



Grounded in Reality

Modeling the Economic Impact of a Local Gas Moratorium in the Denver Metropolitan Area

Key Facts

- This analysis addresses the impacts in IMPLAN of the Denver metropolitan area ("the Denver region"), a 10-county region in Colorado, requiring the installation of electric space and water heaters for the energy needs of residential and commercial customers.¹
- According to data provided by the American Gas Association ("AGA"), the annual average cost of ownership over 20 years for a representative home with high-efficiency gas would be \$815 per year. For an electrified home not requiring upgrades to its electrical panel, average cost of ownership for 20 years would be \$1,385, which would rise to \$1,562 to cover the equipment and installation costs of upgrading electrical panels for older homes.
- Therefore, the 20-year cost of ownership for an electrified home is between 70% higher and 92% higher than the 20-year cost of ownership for high-efficiency gas.
- According to the AGA data, the 20-year cost of energy inputs for commercial structures using high-efficiency gas would be \$3,758 per year. For commercial buildings using electricity for heat, the annual average cost of energy would be \$8,183 per year. This represents a 118% increase in the cost of energy inputs for commercial structures.
- Electrification would proceed gradually over the next two decades as more new structures come online and existing structures' heating equipment reach the end of their technical lives. By 2041, net costs for residential customers in the Denver region would be \$668 million higher, and commercial customers' costs would be \$249 million higher. For the 20-year window from 2022 to 2041, residential customers' aggregate increase in costs would be \$6.9 billion, and commercial customers' increase in costs would be \$2.5 billion.
- These higher costs of living and higher costs of doing business would have significant and negative implications for the growth of the Denver region's economy. The households facing the higher costs for their energy needs would need to reduce their expenditures on consumer staples, negatively affecting the service sector in the Denver region. Businesses would pass their higher costs along to customers or be less competitive.

¹ Adams, Arapahoe, Broomfield, Clear Creek, Denver, Douglas, Elbert, Gilpin, Jefferson, and Park Counties

- By 2041, the Denver region would have 5,500 fewer jobs under a local gas moratorium in comparison to a scenario of adopting high-efficiency gas. This effect would be general across the Denver region's economy, though the strongest impacts would be in the sectors related to natural gas utilities, wholesale and retail, education, healthcare, social assistance, food services, and other personal services. These sectors would be the ones most strongly impacted by the decrease in local consumers' purchasing power.
- In 2041, the Denver region's economy would produce \$220 million less in gross domestic product (GDP) and \$289 million less in labor income for households. The impacts in the earlier years would be less than this yet steadily advancing over time when more and more homes and commercial structures undergo electrification.
- In addition, according to calculations from AGA, the reduction in greenhouse gas (GHG) emissions in the form of carbon dioxide (CO₂) from electrifying residential and commercial space and water heating would be minimal and come at a high cost.
- The studied electrification scenario would decrease net CO₂ emissions attributable to the Denver region by a cumulative 735,000 metric tons between 2022 and 2041. This reduction would reduce the projected emissions from Denver's residential and commercial structures converting to high-efficiency gas for their heating by around 3.8%.
- The net change accounts for any difference in gas consumption by residential and commercial customers as well as any increase in emissions resulting from additional power demand, which would by necessity increase the load for utilities in Colorado.
- AGA's estimate of the new emissions from power generation derive from the forecasts developed by the National Renewable Energy Laboratory (NREL) and its ReEDS model of electric power markets.² Assumptions for this analysis come from the Low Renewable Cost Scenario and its long-term projections of marginal emissions.³
- When comparing the emissions results to the \$9.5 billion increase in net costs for customers across the 20-year analysis period, the cost of saving one metric ton of CO₂ would be \$12,875 per metric ton, well in excess of estimates for the social cost of carbon.⁴

² <https://www.nrel.gov/analysis/reeds/>

³ According to the model documentation, this is, "Long-run marginal emission rate of the generation induced by a persistent change in the region's end-use load."

⁴ \$9.5 billion / 735,000 metric tons = \$12,875 per metric ton