

# COGENERATION/TRIGENERATION



## WHY CHP/CCP/CCHP ARE GREAT SOLUTIONS:

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- Reduce energy cost
- Increase resiliency
- Improve energy efficiency
- Increase competitiveness
- Reduce greenhouse emissions

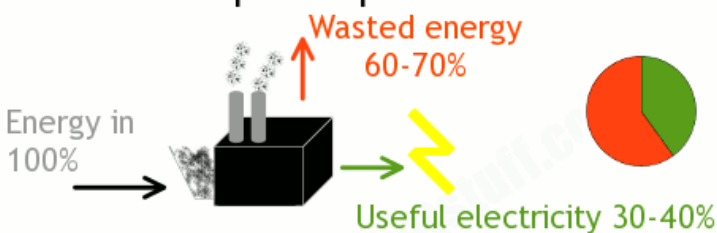
Cogeneration systems are designed to generate electrical energy and thermal energy simultaneously. The most common configurations for cogeneration use gas turbines, microturbines, reciprocating engines, biomass boilers, and fuel cells. The source of power resource for these systems could be natural gas, biogas, propane, hydrogen, and others. One of its greatest advantages is the ability to use the heat generated by the system in processes where steam and / or hot water are required (CHP). With this solution, energy consumption is reduced and the efficiency of the system is increased to 90%.

The heat recovered can be converted part or totally into chilled water for air conditioning or any other cooling process if the CHP is coupled to an absorption chiller. This extension of cogeneration is called trigeneration or CCHP. Industries like telecommunications, pharmaceuticals, chilled food, and chemicals are demanding more cooling.

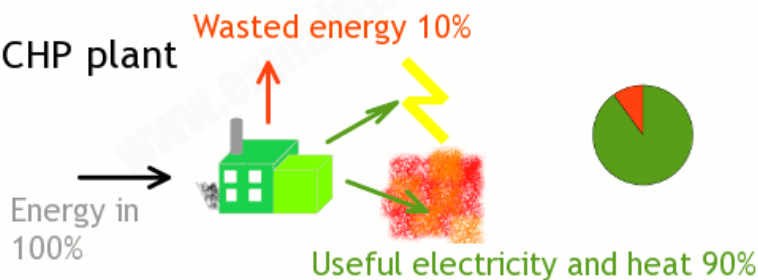
Sizing decisions are best made based on an understanding of facility electrical and thermal loads (hot water, heating, and cooling), and how they match with the outputs of available systems. Typically, CHP/CCP/CCHP capacity is selected in a way that allows facilities to utilize all of the electric and thermal energy on site, while operating at or near full load. Grid Electrical Solutions designs the solution that best meets your needs improving your operational efficiency and providing an attractive return on investment.

### Conventional power plant

www.explainthatstuff.com



### CHP plant



## APPLICATIONS

Depending on the technology and type of business there are different applications for which CHP/CCHP solutions could be a great fit:

- Combined heat, cooling and power
- Hot water, steam and chilled water
- Good load following
- Peak shaving
- Main or back up power
- Microgrids

There are many commercial and industrial businesses that can implement a cogeneration solution. Potential users are:

- Office buildings
- Airports and Hotels
- Data centers
- Hospitals
- College and Universities
- Food and Beverage
- Dairies
- Industrial manufacturing



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