

# NATURAL GAS IS KEY TO A LOW-CARBON ENERGY FUTURE.

Natural gas is a vital part of our energy mix because it produces low CO<sub>2</sub> emissions and provides reliable and efficient energy as we work toward a low carbon energy future.<sup>1</sup>

## NATURAL GAS OFFERS RELIABILITY AND STABILITY TO THE ENERGY SYSTEM

Natural gas is the perfect solution to allow renewable research and advancements to continue and thrive while lowering CO<sub>2</sub> emissions.<sup>2</sup>



### UPGRADED NATURAL GAS PIPELINES REDUCE EMISSIONS BY 73%<sup>4</sup>

- ✓ Better systems management<sup>3</sup>
- ✓ Diligent preventative maintenance
- ✓ Enhanced leak detection repair



### NATURAL GAS HEAT PUMPS ARE RELIABLE AND EFFICIENT

- ✓ Efficiency and savings in moderate climates
- ✓ Added performance during very cold weather
- ✓ Extract heat from air, ground, or water sources



### BIOGAS REFINING CONVERTS METHANE INTO CARBON-NEUTRAL RENEWABLE ENERGY<sup>5</sup>

- ✓ The capture of biomethane at wastewater treatment plants, agricultural waste, waste processing facilities and landfills, prevents methane release into the environment.
- ✓ Displacing carbon emitting gas with carbon neutral gas significantly lowers greenhouse gas emissions.



### DIRECT CONSUMPTION OF NATURAL GAS IS 92% EFFICIENT

- ✓ According to the American Gas Association, the direct use of natural gas is more efficient than consuming gas-fired electricity from the grid.
- ✓ Carbon dioxide emissions from residences using natural gas for space heating, water heating, cooking, and clothes drying are about 22% lower than those attributable to an all-electric home.<sup>6</sup>

## RENEWABLE Natural Gas Reduces Carbon Emissions

The capture of biomethane prevents methane from being released into the environment.

Displacing carbon emitting gas with carbon neutral gas significantly lowers total greenhouse gas emissions.<sup>7</sup>

## 95% OF HYDROGEN Is Produced From Natural Gas

In the United States, 95% of hydrogen is produced by natural gas reforming in large central plants.<sup>8</sup> The hydrogen production process, delivery and storage, and fuel cell electric vehicles reduce total greenhouse emissions by 50% compared to gasoline vehicles.

## DUEL FUEL APPROACH Provides Ultimate in High- Efficiency Home Design<sup>11</sup>

5-15% lower Time Dependent Valuation (TDV) energy consumption.

Allows for smaller solar photovoltaic systems and smaller HVAC systems.

Reliable, affordable, and lowers costs for heating during cold weather.



### \$1.47B USD AND 2.25 MILLION METRIC TONS OF AVOIDED CO<sub>2</sub>

In 2018, American and Canadian utilities funded more than 130 gas efficiency programs to help customers reduce their carbon footprint for a total of \$1.47B USD and 2.25 million metric tons of avoided CO<sub>2</sub>.



### EQUIVALENT TO 490,000 PASSENGER VEHICLES OR THE ENERGY USED BY 270,000 HOMES

That is equivalent to almost 490,000 passenger vehicles taken off the road or the energy used by 270,000 homes for one year.<sup>9</sup> Programs included carbon offset credits and weatherization incentive campaigns.<sup>10</sup>

## CARBON CAPTURE TECHNOLOGY FOR NATURAL GAS FIRED POWER PLANTS ALREADY EXISTS

Technology improvements will lead to significant adoption by 2040.<sup>12</sup> As more natural gas is consumed, greater resources become available for carbon capture research and development (R&D) for industrial and residential sectors.

<sup>1</sup> eia.gov/tools/faqs/faq.php?id=73&t=11 <sup>2</sup> https://www.washingtonpost.com/brand-studio/api-can-natural-gas-be-the-key-to-lowering-emissions/ <sup>3</sup> aga.org/sites/default/files/legacy-assets/our-issues/Rewriting-Our-EnergyFuture/Documents/Rewriting%20Our%20Energy%20Future%20WEB%20FINAL.pdf <sup>4</sup> aga.org/news/news-releases/gas-utilities-support-methane-reduction-innovations/ <sup>5</sup> https://gasfoundation.org/wp-content/uploads/2019/12/AGA\_3894-RNG-2-Pager\_V-11.pdf <sup>6</sup> https://playbook.aga.org/environment/ <sup>7</sup> gasfoundation.org/wp-content/uploads/2019/12/AGA\_3894-RNG-2-Pager\_V-11.pdf <sup>8</sup> energy.gov/eere/fuelcells/hydrogen-production-natural-gas-reforming <sup>9</sup> epa.gov/energy/greenhouse-gas-equivalencies-calculator <sup>10</sup> aga.org/news/news-releases/natural-gas-utilities-invest-\$3.8-million-per-day-helping-customers-save-money-and-reduce-their-carbon-footprint/ <sup>11</sup> aceee.org/files/proceedings/2016/data/papers/10\_1100.pdf <sup>12</sup> energy.gov/sites/prod/files/2017/01/f34/Carbon%20Capture%20Opportunities%20for%20Natural%20Gas%20Fired%20Power%20Systems\_0.pdf © Energy Solutions Center Inc. All rights reserved.