

New York Presbyterian Hospital CHP Project

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Manhattan, Manhattan County

The New York Presbyterian Hospital is one of New York's largest and most comprehensive hospitals with over 13,000 employees and 2,400 patient beds. NYPH's downtown campus, known as the New York Weill Cornell Medical Center, is a teaching hospital affiliated with Cornell University. NYPH completed a study co-funded by NYSERDA which concluded that there would be significant operational and cost benefits to installing a combined heat and power (CHP) system in the existing boiler plant. This CHP system will provide on-site electrical generation and utilize the waste heat from the electric generation process to satisfy the hospital's process and space conditioning requirements.

The project was developed by Dylan Associates, designed by Energistics and Solar Turbines was the major equipment supplier. The study recommended the installation of a 7.5 MW cogeneration plant consisting of a gas turbine generator, duct burner and heat recovery steam generator. This gas turbine will use lean-premixed combustion technology to ensure uniform air/fuel mixture and minimize emissions of nitrogen oxide

The 7.5 MW CHP plant will generate enough electricity to satisfy the majority of the hospital's electric power demand on an annualized basis, thereby providing significant continuous relief to the local Con Edison distribution system. Combined with existing steam-driven centrifugal chillers in the central utility plant, the hospital can provide additional load relief to the grid chillers, pumps and fans during summer months. The CHP system will operate in a synchronous parallel configuration with the utility grid, and supplemental electric energy will be provided by Con Edison under normal operating conditions. The CHP plant will continue to operate in the event of a Con Edison power outage, thus increasing energy reliability for the hospital

This CHP system is expected to save the NYPH \$5 million in energy costs annually. The overall efficiency of the plant is estimated to be 85%, which is significantly higher than central station power plants and the hospital's existing boiler plant. Therefore, not only does this system reduce strain on utility infrastructure but will also offset the otherwise more environmentally costly energy production from NYPH's previous sources.

Benefits Include:

- Enhanced energy reliability through on-site generation
- Reduced load for the electric grid
- NYPH's CHP system is a more energy efficient and environmentally friendly source of power
- Energy savings of \$5 million annually

Results To Date:

- Completion of project expected spring 2008

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