



Bristol-Myers Squibb

4.7 MW CHP System



Quick Facts

LOCATION: Wallingford, Connecticut

FACILITY PEAK LOAD: 4.7 megawatts (MW)

EQUIPMENT: 4.7 MW Solar gas turbine

ADDITIONAL EQUIPMENT: Backup boilers, four electric chillers, three diesel generators, for emergency power and demand response.

FUEL: Natural gas

CHP TOTAL EFFICIENCY: 72 %

HEAT RECOVERY APPLICATIONS: Process

Heating & Cooling, Building Heating & Cooling.

PAYBACK: 5 years

CHP IN OPERATION SINCE: 1998

Project Overview

A reliable power supply is critical to the Bristol-Myers Squibb facility in Wallingford, Connecticut. The pharmaceutical research and development conducted in this facility requires a consistent environment. Temperature, humidity, and ventilation must be closely controlled, so any interruptions in utility service can be harmful and costly. Energy consumption is significant at this one million square foot facility, which operates 24 hours a day.

In 1998, a combined heat and power system with a 4.7 MW natural gas-fired turbine was installed to generate energy on-site. This system is now operated continuously and provides most of the facility's electricity and thermal energy.

Using the CHP system along with supplemental electricity from the utility and on-site boilers and backup generators has provided the high power quality necessary for this facility.

This project was carefully designed, taking into account the year-round heating and cooling loads as well as steam-driven equipment at the facility. The system efficiency is 72%, and Bristol-Myers Squibb saw a payback of their investment in less than five years.

To learn more about sustainability programs at Bristol-Myers Squibb, visit www.bms.com/sustainability.

Energy Overview

Bristol-Myers Squibb installed a 4.7 MW Solar turbine and heat recovery system with two York absorption chillers with total capacity of 3,000 tons. The turbine is run on natural gas, but its dual-fuel capability allows for oil to be used as a backup. The facility has 4 MW of diesel generators from Cummins and Waukesha that can be used for backup or supplemental power.

Steam output from the turbine is used to provide space and process heating and to generate chilled water in the absorption chillers for space and process cooling. In the winter, the system meets approximately 98% of electricity needs and a boiler is used for supplemental heating. In the spring and fall, the system meets the full demand for both steam and chilled water. In the summer, when the peak cooling load is 5,200 tons, supplemental cooling is provided by purchasing more electricity to run the centrifugal chillers. A sophisticated automated control system manages the utility plant operation.

This CHP system was designed in-house at Bristol-Myers Squibb. Site personnel perform routine system maintenance, and the company has a service contract with the vendor for semi-annual inspections and any major repairs.

Bristol-Myers Squibb recently began to participate in the ISO New England Demand Response Program. At times of high electric demand in the region, they generate extra electricity with their CHP system and backup generators to supplement generation at power plants. The facility also participates in a local peak load reduction program to assist the Wallingford municipal utility in reducing their costs associated with the severe grid congestion in southwest Connecticut. By participating in these programs and selling extra electricity to the grid, the company generates revenue and supports the reliability of the electricity supply to other customers in New England.

Benefits

- More reliable power.
- Energy cost savings.
- Reduced greenhouse gas emissions by approximately 20% or 6,600 tons per year.
- Reduced NOx emissions by 33% through upgrades to turbine combustor.

“We chose CHP because a reliable power supply is critical for our pharmaceutical research.”

- Marc Estra, Associate Director of Engineering and Maintenance

For More Information

U.S. DOE NORTHEAST CHP TECHNICAL ASSISTANCE PARTNERSHIP (CHP TAP)

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More CHP Project Profiles: northeastchptap.org

The Northeast CHP TAP is a U.S. DOE sponsored program managed by the Pace Energy & Climate Center located at Elizabeth Haub School of Law and by the Center for Energy Efficiency and Renewable Energy located at the University of Massachusetts Amherst

Date produced or updated: August 2016