POWER TO PROFIT

REDUCING ENERGY COSTS WITH COMBINED HEAT AND POWER SYSTEMS

If you buy your electricity from your local utility or energy supplier, you have little control over your costs. While these costs will rise some months and fall others, over the long term, electricity costs are expected to rise. This report describes an effective tool for property owners to gain control, and lower their energy costs, while avoiding power outages and demonstrating commitment to the environment. Such systems are commonly called combined heat and power (CHP) or cogeneration.

WHAT IS CHP?

To understand CHP, it's important to first consider how the electric grid produces power. Large centralized power plants produce electricity and transmit it to your place of business. These plants are highly inefficient because they create a great deal of waste heat as they produce electricity. In fact, typically almost two-thirds of the fuel used to generate the electricity is wasted as heat that disappears up the smokestack and into the atmosphere. On the other hand, a properly-sized CHP system generates a portion of your electricity on-site and recovers almost all of the heat it produces and reuses it to provide your building with both space heat and hot water. So CHP systems do not waste fuel the way power plants do.

It is CHP's ability to simultaneously provide two types of useful energy from one unit of fuel that makes it particularly efficient, cost-effective and environmentally friendly. Buildings that require heat or hot water year round are generally the best applications. CHP systems are being used by hotels, nursing homes, hospitals, colleges, fitness centers, multi-family complexes, factories and other facilities. In fact, CHP is now installed at more than 3,600 sites in the United States, according to ICF International, while, according to a study commissioned by New York State Energy Research and Development Authority, the technical potential for CHP in New York alone is 26,000 sites. Having been around for over 100 years, CHP is viewed by the electric industry as trust-worthy and proven method. In fact, Thomas Edison's 1882 Pearl Street Station in New York City, the first power plant in the United States, was a CHP plant.

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HOW DOES CHP WORK?

CHP systems are a form of on-site energy, meaning they are installed at your place of business. The key components of a CHP system are an internal combustion, reciprocating engine driving an electric generator. The natural gas-fired engine spins a generator to produce electricity. The working engine produces heat as a byproduct. Rather than waste the heat, CHP systems capture it. The captured heat then warms the building's rooms, as well as its hot water for domestic hot water, laundry, swimming pools, spas and other purposes. CHP works somewhat like an automobile, where the engine provides the power to rotate the wheels and the byproduct heat is used to keep the passengers warm during the winter months.

HOW EFFICIENT IS CHP?

CHP systems are so efficient that energy planners place them in the same category as Energy Star appliances, advanced lighting, and building insulation. All are considered 'energy efficiency measures.' Because of CHP's high efficiency, it is often used in green buildings. A CHP system provides electricity and heat at a combined efficiency of almost 90%. In contrast, centralized electric utility power achieves only a 35% efficiency level, and conventional heating boilers 65% seasonal efficiency.

ADDITIONAL BENEFITS OF CHP

CHP systems provide other significant benefits, as well. Again, consider how large centralized power plants work. They transmit electricity long distances to your building by way of a network of wires. This is a very inefficient and cumbersome system. A certain amount of the electricity dissipates and is simply lost as it travels along the wires. Further, the complex network of wires is prone to outages when weather becomes extreme. CHP systems avoid these problems because they are installed at your place of business.

CHP systems also ease the demand on the nation's strained utility grid by generating power onsite, where it is needed. This helps alleviate the problem of transmission lines from remote power plants becoming congested and limiting the amount of electricity available as they enter large urban areas. In addition, because CHP systems use less fuel, they reduce air pollution and greenhouse gas emissions.

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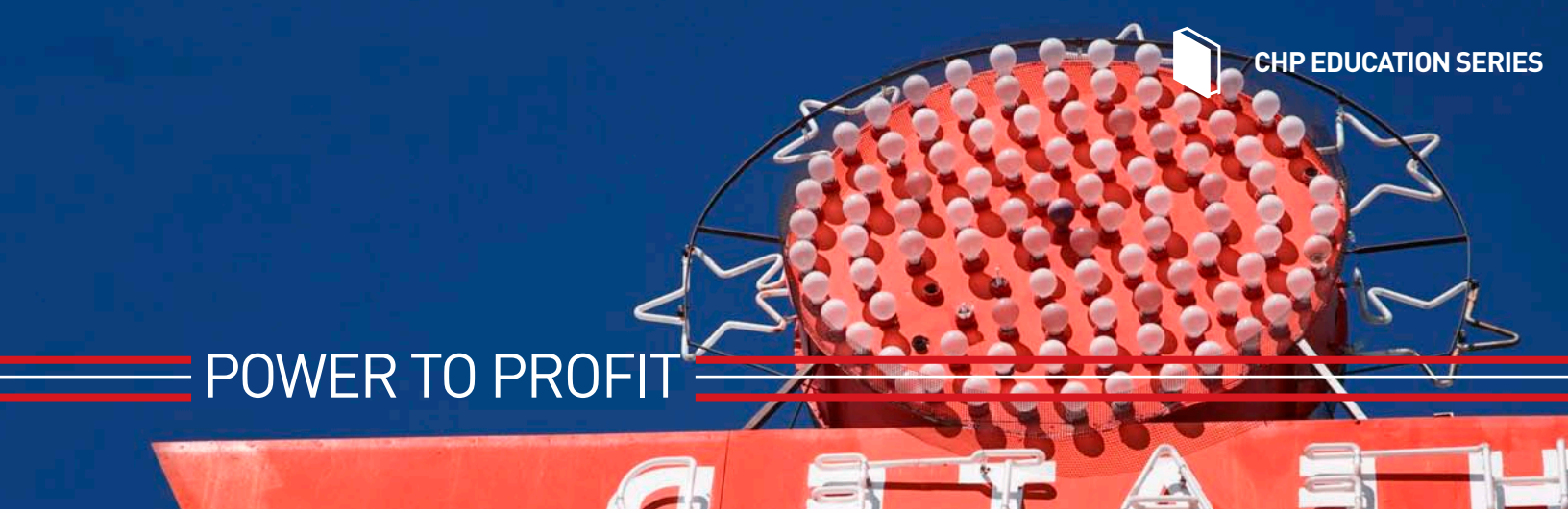

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FINANCING OPTIONS

Installing a CHP system requires capital and experience. Installation costs typically range from $4,000 to $5,000 per kW. Depending upon location, property type and local energy rates, simple payback can range from four to eight years. Various financing options are available, including leasing and shared savings/ performance contracting. Or, increasingly, building owners outsource system ownership, which spares them any upfront costs. Using this approach, known as an on-site utility or power purchase agreement, the building owner pays only for the energy used, at a price typically lower than the local utility rates. These customers can save $100,000's without any capital expense or operating responsibility.

MORE INFORMATION

Would you like to know more? Register now to receive the next installment of our 6-part educational series on CHP: *Is CHP right for your property?* Or contact us at info@americandg.com or 877-292-2343.

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