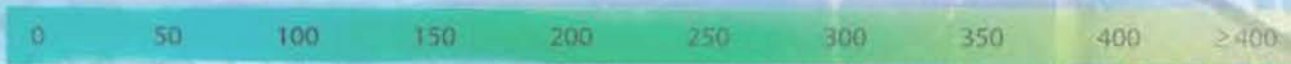



# Lowering Facility Energy Costs

BARRY SANDERS







**Electricity, heat, and hot water** costs are rising. To reduce these energy costs, one can certainly purchase new efficient equipment and improve the building envelope, but these measures require a significant draw on capital budgets and internal resources. Another option is to use a combined heat and power (CHP) system with an onsite utility system.

CHP technology has been available for more than 100 years—since the days of Thomas Edison. In 1882, the first commercial CHP plant, using a single fuel to produce both heat and electricity, was opened. CHP is gaining renewed emphasis with an executive order signed by President Obama calling for 40 gigawatts of new CHP by 2020, representing a 50 percent increase from 2012.

CHP systems, also known as *cogeneration* or *distributed generation*, simultaneously produce two types of energy—hot water (or space heat) and electricity—from one fuel source. CHP systems reduce dependence on local utilities and aging boilers. Traditional electric power plants dispose of the heat that is naturally produced during generation as waste. CHP systems capture this wasted heat and use it in the form of space heat and domestic hot water. This two-for-one approach is extremely efficient—often 90 percent—and offers measurable cost savings while reducing the carbon footprint and emissions generated by traditional energy systems.

According to the U.S. Environmental Protection Agency, “By capturing and utilizing heat that would otherwise be wasted from the production of electricity, CHP systems require less fuel than equivalent separate heat and power systems to produce the same amount of energy. Because less fuel is combusted, greenhouse gas emissions, such as carbon dioxide (CO<sub>2</sub>), as well as criteria air pollutants like nitrogen oxides (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>), are reduced” ([epa.gov/chp/basic/environmental.html](http://epa.gov/chp/basic/environmental.html)).

There are a number of options to reduce energy costs, although not all options address the limitation of resources and already too-narrow budgets. Installing a CHP system on your own has the added cost of capital and operating responsibilities. To avoid this capital expenditure, many facilities are taking advantage of an onsite utility system.

Onsite utility systems are an effective energy option for facilities that want to reduce costs, conserve capital, and improve net income. The energy produced from the CHP is sold to the host property as an alter-

native to the outright sale of energy equipment. Customers pay for only the energy produced by the system and receive a guaranteed discount rate on the price of the energy. All system capital, installation, operating, and support expenses are paid and handled by the provider. A highly efficient onsite utility typically provides energy savings of 5 to 20 percent less than the rate charged by your current energy providers.

The CHP system installed at the Cumberland County Jail in Portland, Maine, is one example of an onsite utility solution. The system supplies 150 kilowatts of electricity and provides heat and hot water to supplement the existing boiler plant. By using a CHP system, the facility receives immediate relief on energy costs and improves the environment without spending additional time and money.

Is an onsite utility right for you? Following are typical CHP requirements to help you determine the benefits of an onsite utility system:

- Significant amount of hot water required 24/7 for 365 days per year.
- Natural gas available onsite or nearby.
- Central boiler provides domestic hot water.
- Your local utility charges more than 10 cents per kilowatt hour.

There may be exceptions as with any situation. ■

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