

Northern Power Installs \$4.1 Million On-site System at Equity Office's 717 Fifth Ave. Office Building

On Fifth Avenue in New York City, one office building has managed to cut its electric usage and cooling and heating needs through the use of a new 1.6 MW on-site combined heat and power (CHP) system. The system, located in the heart of the Plaza District at 717 Fifth Avenue at 56th Street, is the first of its kind to be synchronously interconnected to the critical midtown network grid of utility provider Con Edison.

The new \$4.1 million system, which is supported by a \$745,000 grant from the New York State Energy Research and Development Authority (NYSERDA), handles 60% of the building's electric usage and 65% of its cooling and heating needs. The 450,000-square-foot, Class-A office building is managed and owned and leased by Equity Office, the nation's largest office building owner and manager, as well as the largest real estate investment trust (REIT).

The system, which was engineered, built and installed on a turnkey basis by Northern Power, generates electric power during on- and mid-peak hours, and provides chilled water in the summer and hot water in the winter. It is sized to provide nearly two-thirds of the building's peak summer electric demand.



One of two 30-ton engine generator modules that are part of a combined heat and power system installed on the roof of a building on Fifth Ave. in New York City.

SYSTEM OVERVIEW

Power Application	Power to provide renewable, reliable electricity for facility
System Type	1.6 MW cogeneration system consisting of two gas generators and heat recovery units
Location	New York, NY
Customer	Equity Office

System Configuration

- Two 820 kW lean burn gas-fired generator sets
- Two engine exhaust heat recovery units
- Two aftercooler circuit water pumps
- One 289-ton hot water absorption chiller
- Control switchgear with 1600Amp, 480 volt synchronizing circuit breakers with all protective relays
- Sound-attenuated enclosure and steel dunnage to reduce noise

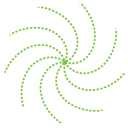
Though its primary function is to increase the building's efficiency, the system is also capable of providing backup power to keep the building operational during an extended power outage, such as the one experienced by tenants during the August 2003 blackout (in conjunction with the building's existing diesel generator, which powers fire and life safety systems). Whenever the system is operational, the building remains connected to Con Edison, running in parallel operation with their grid.

AT A GLANCE...

Equity Office wanted to lower its energy costs and improve power quality for tenants at its 717 Fifth Avenue office building.

Northern's solution: A 1.6MW combined heat and power system designed to handle 60% of electrical and 65% of cooling and heating needs for the building.





Northern Power
Systems designs, builds
and installs ultra-reliable
electric power system
solutions for industrial,
commercial and
government customers
worldwide. Since our
founding in 1974, we
have installed over 900
systems in 50 countries
on all seven continents.

Headquarters:

Northern Power Systems
182 Mad River Park
Waitsfield, VT 05673 USA
Phone: (877) 496-2955
Fax: (802) 496-2953

California Office:

Northern Power Systems
33 New Montgomery Street,
Suite 1280
San Francisco, CA 94105 USA
Phone: (415) 543-6110
Fax: (415) 543-6105

www.northernpower.com

Copyright 2005, Northern Power Systems, Inc. All rights reserved. Northern Power Systems, the Yellow N Logo and 'power without limits' are trademarks of Northern Power Systems, Inc.

pjb_comi_717_1.0let



By capturing waste heat from the engine generators and using it to drive both heating and cooling systems for the building, the system achieves a combined efficiency of over 73%, more than double the efficiency of power supplied by the grid. The higher efficiency of the on-site power system translates into significant energy cost savings and an attractive return on investment for Equity Office. At the same time, the higher efficiency will reduce greenhouse gas emissions.

"Similar to projects in California we have partnered with Northern on, this project's energy savings, reliability and economics will provide the building with many benefits, including improved power reliability, cleaner electric power, below market energy rates and back-up power for customers throughout the building," said Frank Frankini of Equity Office.

System Details

The state-of-the-art CHP system consists of two 820 kW lean burn generator sets, heat exchangers, and a 289-ton hot water absorber, all housed in a sound-attenuated enclosure.

The turnkey CHP system will be installed on an open roof atop the low-rise portion of the building. The generators will tie into the two main building electrical services. Hot water from the system's heat exchangers will be connected into the building perimeter heating loop, while the output from the absorption chiller will tie in directly to the chilled water system.

According to Amir Yanni, project manager for Northern Power, the system will be no louder than the existing cooling towers. "In addition to the housing enclosure, the system is mounted on steel dunnage that incorporates vibration isolators to ensure that the system does not disturb tenants."

Supporting Goals of Equity Office and NYSEERDA

"This system will add value for our existing customers," said Don Huffner, senior vice president of Equity Office's New York Region. "Its economic benefits will also provide us with leverage to further position 717 Fifth competitively among other Midtown office buildings when recruiting prospective



An engine generator module is lifted to the roof of 717 Fifth Ave. in Manhattan as part of the CHP system Northern Power installed there.

new customers."

The Fifth Avenue project also directly supports NYSEERDA's goals of improving grid reliability, improving overall energy efficiency and reducing energy costs to promote economic expansion.

"We believe the project will serve as an outstanding example to similar facilities that a successful interconnection of on-site generating assets with the local network grid is possible and that such projects will have a positive impact on relieving some of the load currently straining the grid," said Peter R. Smith, President of NYSEERDA. "In addition, such projects hold the promise of benefiting the environment through dramatically improved energy efficiency."

The financial support from NYSEERDA helped Equity Office stay within their financial objectives for the project, and aided Northern Power in easing its non-recurring engineering costs. Walter W. (Chip) Schroeder, President of Distributed Energy Systems Corp., stated, "We expect our design and engineering costs to be lower on future distributed generation projects because of the support from NYSEERDA."

Jito Coleman, president of Northern Power, added, "Con Edison's support of the interconnect also proves there is significant state-level support for the expansion of innovative distributed generation projects such as these - in New York and in states such as New Jersey and Connecticut as well."