Grounded in Reality

Modeling the Economic Impact of a Local Gas Moratorium in Nevada

Key Facts

- This analysis uses the IMPLAN model to determine the impact of a moratorium on new gas installations in the two largest metropolitan areas of Nevada ("Urban Nevada"), a three-county region comprised of Las Vegas and Reno.[1] The policy would require the installation of electric space and heating equipment for residential and commercial customers.
- According to the American Gas Association ("AGA"), the 20-year cost of ownership for the average electrified home in the Las Vegas metropolitan area would be between $17,200 and $20,800 depending whether it needs an upgraded electrical panel. The 20-year cost of a home with high-efficiency gas would be $12,500 – or a savings of 27% to 40%.
- When annualized, the Las Vegas home with gas would cost its customers an average of $626 per year while the electrified home would cost between $862 and $1,039 per year, which is an increase in costs for residential customers between 38% to 66%.
- According to AGA, the 20-year cost of energy for commercial structures utilizing electrified equipment in the Las Vegas metropolitan area would be $114,100. The 20-year cost for the structure using gas would be $61,500 – a savings of 46% compared to electrification. When annualized, the average commercial gas customer would pay $3,074 per year while electrified customers would pay $5,705 per year (or $2,632 more per year).
- The economics of electrification compared to high-efficiency natural gas would be different in the Reno metropolitan area because of Reno's colder climate and different gas and electricity prices throughout Nevada. According to AGA, the 20-year cost of ownership for the electrified home in the Reno metropolitan area would be between $22,200 and $25,700 depending on the readiness of its electrical panel for electrification. The 20-year cost of ownership for a home with high-efficiency gas would be $15,500 – a savings of 30% to 40%.
- When annualized, the Reno home with gas would cost customers an average of $775 per year while the electrified home would cost between $1,109 and $1,286 per year, which is an increase in costs for residential customers of between 43% and 66%.
- For Reno, the 20-year cost of energy for the average commercial structure using electrified heating equipment would be $188,300. The 20-year cost for the average commercial building with gas would be $113,000 – a savings of 40% compared to electrification. When annualized, the average commercial gas customer would pay $5,648 per year while electrified customers would pay $9,416 per year (which is $3,768 more each year).

[1] The Las Vegas metropolitan area (Clark County) and the Reno metropolitan area (Washoe and Storey Counties)

- Electrification would proceed gradually as more new homes and structures come online and existing heating equipment reaches the end of its service life. For the Las Vegas metropolitan area in 2050, electrification would increase net costs for residential customers by $181 million and commercial customers by $47 million. From 2022 through 2050, residential customers' cumulative increase in net costs would be $2.6 billion and commercial customers' cumulative increase in net costs would be $742 million. This equals a combined net cost of $3.4 billion for residential and commercial customers in the Las Vegas region.
- For the Reno metropolitan area in 2050, mandated electrification would increase net costs for residential customers by $148 million and commercial customers by $27 million. From 2022 through 2050, residential customers' cumulative increase in net costs would be $2.1 billion and commercial customers' cumulative increase in net costs would be $439 million, equalling the combined increase in net cost of $2.6 billion in the Reno region.
- These higher costs of living and doing business would have significant and negative impacts on Urban Nevada's economy. Households facing the higher heating costs would need to reduce expenditures on consumer staples, affecting the service sector in Urban Nevada. Businesses would pass costs along to customers and would become less competitive.
- In 2050, Urban Nevada would have 2,000 fewer jobs because of gas moratoria when compared to a scenario utilizing high-efficiency gas for residential and commercial heating needs. These impacts would be general across Urban Nevada's economy, though the service sector would be affected the most because of its dependence on consumer spending.
- The table below shows the service sectors most affected by the moratoria and the resulting higher net costs for households and commercial businesses. Sectors impacted the most would include Finance, Insurance, and Real Estate ("FIRE"); healthcare; retail; business, personal, and professional services; and the hospitality and food service sectors.

Service Sector	Jobs Impact (2050)
FIRE	-730
Healthcare	-540
Retail	-350
Business Services	-270
Personal Services	-250
Professional Services	-230
Hotels and Food Service	-220
Water and Transportation	-130
Wholesale	-100
Education	-80
Arts and Entertainment	-80
Communications	-60

- Additionally, according to AGA calculations, the reduction in carbon dioxide ("CO_2") emissions from electrifying the residential and commercial building stocks of Las Vegas and Reno would be minimal and come at a cost exceeding the social cost of carbon.

- Mandated electrification in the Las Vegas metropolitan area would decrease net CO_2 by a cumulative 11.2 million metric tons from 2022 through 2050. The same results for the Reno metropolitan area would be 11.4 million metric tons. These changes reflect reduced direct consumption of gas and an increase in load and power generation.
- 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]
- The NREL ReEDS model was used in this analysis to estimate hourly emissions and marginal costs for each natural gas-to-electricity conversion. The ReEDS model only provides emissions data for CO_2 and cannot provide a comparable rate for other air pollutants, including such compounds as methane, nitrogen oxides, and sulfur dioxide.
- When comparing the reduction in emissions to the increase in net costs for the Las Vegas metropolitan area, the implied result is $300 per metric ton of saved CO_2 emissions. For the Reno metropolitan area, the implied result is $224 per metric ton of saved CO_2 emissions. Such high costs are more than federal estimates of the social cost of carbon.
- Discounting emissions and net costs by 5% changes these results little – for Las Vegas, this yields $317 per metric ton instead of $300 per metric ton. For Reno, this yields $233 per metric ton instead of $224 per metric ton. Assuming one metric ton of CO_2 saved is worth $51, the present value ("PV") of the emissions saved from Las Vegas would be $225 million and the PV of the net costs would be $1.4 billion (a benefit-cost ratio of 0.16 to one). For Reno, the PV of emissions saved would be $224 million and the PV of the net costs would be $1.1 billion, which implies a benefit-cost ratio of 0.219 to one for the Reno region.
- This analysis is limited to the net costs and environmental impacts of mandated electrification for Urban Nevada. It does not attempt to determine the total cost of the electrification policy. Not included are cost estimates for: (1.) the electric distribution, transmission, and generation costs associated with increased load for the whole of the Western Electricity Coordinating Council ("WECC"); (2.) potential for gas utilities to increase rates for remaining customers as customer bases decrease in size; and (3.) any risks associated with changes to the reliability of the grid and overall resiliency of the regional energy system.

[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."