A Path to Pollution-Free Buildings:
Meeting Xcel's 2030 Gas Decarbonization Goals

Executive Summary

In 2021, Colorado passed Senate Bill 21-264, legislation requiring Colorado's gas utilities to reduce their greenhouse gas emissions by 4% by 2025 and 22% by 2030, relative to 2015 levels. These goals cover emissions from customers' use of gas and leakage from the utility's distribution system. They are ambitious, and the steady growth in gas sales by Xcel Energy, Colorado's largest electricity and gas provider, makes them even more so. Since 2015, Xcel's retail gas sales have grown by 9%, meaning that the utility's 2030 emissions reduction goal is really a 28% reduction from current levels – which it must achieve in just seven years.

In this report, we recommend measures to drive a steep reduction in emissions from the gas utility and demonstrate how Xcel can meet Colorado's targets in a way that delivers the most emissions reductions per ratepayer dollar.

To achieve its 2030 goal, Xcel must rapidly increase adoption of efficient electric appliances – heat pumps and heat pump water heaters – and weatherize tens of thousands of homes and businesses. While the efforts necessary to meet the clean heat targets are challenging, they are achievable.

To understand the level of investments and pace of deployment needed to meet Xcel's emissions reduction goals, we analyzed two portfolios. The Reference Case portfolio examines Xcel's expected business-as-usual gas sales and emissions. The Policy Case portfolio focuses on two clean heat measures: electrifying space and water heating, and accelerating implementation of building energy efficiency measures such as air sealing and insulation. The Policy Case focuses on these measures because alternatives, like green hydrogen and renewable natural gas, are roughly five times more expensive, and are not able to achieve deep, long-term emissions reductions. Some of our report's key findings and recommendations include:

Prioritizing replacing air conditioners, gas furnaces and boilers, and gas water heaters with efficient electric appliances when those appliances reach end of life.

In the Policy Case, all residential air conditioning sales are either standard or cold-climate heat pumps by 2030. AC replacements are the single largest driver of emissions reductions in our Policy Case scenario. We model that beneficial electrification – switching from conventional gas-fueled appliances to efficient electric counterparts – achieves the majority of Xcel's emissions reductions over the next seven years.

Accelerating gas efficiency savings – to 900,000 dekatherms (Dth) per year by 2030 – focusing on weatherization, customer education and other measures to reduce gas demand for space and water heating.

Frontloading spending to stimulate the market for efficient electric appliances and promote workforce development and customer education.

Increasing deployment of heat pumps and heat pump water heaters will require a significant increase in the workforce, as well as education of customers, building owners, contractors, architects, and others. And larger incentives are needed in the next few years to spur distributors, contractors, and building owners to stock, sell, and purchase electric appliances. Making these investments in the next few years will help ensure the workforce is available to install a vast number of appliances in the latter part of the decade.

Ensuring robust incentives for low-income households.

Many of the federal and state incentives available for electric appliances are provided in the form of tax credits, which are inaccessible to lower-income families without tax liability. We recommend that at least 20%-25% of Xcel's clean heat budgets are dedicated toward incentives for Xcel's low-income customers. In addition, complementary policies, such as on-bill financing for heat pumps and weatherization measures, will likely be essential.

To deploy tens of thousands of heat pumps and improve the efficiency of homes and businesses, Colorado must spur a market transformation. Current federal and state programs can support this transition, but robust, consistent utility investments along with workforce development and customer education will be critical. By 2030, under the Policy Case, we project that the utility's clean heat plan will need to provide roughly $125 million in additional incentives annually, beyond current programs, for efficient electric appliances and weatherization. However, the long-term benefits of these investments outweigh the significant costs: our report shows that by 2030, the avoided fuel costs, investments in new gas infrastructure to serve new homes, and greenhouse gas emissions exceed the annual costs of the proposed clean heat measures. For example, in 2030 the avoided fuel costs of gas range from an estimated $312 million per year to more than $477 million per year.

To ensure customers see net benefits on their utility bills, it is also essential that efficiency and electrification measures are strategically deployed so that Xcel can reduce annual investments in the gas system. **Energy efficiency and electrification can improve indoor and outdoor air quality, improve home comfort, and mitigate the risk of rising or volatile gas prices.** Incentives for heat pumps can help provide air conditioning to customers who currently lack it. Investments in market transformation today will set Colorado up for success in achieving deep emissions reductions in the building sector by 2050, as more air conditioning, gas furnace, and gas water heating stock turns over in the coming decades. Importantly, the near-term budgets represent an up-front investment in market transformation; if successful, utility incentives may be modest or even unnecessary in future years.

In August 2023, Xcel will be the first utility in the nation to file a clean heat plan. Colorado has shown critical leadership by adopting science-based emissions reduction goals, and for over a decade, the state's electric utilities have achieved significant emissions reductions. Now, Xcel has the opportunity to demonstrate how to rapidly and cost-effectively achieve emissions reductions from the gas utility. **If successful, Xcel – and Colorado – will serve as a model for other utilities and states striving to achieve economy-wide emissions reductions.**

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