

EFFICIENT & AFFORDABLE GAS HEAT PUMPS

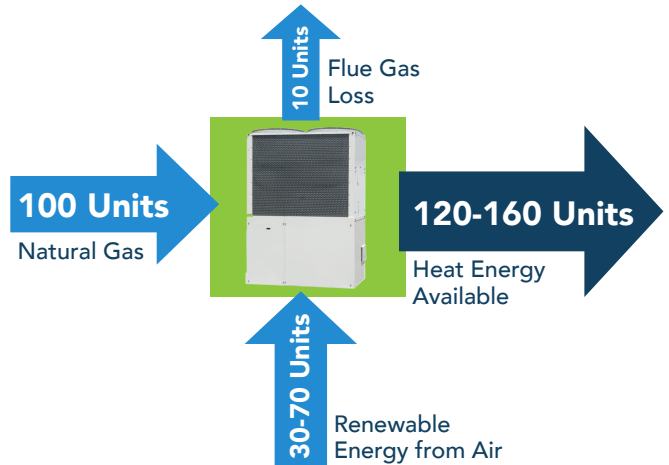
GAS HEAT PUMP OVERVIEW

Heat pumps move heat from an outdoor source to the indoors for **more efficient** water and space heating. Apart from electric powered, now heat pumps are also available to be run on gas and renewable fuels.



GAS HEAT PUMPS DELIVER GREATER THAN 100% EFFICIENCY

- Natural gas heat pumps have system efficiencies that **exceed the traditional 100% barrier** and offer pathways to substantially reduce greenhouse gas emissions across various climates by combining energy sources.
- The diagram to the right shows how a gas heat pump delivers 120-160 units of energy from just 100 units of fuel by capturing 30-70 units of energy from an outside source.



TYPES OF HEAT PUMPS

ENGINE DRIVEN HEAT PUMPS

1 Gas engine driven heat pumps use the same vapor compression cycle as electric heat pumps, with the electric motor being replaced by an Internal Combustion Engine.

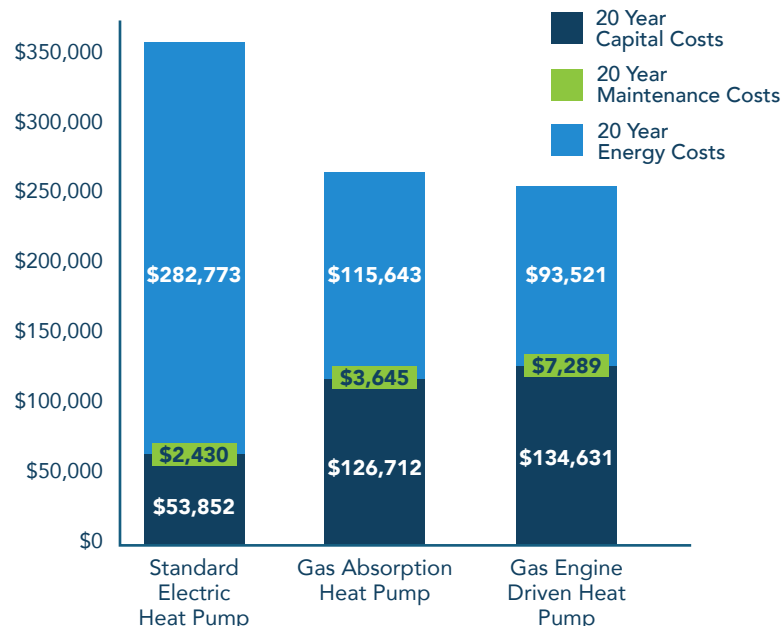
ABSORPTION HEAT PUMPS

2 Absorption heat pumps are hydronic type systems that can heat or cool a space. The system is similar to a vapor compression cycle, but instead of a motor and compressor, absorption systems use a generator, pump and absorber.

LOWEST COST TO HEAT AND MAINTAIN

Based on the 2022 U.S. Average Retail Energy Prices, commercial natural gas costs **\$7.89** and electric costs **\$31.60**.¹

COMMERCIAL BUILDING 20 YEAR LIFE CYCLE COST ANALYSIS²



FOR MORE INFORMATION VISIT:
WWW.GASHEATPUMPS.COM



NATURAL GAS HEAT PUMPS QUICK FACTS

Natural gas heat pumps offer installation flexibility, are available in various designs, cost less per BTU to operate and may have lower source emissions than comparable units in the market.



THE MARKET FOR GAS HEAT PUMPS IS GROWING

Several manufacturers produce natural gas heat pumps that are commercially available today. Consumer choice will expand as more companies enter the market in the near future.



GAS HEAT PUMPS OFFER INSTALLATION FLEXIBILITY AND MODULAR DESIGN SCALABILITY

Natural gas models can supply multiple zones, can use a variety of terminal units, and be mounted on the ground or roof for more installation options.



HYDRONIC AND/OR REFRIGERANT BASED SYSTEMS

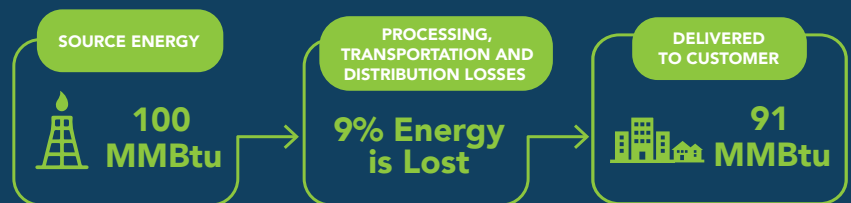
Natural gas heat pumps can provide simultaneous heating or cooling (like VRV/VRF).



