



SOUTHWEST ENERGY EFFICIENCY PROJECT

Saving Money and Protecting the Environment Through More Efficient Energy Use

Colorado Electric Utility Energy Efficiency Programs: A Success Story

December 2019

History

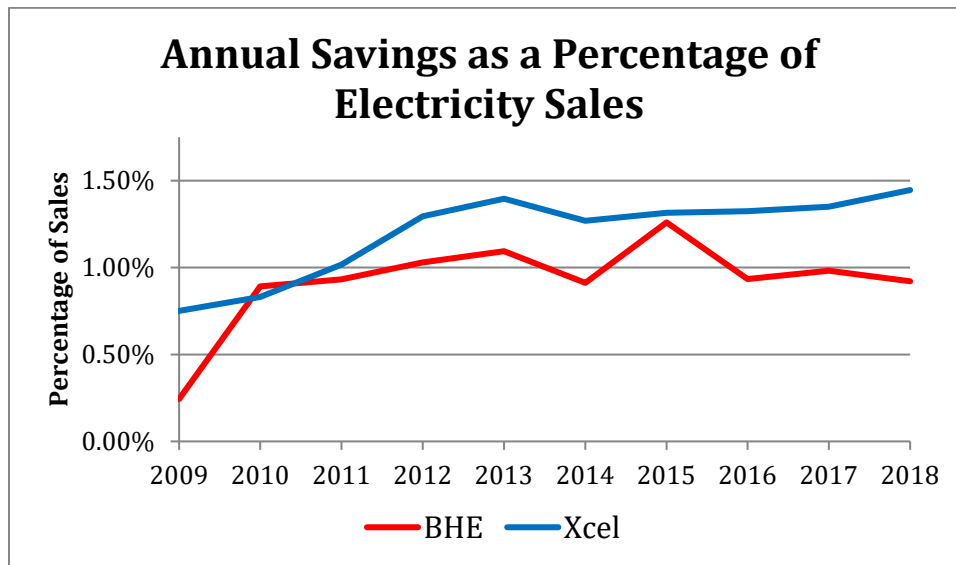
- House Bill 1037, passed by the Colorado legislature in 2007, directed the Public Utilities Commission (PUC) to establish energy savings goals for investor-owned electric and gas utilities. The bill also directed the PUC to provide utilities with the opportunity to earn a profit from implementing cost-effective energy efficiency programs for their customers. In 2017, the legislature passed HB 1227 directing the PUC to set energy savings goals for another 10 years.
- The PUC established energy savings goals and performance-based incentives for Xcel Energy and for Black Hills Energy (BHE) that started in 2009.
- These actions led to greatly expanded utility energy efficiency and other demand-side management (DSM) programs implemented by Xcel Energy and BHE. The programs help households and businesses reduce their energy use and utility bills through education about energy savings opportunities, rebates on energy-efficient products and equipment, technical assistance, and free installation of efficiency measures in low-income households.
- In 2014, the annual energy savings goals for Xcel Energy were revised to 400 GWh per year for 2015-2018. In 2018, the PUC increased Xcel's energy savings goal to 500 GWh per year during 2019-23. The PUC also modified the shareholder incentive that Xcel Energy can earn based on the performance of its energy efficiency programs.
- There are no energy efficiency program requirements for municipal utilities or rural electric cooperatives in Colorado, which are self-governed and not subject to PUC regulation. Some of Colorado's municipal utilities and rural cooperatives (notably Fort Collins Utilities, Colorado Springs Utilities and Holy Cross Energy) have established comprehensive energy efficiency programs on their own.

Impacts of Energy Efficiency Programs

- The table and chart below show the key performance indicators for the energy efficiency programs implemented by Xcel Energy and BHE during 2009-18. In total, the two utilities spent \$785 million on energy efficiency and load management programs, while households and businesses will save over \$1.5 billion net as a result of this investment.
- In response to Xcel's and BHE's energy efficiency programs and the efficiency measures installed during 2009-18, households and businesses reduced their electricity use in 2018 by 3.8 billion kWh. This is equal to over 12% of actual electricity consumed by retail customers of the two utilities, and is equivalent to the electricity use of 521,000 typical households served by the utilities. Xcel Energy exceeded the energy savings goals set by the PUC every year during 2009-18 and underspent its approved DSM budget all years except 2012.
- The electric efficiency programs of Xcel Energy and BHE have been very cost effective with an overall benefit-to-cost ratio of about three-to-one from a utility benefit-cost perspective.

Customers will save nearly \$4 on their utility bills for every \$1 invested by the utilities in energy efficiency programs.

- In addition to recovering program costs, Xcel Energy was awarded around \$140 million in incentives based on the level of energy savings achieved and the cost effectiveness of its energy efficiency programs during 2009-18. About 91% of the net benefits of the energy savings and load management programs were retained by customers with about 9% awarded to the utility.
- Utility energy efficiency programs increase employment through the production, sales and installation of energy-efficient products and services. A recent U.S. DOE study estimates that there are over 32,000 jobs related to improving in energy efficiency in Colorado.
- Xcel Energy and BHE avoided over 2.6 million metric tons of CO₂ emissions in 2018 due to energy efficiency programs implemented during 2009-18 assuming that half of the energy savings reduced operation of coal-fired power plants and half reduced operation of gas-fired power plants. The reduction in CO₂ emissions is equivalent to taking 520,000 cars off the road. In addition, the cumulative CO₂ emissions reduction during 2009-18 was 13 million metric tons.



DSM Program Results for Colorado's Investor-Owned Electric Utilities, 2009-18

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Xcel – DSM spending (M \$)	43.9	54.7	63.8	79.4	75.3	77.0	87.1	84.9	88.3	92.0	746
BHE – DSM spending (M \$)	1.4	2.5	3.2	3.5	4.5	5.1	5.4	4.9	5.6	4.8	41
Xcel – Electricity Savings (GWh/yr)	220	252	312	401	384	392	406	410	415	454	3,646
BHE – Electricity Savings (GWh/yr)	4.5	17.3	19.0	20.0	21.0	17.8	25.8	19.2	19.9	19.4	184
Xcel– Net Economic Benefits (M \$)	206	210	178	170	160	123	100	116	92	72	1,427
BHE – Net Economic Benefits (M \$)	2.0	4.0	5.0	7.0	10.0	8.4	16.3	9.4	10.0	12.1	84
Xcel– Benefit-Cost Ratio	4.1	3.3	2.8	2.4	2.3	1.9	1.7	1.6	1.6	1.5	NA
BHE – Benefit-Cost Ratio	2.3	1.6	1.8	1.8	2.3	2.0	2.7	2.3	2.5	3.0	NA

Source: Utility data are from annual Demand-Side Management reports submitted by the utilities to the Colorado Public Utilities Commission. Electricity savings shown in the table are at the generator level.

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