Colorado Electric Utility Energy Efficiency Programs: A Success Story

Updated August 2025

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.
- In 2021, Colorado lawmakers passed legislation that directed the PUC to establish energy savings targets and approve plans for electric IOUs to promote energy efficient electric equipment in place of less efficient fossil-fuel-based systems - aka Beneficial Electrification (BE). As a result, large electric utilities began filing combined DSM/BE Plans starting in 2022.
- Also in 2021, Colorado lawmakers established Colorado's Clean Heat Standard, which requires large natural gas utilities to cut greenhouse gas emissions from a 2015 baseline by 4% by 2025 and 22% by 2030. As a result, large gas utilities began filing Clean Heat Plans starting in 2023, which have included large investments in DSM and in some cases BE measures. **Update:** Rulemaking to determine the 2035 reduction target (and possibly the 2040/45 targets) are being undertaken at the time of publication, with outcome TBD.

Impacts of Energy Efficiency Programs

- In 2024, the two largest IOUs in Colorado (Xcel and BHE) ran a **combined 45 residential and commercial DSM Programs, of which approximately 66% included measures related to building envelope efficiency and/or efficient HVAC equipment and controls**. (Other programs included those related to EVs, Batteries, Recycling, etc.) Combined, the utilities spent $122 million on these Programs in 2024 while capturing nearly than $398 million in net benefits.

- The table and chart below show the key performance indicators for the energy efficiency programs implemented by Xcel Energy and BHE during 2010–2024. In total, the two utilities spent about $1.38 billion on energy efficiency and load management programs, while the net benefits experienced by the system, households and businesses was greater than $3.0 billion.

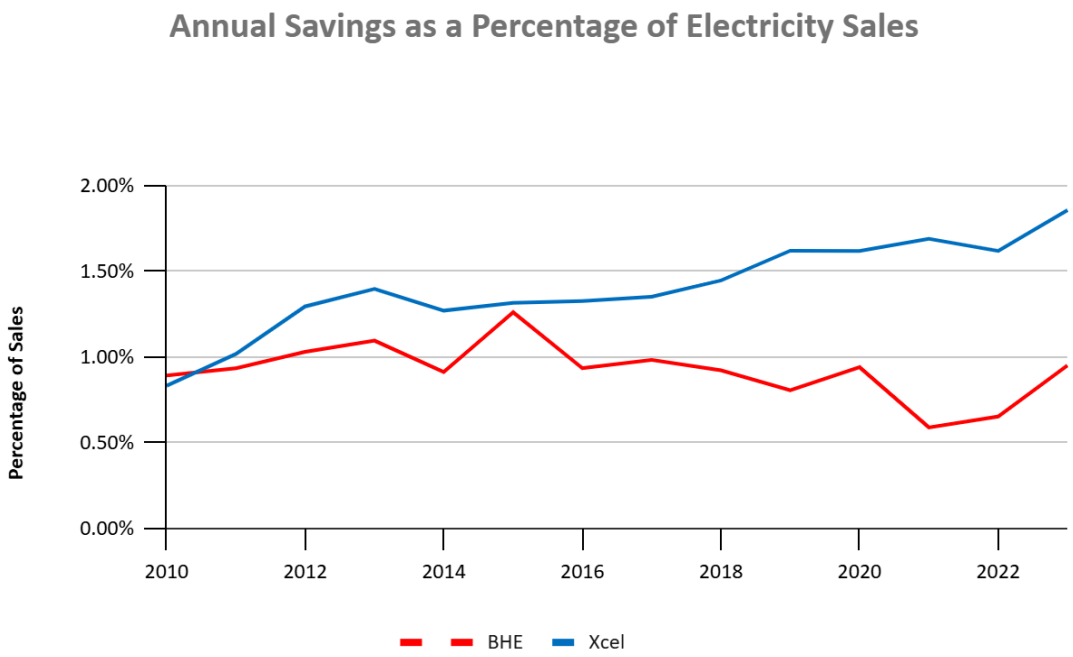
- As a result of Xcel's and BHE's energy efficiency programs and the efficiency measures installed during 2010–2024, households and businesses reduced their electricity use in 2024 by nearly 6.6 billion kWh cumulatively. This is equal to roughly 20% of annual electricity consumption by retail customers of the two utilities, and is equivalent to the electricity use of about 900,000 typical households served by the utilities. Xcel Energy exceeded the energy savings goals set by the PUC every year during 2010–2024 and underspent its approved DSM budget in most years.

- The electric efficiency programs of Xcel Energy and BHE have been very cost effective with an overall benefit-to-cost ratio averaging about 2.4:1 for Xcel and 4.6:1 for BHE during 2020–2024. From a utility system perspective, this means there were more than $2.43 in benefits for every $1 invested in energy efficiency programs

- Beyond lowering bills, energy efficiency is a proven driver of employment in Colorado. Data from the 2024 Energy Efficiency Jobs in America report estimates there are over 37,800 jobs in Colorado related to energy efficiency.

- Based on savings reported by Xcel Energy, between 2020-2024 the utility avoided 1.2MMt in emissions as a result of utility DSM/BE programs, which is equivalent to taking about 280,000 cars off the road for a year.[1] (Note: BHE doesn't report emissions savings)

[1] U.S. Environmental Protection Agency, *Greenhouse Gas Equivalencies Calculator* and average emission factors for coal and natural gas generation: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator



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

DSM Program Results for Colorado's Investor-Owned Electric Utilities, 2020-24

	2020	2021	2022	2023	2024	Total or (Avg)
Xcel – DSM spending (M $)	$83.9	$92.2	$101.9	$114.6	$115.4	$508.0
BHE – DSM spending (M $)	$6.8	$5.5	$5.8	$6.7	$6.6	$31.3
Xcel – Electricity Savings (GWh/yr)	467	488	466	520	467	2,408
BHE – Electricity Savings (GWh/yr)	18.0	11.3	12.3	17.1	15.0	73.6
Xcel– Net Economic Benefits (M $)	$249.6	$254.1	$230.1	$371.2	$362.7	$1,467.6
BHE – Net Economic Benefits (M $)	$12.8	$8.6	$24.5	$37.5	$35.2	$118.7
Xcel– Benefit-Cost Ratio	1.96	2.27	2.19	2.86	2.86	(2.43)
BHE – Benefit-Cost Ratio	2.32	2.29	4.54	7.43	6.50	(4.62)
Xcel–Avoided Emissions (Thousand MT CO2e)	232	306	213	239	225	1,215

Source: Utility data are from annual Demand-Side Management reports submitted by the utilities to the Colorado Public Utilities Commission

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