

Renewable Sources of Natural Gas

Supply & Emission Reduction Assessment Study

WHAT IS RNG?

Renewable Natural Gas (RNG) is pipeline-compatible gaseous fuel derived from biogenic or other renewable sources that has a lower lifecycle CO₂ emissions than geologic natural gas. With its low-to-negative lifecycle carbon footprint, RNG has a sizable potential to drive down greenhouse gas emissions and help meet our nation's energy needs and environmental goals.

THIS 2025 STUDY

This study, conducted by ICF and commissioned by the American Gas Foundation, updates and expands upon the 2019 assessment of renewable natural gas (RNG) potential in the U.S. The study considers RNG potential from nine feedstock sources and three production technologies.

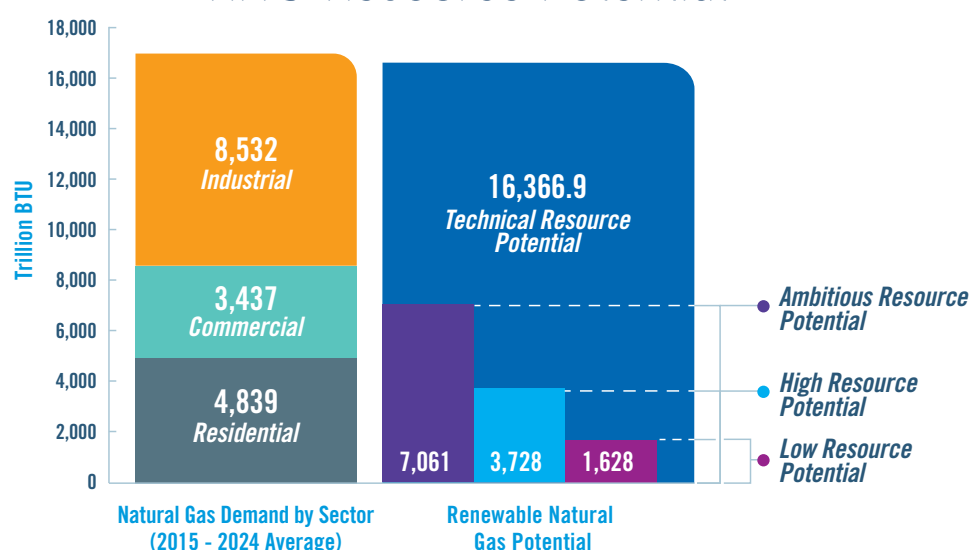
RNG Production Potential Has Grown

The total biomass available for RNG production has increased by 17% compared to the 2019 assessment, owing to improved data and more detailed feedstock evaluation. The study presents RNG technical potential from biomass resources and three production scenarios.

Additionally, RNG production potential from power-to-gas (P2G) production estimates ranged from 118 to 472 tBtu/year, with a base technical potential of 1,420 tBtu/year.

For context, the average annual residential natural gas consumption from 2015–2024 was 4,840 tBtu.

RNG Resource Potential



Over 328_{MMT}

of potential GHG Emission
Reductions annually



Sizable Cost-Effective Emissions Reductions

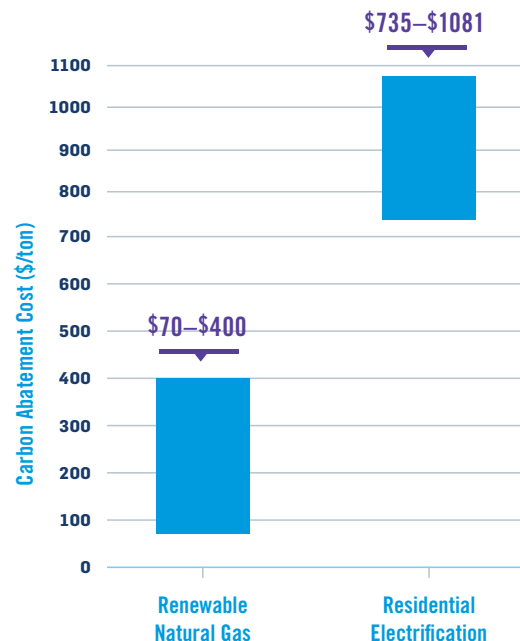
RNG could contribute significantly to emissions reductions in multiple sectors, including buildings, industrial processes, and transportation.

Greenhouse gas emissions reductions potential from RNG ranges from 82 to over 328 million metric tons (MMT) annually in 2050 when using a lifecycle approach.

RNG Represents a Cost-Effective Way to Reduce GHG Emissions

While RNG is more costly to produce than conventional natural gas, RNG can be a cost-effective measure to reduce greenhouse gas emissions. Three quarters of RNG production potential across the Low and High scenarios could be available at an average price of less than \$20/MMBtu. The Greenhouse gas abatement costs range from \$70 to \$400 per ton of CO₂e. By contrast, an electric heat pump costs on average \$735 to \$1,081 per ton of CO₂e.

Cost Comparison of Emission Reduction Pathways



1 American Gas Association, "Building for Efficiency", 2024 | 2 American Gas Foundation, "Renewable Natural Gas Supply Assessment", 2025