



The Hamilton Co-op Apartment Building

75-kW CHP System



Quick Facts

LOCATION: Manhattan, NY
 MARKET SECTOR: Multifamily Residential
 FACILITY SIZE: 359 unit building
 FACILITY PEAK LOAD: 150 Kw
 EQUIPMENT: Aegis ThermoPower 75 kW
 FUEL: Natural gas
 USE OF THERMAL ENERGY: Domestic hot water and space heating
 CHP TOTAL EFFICIENCY: 83.3%
 ENVIRONMENTAL BENEFITS: 310-ton reduction in annual CO₂ emissions, and reduced particulate matter emissions
 YEARLY ENERGY SAVINGS: \$70,448; 15% reduction in energy costs
 CHP IN OPERATION SINCE: 2010

Site Description

The Hamilton is a cooperative multifamily residential building on E 40th Street in Midtown Manhattan. It was built in 1963 and has 359 units. The building also hosts a parking garage, a supermarket, and laundry facilities for residents. It is located near Grand Central Terminal, the Ford Foundation Building, Tutor City, and the United Nations. The Hamilton was heated by Con Edison steam from its construction until the 1983 when building was converted to heat from boilers burning No. 6 heating oil. In 2010, the boilers were decommissioned and partially replaced with heat from a combined heat and power system.

Reasons for CHP

Reducing operating costs are always a goal for multifamily buildings. The Hamilton co-op board president, Clark Lydic, looked into ways to reduce energy costs for the building and comply with the new Local Law 43 banning number 6 heating oil in New York City. He hired Aegis Energy Services to perform an analysis of historic energy consumption patterns for The Hamilton and modeling cost savings if they installed a CHP unit to replace the aging onsite boiler. The greater efficiency of a CHP system reduces the energy costs and emissions for generating onsite electric heating and using the waste heat to create hot water.

- By reducing energy costs, overall building operating costs were reduced by about \$70,448 per year
- Cost-effective measure to comply with Local Law 43 that banned No. 6 heating oil
- CHP reduced annual CO₂ emissions by 310 tons

CHP Equipment & Operation

The Hamilton has a single Aegis ThermoPower cogeneration unit, providing 75 kW of electricity located in the building's mechanical room. Through recapture of waste heat from the natural gas-fired engine it supplies the building with domestic hot water and space heating. The system is able to meet 50% of the building's electric load and 29% of its heat needs for hot water and space heating. The unit is computer-monitored by Aegis at all times for automatic operation optimization. This allows the system to have as high a runtime as possible and minimize maintenance downtime.



Aegis ThermoPower 7TP5LE 75kW CHP installed at The Hamilton

CHP for Co-ops

Decreasing operating costs is a high priority for cooperatively owned housing, as the resident's cost of living is determined by their collective operation and maintenance costs. The high efficiency of CHP systems is a cost-effective investment to decrease electric and heating costs for all residents. The initial savings were estimated to be \$7,500 per month, but once the system was installed and operating the owners were saving \$9,200 per month compared to similar historic months. The decreased emissions of CO₂ and other pollutants also helps the residents meet the goals of reduced environmental impact.

Lessons to Share

Working with a company that can do all of the system upgrades that enabled The Hamilton to comply with the new city regulations and reduce operating costs has exceeded all expectations of the project. The comprehensive maintenance and monitoring has kept the system working at the highest efficiency with very few down days.

"Since the installation in October 2010, the monthly fuel consumption reports for The Hamilton have shown a significant reduction in energy costs for both fuel and electricity. Overall the system's performance to date has exceeded all of our expectations and initial savings projections."

- Clark Lydic
President, Board of Directors
305 East 40th Corp

For More Information

U.S. DOE NORTHEAST CHP
TECHNICAL ASSISTANCE
PARTNERSHIP (CHP TAP)
Thomas Bourgeois
(914) 422-4013
tbourgeois@law.pace.edu

AEGIS ENERGY SERVICES, INC.
Diane Molotokos
Project Engineer
(413) 536-1156
www.AegisEnergyServices.com

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