



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 2020

History

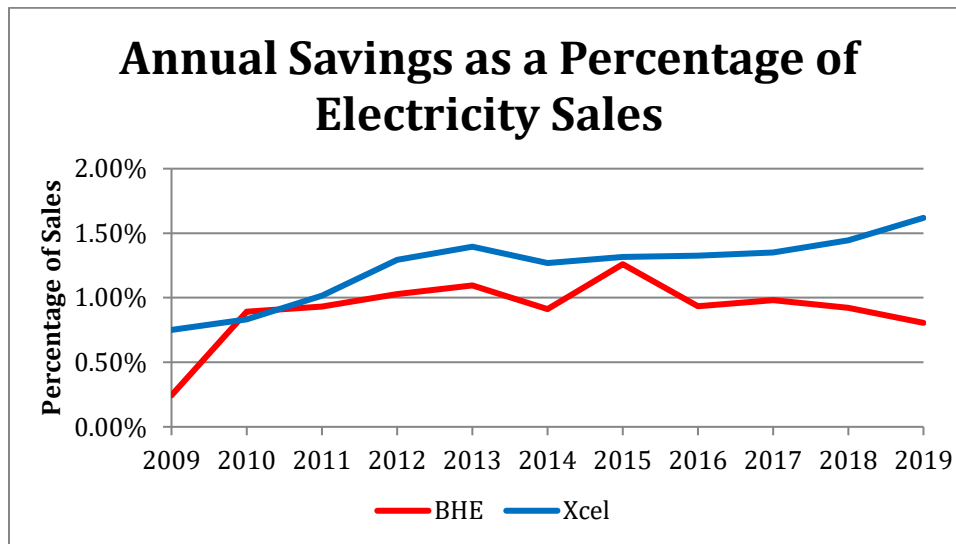
- House Bill 1037, passed by the Colorado legislature in 2007, directed the Public Utilities Commission (PUC) to establish energy savings goals for investor-owned electric and gas utilities. The bill also directed the PUC to provide utilities with the opportunity to earn a profit from implementing cost-effective 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 2018, the PUC increased Xcel's electric 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 including Fort Collins Utilities, Colorado Springs Utilities and Holy Cross Energy implement 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 2010-19. In total, the two utilities spent \$842 million on energy efficiency and load management programs, while households and businesses will save over \$1.4 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 2010-19, households and businesses reduced their electricity use in 2019 by 4.1 billion kWh. This is equal to over 13% of actual electricity consumed by retail customers of the two utilities, and is equivalent to the electricity use of 560,000 typical households served by the utilities. Xcel Energy exceeded the energy savings goals set by the PUC every year during 2010-19 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 2.5:1 from a utility benefit-cost perspective and 1.7:1 from

a total resource cost perspective. From a utility system perspective, there is \$2.50 in utility cost savings for every \$1 invested by the utilities in energy efficiency programs.

- In addition to recovering program costs, Xcel Energy was awarded around \$150 million in incentives based on the level of energy savings achieved and the cost effectiveness of its energy efficiency programs during 2010-19. This means that 90% of the net benefits of the programs were retained by customers with about 10% 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 nearly 2.7 million metric tons of CO₂ emissions in 2019 due to energy efficiency programs implemented during 2010-19 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 535,000 cars off the road. In addition, the cumulative CO₂ emissions reduction during 2010-19 was 13 million metric tons.



DSM Program Results for Colorado’s Investor-Owned Electric Utilities, 2010-19

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Xcel – DSM spending (M \$)	54.7	63.8	79.4	75.3	77.0	87.1	84.9	88.3	92.0	94.7	797
BHE – DSM spending (M \$)	2.5	3.2	3.5	4.5	5.1	5.4	4.9	5.6	4.8	5.2	45
Xcel – Electricity Savings (GWh/yr)	252	312	401	384	392	406	410	415	454	504	3,930
BHE – Electricity Savings (GWh/yr)	17.3	19.0	20.0	21.0	17.8	25.8	19.2	19.9	19.4	17.0	196
Xcel– Net Economic Benefits (M \$)	210	178	170	160	123	100	116	92	72	128	1,349
BHE – Net Economic Benefits (M \$)	4.0	5.0	7.0	10.0	8.4	16.3	9.4	10.0	12.1	9.0	91
Xcel– Benefit-Cost Ratio	3.3	2.8	2.4	2.3	1.9	1.7	1.6	1.6	1.5	1.7	NA
BHE – Benefit-Cost Ratio	1.6	1.8	1.8	2.3	2.0	2.7	2.3	2.5	3.0	2.2	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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