SAVE MONEY AND ENERGY

- In most markets, gas rates are more competitive than electric rates. Therefore, gas heat pumps provide a **reduction in operational costs** when compared to electric heat pumps.
- A study by ICF in 2021² found that heating with a gas heat pump provides **lower emissions** than standard HVAC systems and electric heat pumps.

DIRECT USE OF NATURAL GAS¹



CONVERTING TO ELECTRICITY

Generating electricity only maintains **36%** of usable energy on the journey from production to customer.



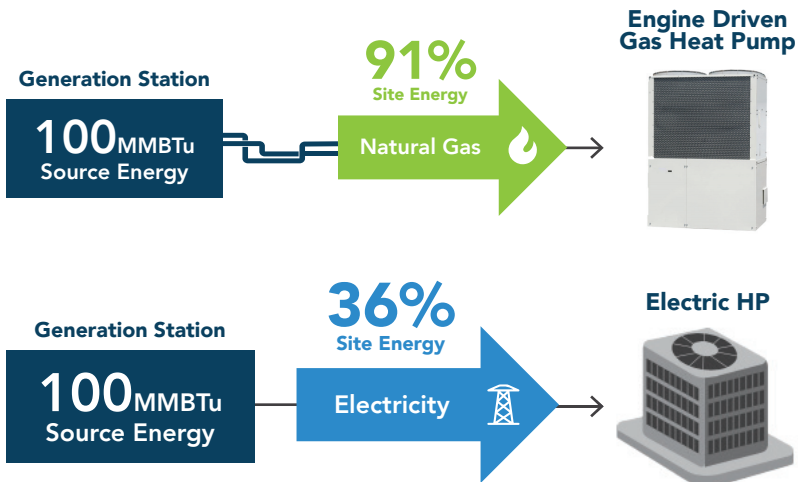
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COMPARING GAS TO ELECTRIC HEAT PUMPS



GAS HEAT PUMPS OFFER REDUCED EMISSIONS

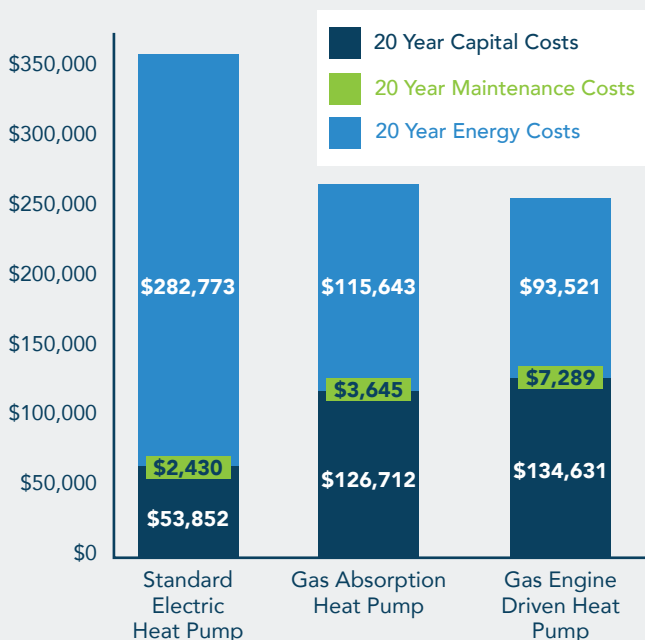
Natural gas heat pumps reduce emissions by consuming more-efficiently delivered fuel directly within the unit. Gas heat pumps typically have lower emissions overall than electric heat pumps on a source basis.



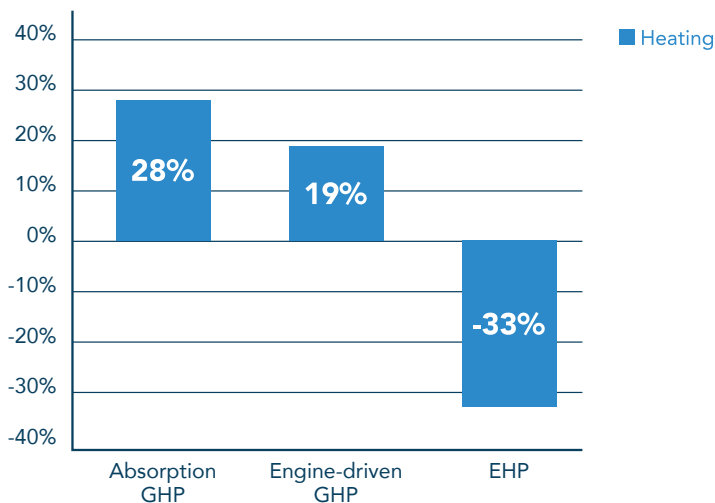
NATURAL GAS HEAT PUMPS COST LESS PER BTU TO OPERATE¹

- Gas heat pumps provide a reduction in operational costs when compared to electric heat pumps.

COMMERCIAL BUILDING 20 YEAR LIFE CYCLE COST ANALYSIS



AVERAGE CO₂ EMISSIONS REDUCTION VS. GAS FURNACE OR BOILER²



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