy.com/about%20us/Newsroom/Reports/annualReport.pdf>
http://www.ci.austin.tx.us/budget/10-11/downloads/fy11approved_budget_voll.pdf,
<http://www.austinenergy.com/About%20Us/Newsroom/Strategic%20Plan/strategicPlan.pdf>
http://www.hprcenter.org/sites/default/files/ec_pro/hprcenter/best_practices_case_study_austin.pdf
<http://www.austinenergy.com/About%20Us/Newsroom/Press%20Releases/2010/energyEfficiencyIncentive.htm>
<http://www.puc.state.tx.us/rules/subrules/electric/25.181/25.181.pdf>

Seattle City Light

Seattle City Light (SCL) is a municipal utility serving nearly 395,000 customers in Seattle, Washington. SCL has offered one of the longest running DSM programs in U.S. with energy efficiency and conservation services offered continuously since 1975. In tune with the city's long history of environmental stewardship, SCL's DSM programs are well funded, with a 2010 budget of \$46.1 million (\$117 per customer). This is the highest per customer funding for DSM programs across the country. SCL produces some impressive energy savings with this budget, with a planned savings goal of 14.5 MW of peak load reduction and 307 GWh per year of electricity savings in 2010. This level of energy savings from one year's programs is equivalent to 1% of retail electricity sales. DSM goals and budgets have been targeted by the city to meet or exceed predicted load growth through 2012 and to meet 50% of load growth through 2024, minimizing the need for new electric generation resources.

SLC has significantly expanded its DSM programs and funding levels over the past five years as outlined in the utility's Conservation Action Plan. While DSM funding has more than doubled in the past five years, the savings produced from SLC's programs has increased by a factor of nine. SLC has drastically improved the performance of its DSM programs moving from a cost of 32 cents per kWh in 2007 to a projected cost of only 9 cents per kWh saved in 2012. SLC reported costs of 2 ½ cents per kWh saved in 2009 and just 2 cents per kWh saved in 2008, demonstrating sustained performance in delivering cost effective conservation programs. As in the case of Fort Collins Utilities, energy efficiency is the most cost effective resource available to the utility.

SCL's launched new energy efficiency programs for commercial and industrial customers in 2009, producing 63 GWh in savings, well above the 29 GWh planned savings. The success was due in large part to the program design and generous rebates offered to encourage business customers to take action. The Smart Business program pays up to 60% of the cost for energy efficient lighting systems with custom rebates offered to promote comprehensive DSM offerings, such as high performance heat pump equipment, chillers and variable speed drives. The custom rebate is a pay for performance design, offering \$0.20 to 0.23 per kWh per year of documented energy savings. Additional measures rebated under SCL's commercial programs include efficient transformers and custom process improvements targeted to address the full energy savings potential of customers' facilities.

SCL supports the development of high performance homes with its Build Smart program. Again, SCL takes a pay for performance approach providing rebates specific to upgrading individual components of a building which go beyond energy code requirements. In effort to encourage builders to upgrade all building components that influence a home's energy performance, the program offers rebates up to \$1.55 per square foot for windows with a U value under 0.28, \$0.32 per square foot for R26 wall insulation and up to \$0.23 per annual kWh in other documented electricity savings.

Sources:

<http://www.seattle.gov/light/AboutUs/AnnualReport/2009/2009AnnualReport.pdf>

http://www.seattle.gov/light/consERVE/docs/Conservation_5_Year_Action_Plan.pdf

<http://www.ci.seattle.wa.us/light/consERVE/>

http://www.ci.seattle.wa.us/light/Conserve/Resident/BSbinder/cv5_bs22.html

Sacramento Municipal Utility District

The Sacramento Municipal Utility District (SMUD) is the nation's sixth largest municipal utility serving over 595,000 customers in the 900 square miles of Sacramento County, California. In 2010, SMUD spent 2.7% of its \$1.29B revenues on energy efficiency programs along with an additional 1.8% of revenues to support renewable energy and research and development projects. These DSM efforts are on track to produce 143 GWh annual energy savings along with 24.5 MW of peak load reduction. SMUD has continually operated energy conservation, load management and energy efficiency programs since 1976, and has demonstrated both industry leadership and outstanding performance in program delivery.

