The Renewable Natural Gas (RNG) Advantage:
Meeting Demand, Fueling Growth, Cutting Emissions

The American Gas Foundation's analysis demonstrates that renewable natural gas (RNG) is poised to play a pivotal role in meeting energy demand, supporting jobs and economic growth, and contributing to emission reductions. The study analyzed supply potential through 2050 via three scenarios based on different levels of feedstock utilization and technology deployment.[1]

1 ABUNDANT SUPPLY:

RNG resources can be produced from a diverse range of technologies and feedstocks.

a) The study estimates RNG supply potential from biogenic resources ranging from 1,628 trillion BTU per year in a low scenario to 7,061 tBtu/year in an ambitious emissions reduction scenario — a level that exceeds the 10-year average residential natural gas consumption of 4,840 tBtu/year in the U.S.

b) Innovative RNG production from the methanation of hydrogen produced through power-to-gas (P2G) can add between 118 – 472 tBtu per year of additional supplies.

2 LEVERAGES EXISTING INFRASTRUCTURE:

Natural gas infrastructure can be used for the storage and delivery of RNG derived from biogenic and zero-carbon electricity.

a) Natural gas system investments help ensure continued innovation and new consumer solutions like RNG reach markets faster and at scale.

b) RNG is storable and dispatchable with ready renewable energy that strengthens community resilience.

c) There are opportunities to reduce RNG production costs through innovation and technological advancements.

d) Unlike other emerging technologies that require new networks or significant capital investment, RNG can flow through existing pipelines and storage systems.

2.8 MILLION MILES OF NATURAL GAS PIPELINES CAN INTEGRATE AND DELIVER RNG TODAY

3 CONVERT UNAVOIDABLE WASTE TO ENERGY:

RNG transforms unavoidable waste into valuable and reliable domestic energy sources, providing new economic opportunities for communities, local governments, and sectors like agriculture and waste management.

4 COST-EFFECTIVE EMISSIONS REDUCTIONS:

RNG delivers greenhouse gas reductions without forcing households into more expensive electric equipment.

a) A typical new home with natural gas can save up to $7,500 over 15 years compared to an all-electric home. Modest RNG additions (12% to 20%) competitively reduce emissions compared to all-electric homes while allowing natural gas households to retain up to 81% of those cost savings.

b) **RNG enables additional emissions reductions while preserving natural gas as the most cost-effective energy source for homes and businesses.** A 12% annual RNG blend could add just $120 per year, or $10 per month, to the average household's energy bill and reduce emissions by 10%. Homes with upgraded high-efficiency gas appliances using RNG blends cut emissions by 25%, emitting 5 metric tons or 8% less than typical all-electric homes over 15 years.

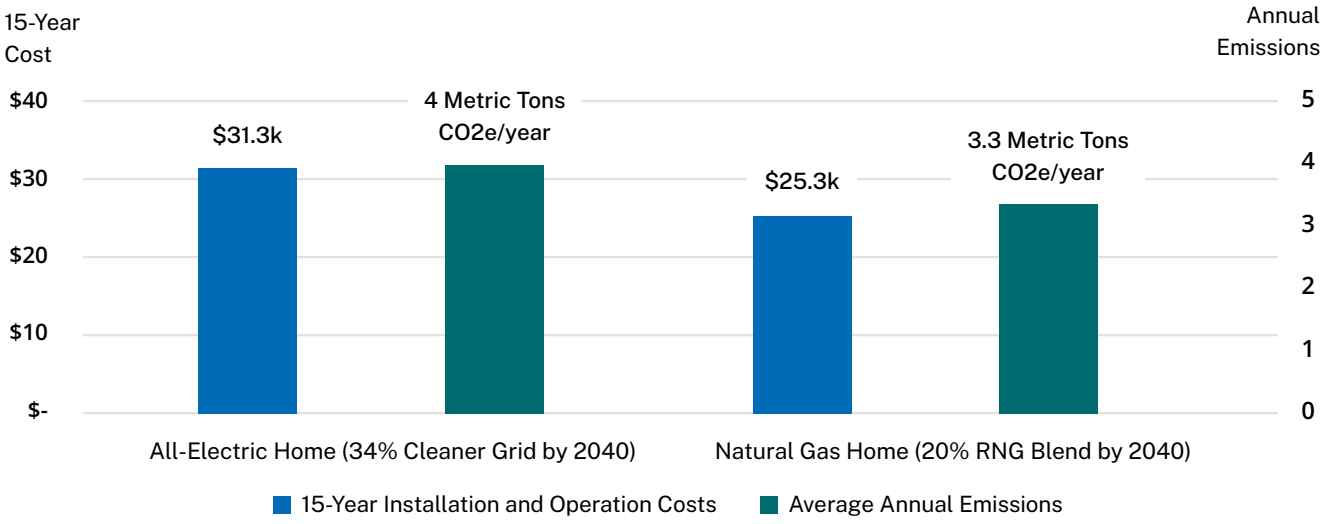
c) RNG deployment could deliver 82 to over 328 million metric tons (MMT) of GHG emission reductions annually in 2050.

RENEWABLE NATURAL GAS COULD EXCEED TODAY'S WIND AND SOLAR ENERGY OUTPUT BY NEARLY 3X*

*Comparison of gross energy content based on 2024 U.S. annual wind and solar electricity generation data from the U.S. Energy Information Administration (EIA). The "Ambitious" scenario shows RNG potential nearly three times greater than the current combined wind and solar output.

15-Year Cost and Emission Comparison

Typical New Natural Gas and All-Electric Homes Rated for ENERGY STAR



[1] ICF, Renewable Natural Gas Supply Assessment, Prepared for the American Gas Foundation, 2025