

ENERGY EFFICIENT TECHNOLOGIES

Energy efficient technologies can play a pivotal role in a low-carbon future. Gas-powered technologies can offer efficient and cost-effective methods to reduce energy requirements, fuel consumption, and greenhouse gas emissions.

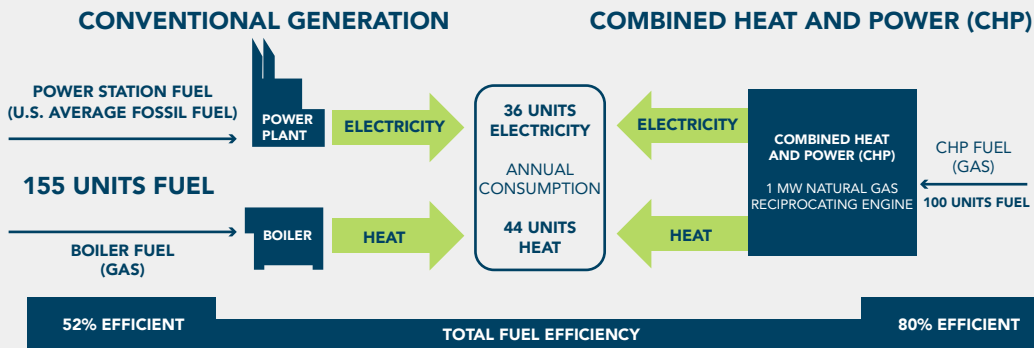


COMBINED HEAT AND POWER SYSTEMS

Combined heat and power (CHP) systems are onsite generators that provide both power and thermal energy from a single fuel source.¹ CHP, also referred to as cogeneration, captures heat that would otherwise be wasted and applies it to various end-uses, such as space heating, cooling, hot water, and process heat.



CHP uses 32% less fuel and has 50% less CO₂ emissions, compared to traditional generators.²



Source: U.S. EPA CHP Partnership

CHP BENEFITS²

- INCREASES ENERGY EFFICIENCY
- REDUCES ELECTRICITY COSTS
- IMPROVES RESILIENCY
- REDUCES EMISSIONS WHEN COMPARED TO SEPARATE HEAT AND POWER SYSTEMS



GAS HEAT PUMPS

Gas heat pumps offer an all-in-one high efficiency heating and air conditioning solution. They work by using thermal energy such as natural gas and an outdoor heat source to achieve the desired indoor heating effect. In many circumstances, gas heat pumps use less fuel and produce fewer greenhouse gas emissions than electric heat pumps.³



FUEL CELLS

Unlike reciprocating engines that combust fuel, fuel cells work by using an electrochemical process to produce electricity and heat. Fuel cells can be used in a wide variety of sectors and applications including transportation, power, residential, commercial, and industrial settings. Fuel cells operate at higher efficiencies than conventional combustion-based technologies, with efficiencies capable of exceeding 60%.⁴



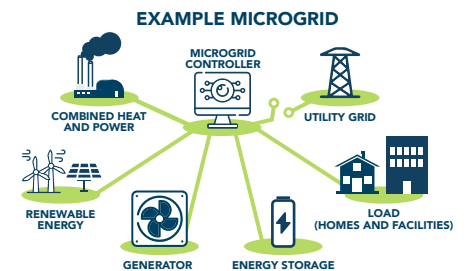
HIGH-EFFICIENCY GAS WATER HEATERS

Options include condensing tank-style, tankless, and gas heat pump water heaters. These systems offer efficiency increases between 20% and 75% compared to standard tank water heaters.



MICROGRIDS

Microgrids are decentralized networks of electricity users, transmission infrastructure, and local distributed energy resources. These systems can incorporate a variety of generation technologies, including natural gas generators, solar arrays, wind farms, and energy storage systems. While still connected to the utility grid, microgrids can operate autonomously in the event of a grid outage, which increases local energy resilience.



Source: NASEO

HIGH EFFICIENCY RESIDENTIAL HVAC

Reduces household energy consumption, decreases operating and maintenance costs, and improves air quality for homeowners.⁵

INTEGRATED ENERGY-HYBRID HEATING SYSTEMS

In colder climates, a natural gas-fired boiler or furnace can improve the cost and environmental benefits of electric heat pumps.

1. U.S. DOE, Combined Heat and Power Deployment Program, 2021
 2. CHP Alliance, CHP is a Low-Carbon Reliable Alternative to New Central Gas Plant, 2020
 3. ICF, Comparison of Operational Costs and Carbon Emissions for Gas and Electric Heat Pumps at Commercial Buildings, 2021
 4. U.S. DOE, Fuel Cells
 5. Pipelife, What is an Integrated Heating System?