SMUD DSM efforts were born out of necessity from the mid 70's energy crisis. The company invested in new power generation resources and comprehensive energy conservation programs to head off the effects of an oil embargo, reduced hydroelectric power output stemming from severe drought and rising electrical demand from its customers. Over the past 35 years these efforts have resulted in nearly \$500 million in net benefits to customers and firmly established the utility's commitment to high performance DSM programs. SMUD has a community-driven directive of achieving a 15% reduction in energy use by 2018 and its DSM efforts are well on track towards exceeding this goal. SMUD programs produce energy savings at a cost of just 1 cent per kWh saved, placing program cost effectiveness among the top in the nation. To prioritize energy efficiency, SMUD has adopted Integrated Resource Planning which clearly identifies energy efficiency as the least cost energy resource.

While many of SMUD's programs are noteworthy, their Savings by Design program has been very successful. The program offers design assistance and incentives to builders and architects to construct commercial and industrial buildings that use 10 to 30 percent less energy than required by local energy code. In 2009, the program helped to increase efficiency levels of 36 newly constructed commercial properties providing rebates of up to \$1 per therm and \$0.10 to \$0.30 per kWh in demonstrated energy savings, with a \$500,000 cap per project. SMUD's retro-commissioning program helps

existing commercial customers to save energy by fine tuning energy control systems, providing onsite training of building operators, and identifying low cost/no cost energy saving operational improvements. The program rebate pays \$0.08 per kWh and \$100 per KW saved, up to a 20% of the project cost, capping out at \$50K of incentive per customer. With a combined budget of \$9.2 million in 2011, SMUD's commercial and industrial retrofit programs will save customers 48.7 GWh of electricity per year while providing 9.1 MW of load reduction.

SMUD earmarked \$13.3 million to support its residential DSM programs in 2011. These programs are on track to produce 75.8 GWh in annual energy savings and 12.7 MW of peak load reduction. SMUD follows the Consortium for Energy Efficiency (CEE) appliance tiers to offer rebates for high performance dishwashers, clothes washers, heat pumps and air conditioners. This approach offers tiered rebate amounts for appliances that use increasingly less energy as compared to conventional units. SMUD takes a quality installation verification approach with heat pumps and air conditioners to insure that units are sized correctly and installed to operate at higher efficiency levels; the result is an educated contractor base and higher energy savings for the customer. SMUD launched its Home Performance with ENERGY STAR program at the end of July 2010 and has already recruited over 30 contractors to deliver whole house audits and retrofits. Program rebates of up to \$5,000 are available. An additional financing option is offered to further encourage participation. SMUD was also a pioneer in offering consumer information and feedback through a Home Energy Reports program.

SMUD's R&D efforts have produced a Home of the Future program; a demonstration project that helps builders to construct net zero energy homes. SMUD partners with manufacturers, builders and local businesses to support their net zero construction effort, which in time will help to increase awareness of the materials, techniques and the incremental cost of building super-efficient homes. The Energy Efficient Remodel Demonstration program is another unique R&D effort that works with contractors to complete deep energy retrofits of selected homes. These projects help to educate contractors on high performance materials and processes, while reducing home energy use by more than 60%. SMUD's willingness to explore new program designs is a key element in the long term success of their DSM efforts.

Sources:

<http://www.smud.org/en/about/Documents/reports-pdfs/2009-Public-Good-Report-Final.pdf>

<http://www.smud.org/en/about/Documents/2009-annual-report.pdf>,

<http://www.smud.org/en/about/Documents/reports-pdfs/draft-rate-design-mod-EE-invest-standard.pdf>

<http://www.smud.org/en/about/Documents/reports-pdfs/draft-integrated-resource-planning-standard.pdf>

<http://www.savingsbydesign.com/pdfs/2010-2012-SBD-Participant-Handbook.pdf>