

# FACTS ABOUT COMBINED HEAT AND POWER (CHP) SYSTEMS

A CHP system is a compact, reliable, onsite solution to help reduce energy costs, to take advantage of thermal opportunities from waste heat recovery, and to protect your facility from long-term increases in utility-generated electrical power.

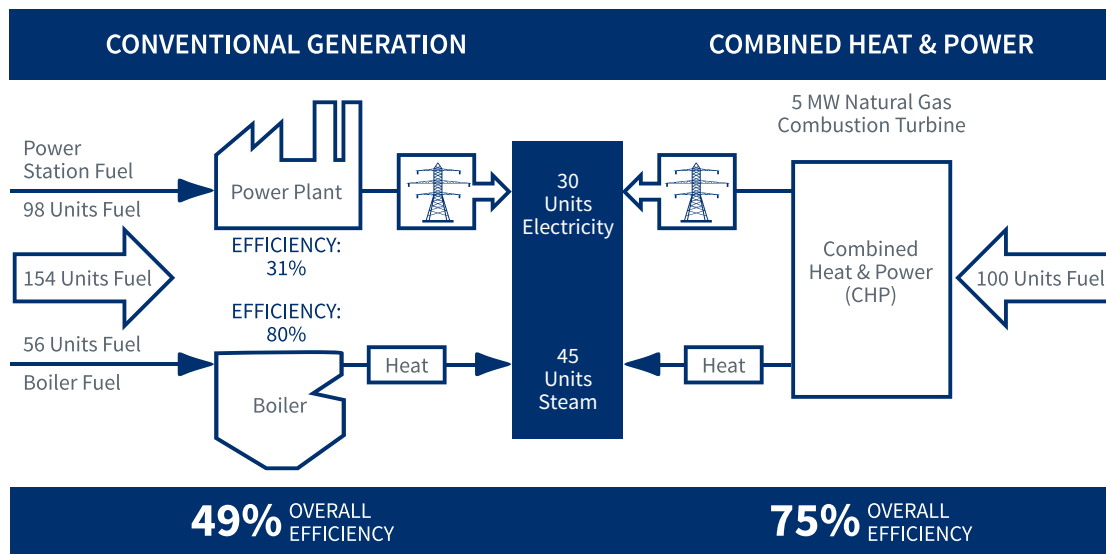
## HOW CHP SYSTEMS WORK

CHP is an integrated system that generates electrical power along with thermal energy that is recovered and diverted to heating and cooling. The system can be modified according to the needs of the end user, but a typical CHP installation operates as follows:

- Natural gas fuels two or more microturbines, generating electricity;
- A heat recovery unit captures excess heat from the combustion system's exhaust stream; and
- Heat is converted into thermal energy, as steam or hot water and channeled to meet heating or cooling needs.

## ADVANTAGES OF CHP-GENERATED POWER

- Captures up to 75 percent of generated excess heat for use in building heating and cooling;
- Generates energy onsite in a compact space, alongside existing HVAC infrastructure;
- Requires minimal yearly maintenance;
- Relies on a clean, secure, and cost-effective fuel source such as natural gas;
- Increases efficiency, resulting in reduced fuel consumption.



Source: EPA Conventional Generation vs. CHP Report, <http://www.epa.gov/chp/basic/environmental.html>

## DISADVANTAGES OF UTILITY-GENERATED ELECTRICITY

**Inefficient delivery:** About one-third of the total energy value of utility power is lost, from lost thermal energy during the generation process, and from electrical power line loss during transmission.

**Rising costs:** Consumers have absorbed price increases of about 20 percent since 2006 as a result of reduced supply, compounded by costs passed down by the utilities to recoup their investments in the nation's aging power generation and transmission infrastructure.

**Future supply uncertainty and cost insecurity:** The shutdown of coal-fired generation plants and reduced use of nuclear power are expected to tighten electricity production capacity further and push prices higher.