



SOUTHWEST ENERGY EFFICIENCY PROJECT

Saving Money and Protecting the Environment Through More Efficient Energy Use

Colorado Electric Utility Energy Efficiency Programs: A Success Story

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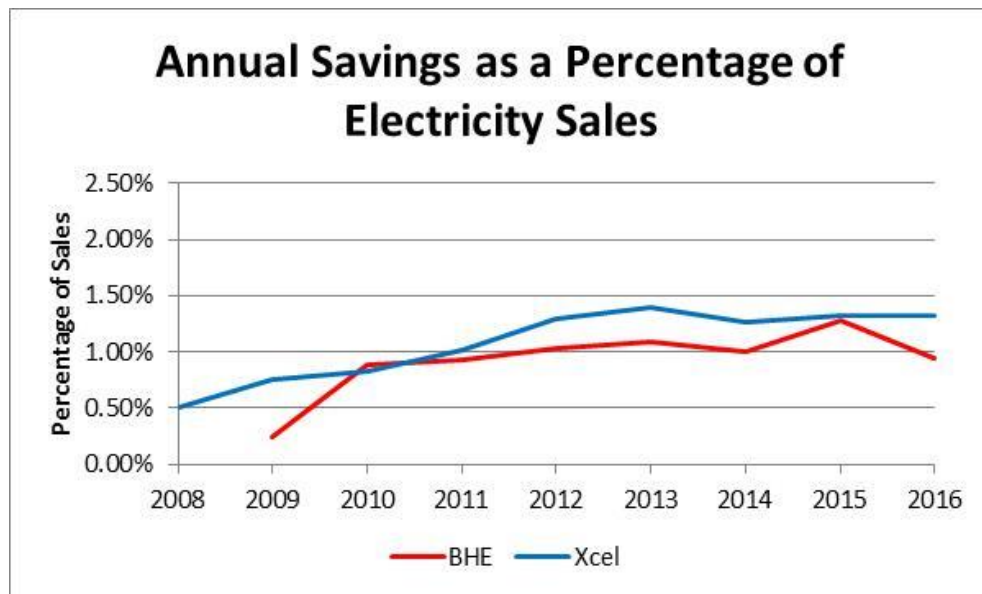
History

- 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) starting 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 2015-2020. 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. A few 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, but most offer limited or in some cases no energy efficiency programs.

Impacts of Energy Efficiency Programs

- The table and chart below show the key performance indicators for the energy efficiency programs implemented by Xcel Energy during 2008-16, and BHE beginning in 2009. In total, the two utilities spent \$617 million on energy efficiency and load management programs, while households and businesses will save nearly \$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 2008-16, households and businesses reduced their electricity use in 2016 by nearly 3.1 billion kWh. This is equal to 10% of actual electricity consumed by retail customers of the two utilities, and is equivalent to the electricity use of 378,000 typical households. Xcel Energy exceeded the energy savings goals set by the PUC every year during 2008-16 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 more about two-to-one. Customers will save nearly \$3 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 \$120 million in incentives based on the level of energy savings achieved and the cost effectiveness of its energy efficiency programs in 2008-16. About 92% of the net benefits of energy-saving programs were retained by customers with about 8% 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 Colorado has over 29,700 jobs related to improving in energy efficiency.
- Xcel Energy and BHE avoided 2.2 million metric tons of CO₂ emissions in 2016 due to energy efficiency programs implemented during 2008-16 assuming that half of the energy savings reduces operation of coal-fired power plants and half reduces operation of gas-fired power plants. The reduction in CO₂ emissions is equivalent to taking 440,000 cars off the road.



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

	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Xcel – DSM spending (M \$)	19.6	43.9	54.7	63.8	79.4	75.3	77.0	87.1	84.9	586
BHE – DSM spending (M \$)	--	1.4	2.5	3.2	3.5	4.5	5.1	5.4	4.9	31
Xcel – Electricity Savings (GWh/yr)	152.0	220.0	252.0	312.0	401.0	384.0	391.6	405.7	410.5	2,929
BHE – Electricity Savings (GWh/yr)	--	5.0	17.0	19.0	20.0	21.0	17.8	25.0	19.2	144
Xcel – Net Economic Benefits (M \$)	65	206	210	178	170	160	123	100	116	1,328
BHE – Net Economic Benefits (M \$)	--	2.0	4.0	5.0	7.0	10.0	8.4	16.3	9.4	62
Xcel – Benefit-Cost Ratio	4.1	4.1	3.3	2.8	2.4	2.3	1.9	1.7	1.6	--
BHE – Benefit-Cost Ratio	--	2.3	1.6	1.8	1.8	2.3	2.0	2.7	2.3	--

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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