Reviewing Your Electric Generation Needs

The Potential of Generation and Cogeneration

Commercial & industrial energy customers express interest in creating in-house capacity for generating energy. In some cases, in-house distributed generating facilities can help facilities save money and assist in providing energy reliability.

The following document discusses methods for generating electricity using on-site equipment. Facilities install cogeneration equipment for the purpose of generating and using the heat and electricity in their processes. In some cases, the company's manufacturing processes already utilize steam, which can be employed to generate electricity.

Cogeneration is the term for a process the generates both electricity and thermal energy - heat, usually in the form of hot water or steam. Generation provides electricity only. It is not intended to utilize waste heat for other uses.

An electricity only generator will be less expensive to purchase and install than a cogeneration system. Cogeneration has advantages for some industrial operations. Proper design, installation and maintenance of either type of system is critical to assure cost-effectiveness reliability and safety.

The Economics of Electrical Generation

Some things to consider when designing a distributed generating system:

- For maximum efficiency and cost-savings, you should be able to fully utilize both the electricity and thermal energy produced by the system.
- If your facility needs electricity year round but only requires thermal energy seasonally, a cogeneration system may be less cost-effective than a generating system.
- Low electrical rates also reduce the potential cost-savings of an in-house generating system. A rate analysis should be used to evaluate your potential cost-savings.

The chart on the following page summarizes the various types of cogeneration technology, their general capacity, and other attributes.

Cogeneration Attributes

	Internal Combustion Engine	Combustion Gas Turbine	Steam Turbine	Fuel Cell
Typical MW Size	<2	1-150	>10	0.2
Primary Use	back-up energy source	generating site, w/o steam available	excess steam available	air quality problem areas
Est. Installed Cost/kW (new unit)	$1,000+	$400-900	depends on current steam system	$2,000 w/o tax incentives
Maintenance cost/kWh	$0.015-0.018	$0.008-0.01	$0.002-0.004	
Typical Fuel	diesel, gasoline	natural gas, oil	natural gas, oil, hog fuel, etc.	natural gas
Steam Generator	none required	none required	boiler	none required
Compressor	exhaust gas turbo charger (if used)	compressor	none required	none required

Ask Us for a Technical Analysis

Purchase and installation of generation and cogeneration equipment is a major investment. We can help you determine the cost/benefits of such an investment and, should you find that installing your own system would help you achieve cost-savings, we can help you determine the best type of system for your operations and current demand.

Some issues to consider are:

- current utility supply, cost and reliability
- environmental considerations
- in-house expertise with generating equipment
- condition of existing equipment
- anticipated costs of electricity and natural gas over project life.

Our technical team can provide you with a complete report about generation and cogeneration potential in your facility. We will also work with you to evaluate any proposals you may have received from consultants or vendors.

For More Information

Contact your account manager, or call 1–800–303–7479.