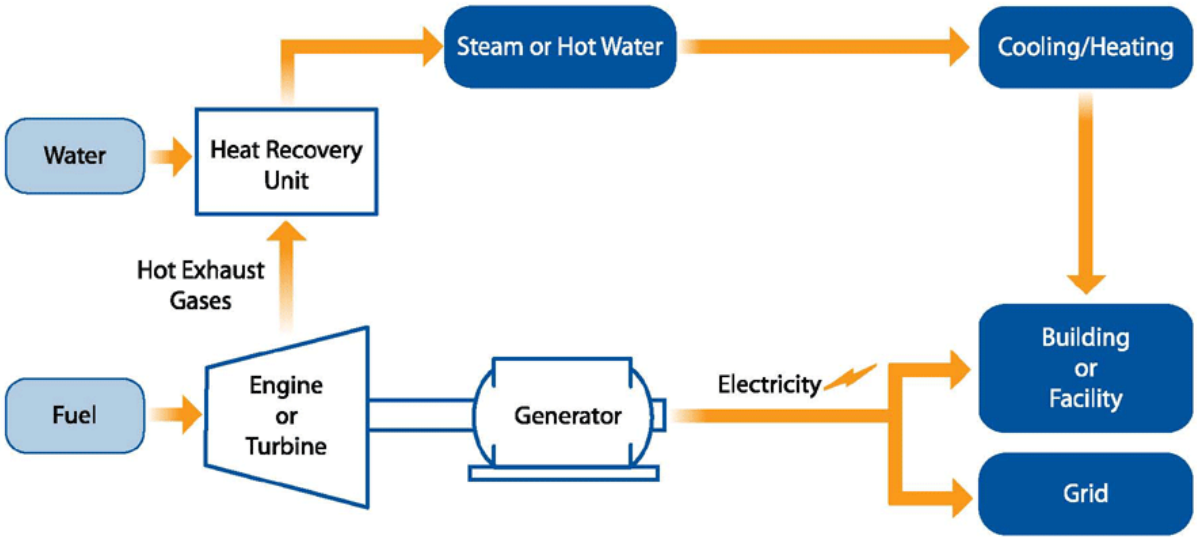
# COMBINED HEAT AND POWER IN LOUISIANA

by
Patty Nussbaum

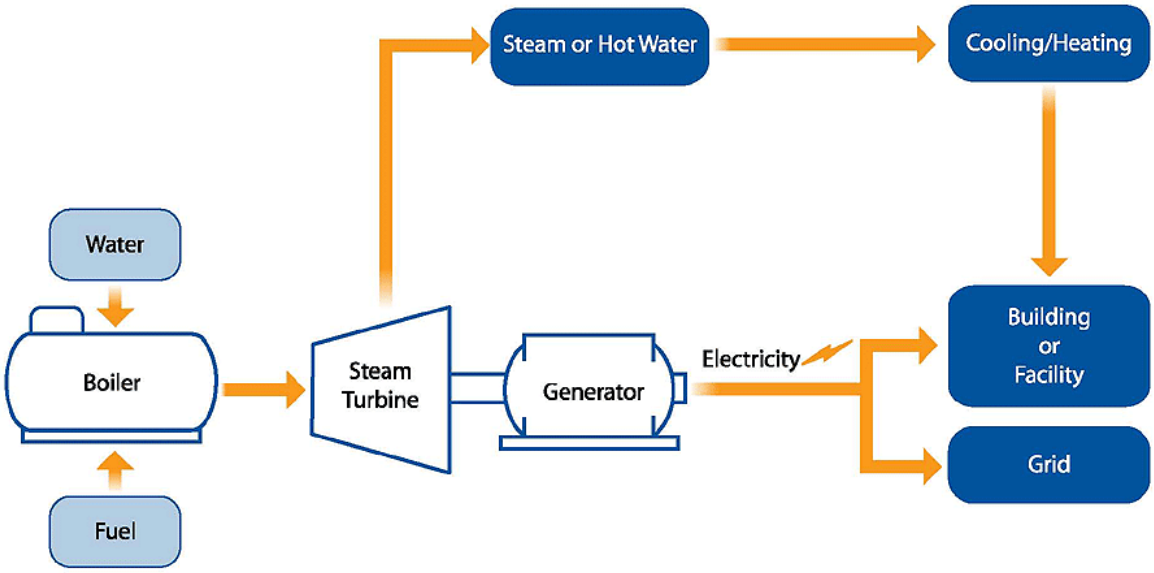
Combined heat and power (CHP), is the simultaneous production of electricity and heat from a single fuel source (natural gas, biomass, biogas, coal, waste heat, or oil).

Two common CHP system configurations are:[1]

- **Gas turbine or engine with heat recovery unit**




- **Steam boiler with steam turbine**




[1] U S Department of Environmental Protection (http://www.epa.gov/chp/basic/index.html)

Gas turbines/engines are ideally suited for large industrial or commercial CHP applications which require substantial amounts of electricity and heat. Steam turbine-based CHP systems are typically used in industrial processes, where solid fuels (biomass or coal) or waste products are available to use as fuel for the boiler.

CHP plays an important role in meeting the United States' energy needs as well as in reducing the environmental impact of power generation. However, there is an under-investment in industrial energy efficiency and CHP. In August 2012 President Obama, by executive order, set a "goal of deploying 40 gigawatts of new, cost effective industrial CHP in the United States by the end of 2020."

In the Louisiana Legislature's 2012 Regular Session a House Resolution (HR 167) "does hereby urge and request the Department of Natural Resources, in conjunction with the Public Service Commission, to adopt rules and regulations to establish guidelines for equipping critical government facilities with a combined heating and power system if the expected energy savings exceed the expected costs."

The Louisiana Department of Natural Resources established an interagency agreement with LSU to review CHP technologies, benefits, and costs; characterize CHP systems currently operating in the state; estimate the technical and economic potential for expansion of CHP installations over the next 15 years; and assess the regulatory environment surrounding CHP and the barriers to CHP development. The study is due to be completed in mid 2014.

Dr. David Dismukes, Center for Energy Studies, Louisiana State University, gave a presentation at the Electric Power 2014 Conference in New Orleans in April relating to the CHP study. Following are a few of the highlights.

- There are 35 CHP facilities in Louisiana. 13 of these facilities are large (greater than 100 MW) and account for 86 percent of total capacity.

- In Louisiana CHP capacity totals 6,300 MW with chemical manufacturing accounting for about 80 percent of total CHP capacity.

- Most capacity was developed after 1990.

- The bulk of the potential CHP market is in the chemical and refining sectors.

- Identified 92 facilities with the technical potential for CHP with just 28 deemed cost-effective.

- Past CHP policy/market barriers have historically centered around three problems:
    - Lack of price transparency
    - Having an open and objective transmission operation, planning, and longer-run development process
    - Lack of market institutions to support expanded sales of CHP output into wholesale markets.

- The current Louisiana "industrial renaissance," coupled with Entergy's recent move to the MISO should help to alleviate many of the perceived developer problems associated with in-state CHP expansion.