

KEY FINDINGS

CLIMATE POLICY FOR MARYLAND'S GAS UTILITIES

FINANCIAL IMPLICATIONS

This OPC report, prepared by the consulting firm Synapse Energy Economics, considers the financial impacts on gas utilities and customers of electrification, which will accelerate as Maryland implements its greenhouse gas reduction goals. It evaluates decarbonization technologies for home heating—including heat pumps and the most likely alternatives to fossil gas—and then models gas utility revenue needs and residential customer gas bill impacts based on a high electrification pathway for residential customers.

The report complements OPC's October 2022 report, *Maryland Gas Utility Spending: Projections and Analysis*. That report considered a "business-as-usual" path, showing what will happen to customer rates and bills based on the gas utilities' current spending patterns—assuming gas customers remain on the gas system and gas consumption continues much as it does today.

This report presents more realistic projections that account for customers leaving the gas system and declining gas consumption. Key findings are identified below.



Electrification

On its way and here to stay

- Gas heating has been gradually losing market share to electric since 2010—even without significant electrification policies in place.
- Factoring in new federal incentives, already cost-competitive electric alternatives will combine with increasing gas delivery system and commodity costs to drive more and more customers off the gas system.
- Under utility regulation, when sales decline, rates must rise for remaining customers so the utility can continue to receive the return of, and the return on, the gas system costs it has on its books, further contributing to and perpetuating customer loss.



Alternatives to fossil gas

- Potential alternatives to fossil gas include biomethane, recovered methane, hydrogen, and synthetic natural gas or synthetic methane.
- Biomethane and recovered methane pose collection, processing, and transportation challenges that raise their costs.
- Hydrogen poses significant difficulties for integration into existing gas infrastructure, and existing household gas appliances are incompatible with hydrogen.
- In the future, competition for alternative fuels could be fierce, as other states and economic sectors—transportation, industrial processes, and electric generation—compete with buildings for low-carbon alternative fuels.
- All the alternatives to fossil gas combust in residential households just as fossil gas, raising the same or greater safety risks; all potentially increase health concerns from air pollutants.



Model results

as customers and sales decline, rates for remaining gas customers skyrocket

- Gas sales drop much faster than the rate base declines, so rates must go up quickly if the utility is to continue to recover and earn a return on its capital expenditures
- Nearly all buildings, including 96 percent of homes, will be fully heated with heat pumps by 2050. Fossil fuel space and water heating is almost entirely eliminated, resulting in the greatest emissions reductions.
- By 2050, the total customers left on each of the three utility systems is just 5 to 7 percent of their total 2020 number of customers.
- Without changes to regulatory practices or direct assistance, customers who don't electrify—or are unable to electrify, such as tenants—will be left on an increasingly costly gas system.
- At some point, the utilities are likely to have substantial unrecovered and uneconomic assets remaining in rate base and on their books.

The following table of results of the analysis shows increases in annual gas bills—using alternative gaseous fuels (AGFs)—for customers remaining on the gas system.

Annual Bill (2020\$)

	2021	2035 AGF range	2050 AGF range
BGE	\$820	\$1,464 to \$1,944	\$4,634 to \$6,759
WGL	\$780	\$1,315 to \$1,868	\$3,827 to \$6,270
CMD	\$1,086	\$1,818 to \$2,408	\$3,979 to \$6,591

Utilities can adapt to electrification.

They can update their spending practices to lessen their revenue requirements and slow customer rate increases. In doing so, the utilities can mitigate their stranded assets, and remaining customers will not see costs rise as rapidly.

More about the modeling

The model assessed total GHG emissions, trends in gas consumption, and residential and commercial building stock by space heating type and space heating equipment sales under a high electrification pathway for residential customers, consistent with the Maryland Commission on Climate Change's report "Maryland Building Decarbonization Study: Final Report" (Oct. 20, 2021).

- Heat pumps gradually become the sole source of heating in over 95 percent of residential buildings by 2050.
- No fossil gas remains in the gas system past 2045; all remaining gas use is provided by alternatives to fossil gas.

To develop estimates for the characteristics of Maryland's building space and water heating system stock, the analysis uses Maryland-specific data on existing buildings from the U.S. Census Bureau and the U.S. Energy Information Administration (EIA).

In the low-price scenario, the price sensitivity for non-fossil alternative fuels from 2021 to 2050 ranges from \$14.37/MMBtu to \$22.92/MMBtu, based on a 2020 ICF report for AltaGas and WGL (in 2020 dollars). For the higher-price scenario, the non-fossil gas price from 2021 to 2050 is \$69.03/MMBtu, based on a report by E3 on building decarbonization in Maryland (in 2020 dollars). Fossil gas is priced based on the U.S. EIA's Annual Energy Outlook 2022 Henry Hub natural gas spot price projections (in 2020 dollars).