CHP 101: Making Your Own Power

Presented by

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Agenda

- What is CHP?
- Industry Terms
- Technologies
- Market Segments
- Incentives

EPA/CHP DEFINITION

Combined heat and power (CHP), also known as cogeneration, is the simultaneous production of electricity and heat from a single fuel source, such as: natural gas, biomass, biogas, coal, waste heat, or oil.

What is CHP (Cogeneration) My Definition!

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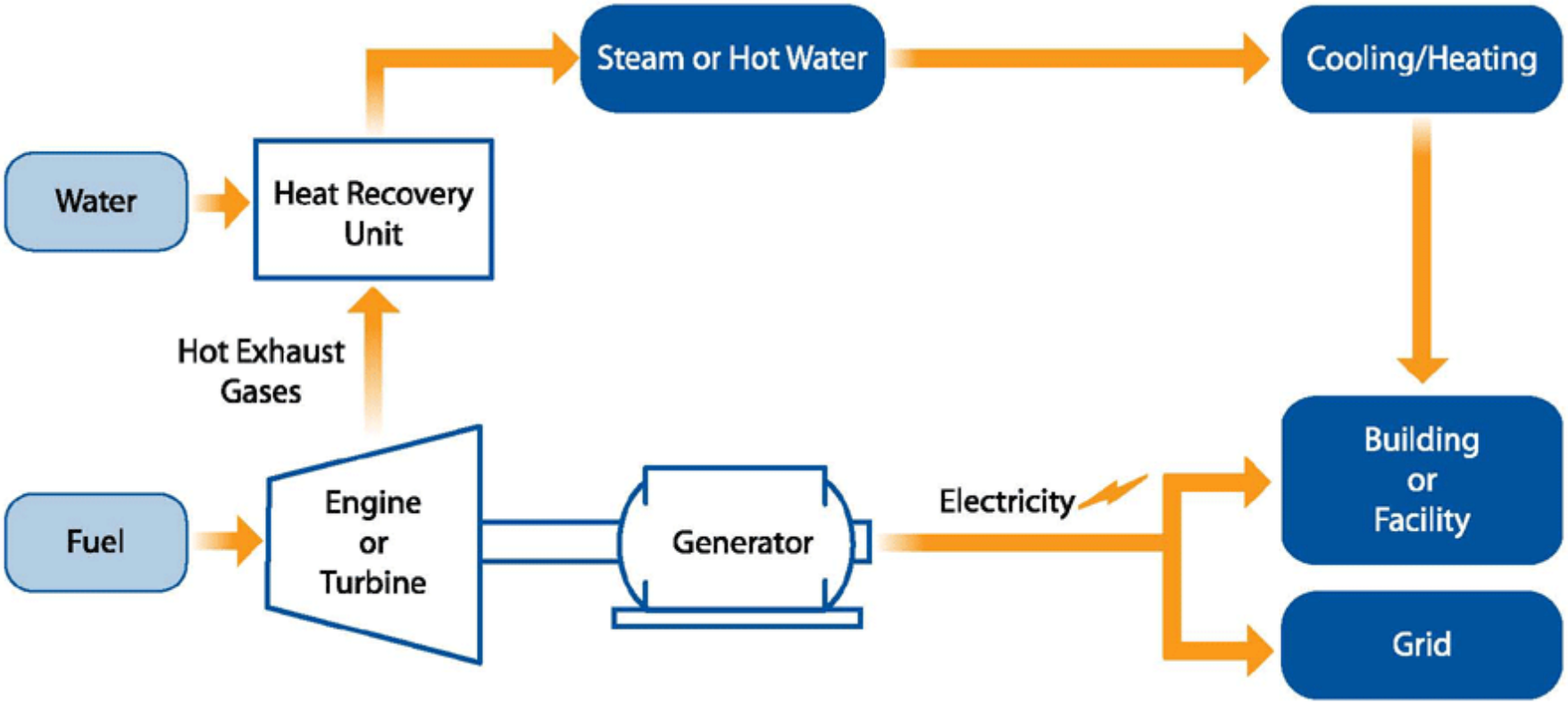
- **Cogeneration uses a piece of equipment that makes electricity.**
- **Fuel Cell, Reciprocating Engine, Microturbine, Steam Turbine, or Gas Turbine.**
- **During this process, a tremendous amount**
- **of heat is created. It is this heat that is captured and used for space heating, hot water heating, process loads, and indirect fired cooling.**
- **In all cases, a cogeneration system can be used as back-up to the electric utility. (where allowed)**

Not by any other name?

- CHP
- Distributed Generation
- On Site Power
- CCHP

CHP Flow Chart



Technologies

Technologies:

- Reciprocating Engine
- Fuel Cell
- Microturbine
- Gas Turbine
- Steam Turbine

- Spark Spread
- Net Metering
- Interconnect
- APS- Alternative Portfolio Standard
- Grid Connect
- Dual Mode

CHP Industry Terms

Cogeneration will NOT be applicable if 3 metrics aren't met:

<u>Spark Spread-</u> Potential customers all in electric Costs must be GREATER than all in natural gas costs.

<u>Heat Utilization-</u> Potential customers must be able to use the waste heat AT LEAST 70% of the year.

<u>65kw base load-</u> Potential customers must have a base electrical load of 65kw year round.

The 3 Legged Stool Rule of CHP

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- **Efficiency Benefits**
  CHP requires less fuel to produce a given energy output, and avoids transmission and distribution losses that occur when electricity travels over power lines.
- **Reliability Benefits**
  CHP can be designed to provide high-quality electricity and thermal energy to a site regardless of what might occur on the power grid, decreasing the impact of outages and improving power quality for sensitive equipment.
- **Environmental Benefits**
  Because less fuel is burned to produce each unit of energy output, CHP reduces air pollution and greenhouse gas emissions.
- **Economic Benefits**
  CHP can save facilities considerable money on their energy bills due to its high efficiency and can provide a hedge against unstable energy costs.

Combined Heat and Power (not applications

CHP APPLICATION POTENTIAL

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Thank You!

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