NEW YORK–NEW JERSEY CHP TECHNICAL ASSISTANCE PARTNERSHIPS

PROJECT PROFILE

The Hamilton Co-op Apartment Building

75-kW CHP System

The Hamilton
Courtesy of Aegis

Quick Facts

LOCATION: Manhattan, NY
MARKET SECTOR: Multifamily Residential
FACILITY SIZE: 359 unit building
FACILITY PEAK LOAD: 150 kilowatts
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 CO_2 emissions, 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 1983, when it was converted to heat from boilers burning No. 6 heating oil. In 2010, The Hamilton installed a combined heat and power system to cost-efficiently decrease their boiler usage.

Reasons for CHP

Reducing operating costs is always a goal for multifamily buildings. The Hamilton Co-op Board President, Clark Lydic, looked into ways to reduce energy costs and emissions for the building. He hired Aegis Energy Services to perform an analysis of historic energy consumption patterns for The Hamilton, and to model the potential cost savings of installing CHP. The greater efficiency of a CHP system reduces the energy costs and emissions for generating on-site heat, hot water, and electricity.

- Reduction of overall energy costs, lowering the cost of operation to the co-op members
- Reduced use of heating oil
- CHP reduced annual CO_2 emissions by 310 tons

CHP Equipment & Operation

The Hamilton has a single Aegis ThermoPower CHP unit, providing 75 kW of electricity. Through recapture of waste heat from the natural gas-fired engine, it also supplies the building with hot water and space heating. The system is able to meet 50% of the building's electric load and 29% of the heat supplied by the existing boilers.

The CHP unit was able to be installed in the building's mechanical room, reducing the amount of space and additional infrastructure needed to install the system. 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 minimizes any downtime for maintenance.

Aegis ThermoPower 7TP5LE 75kW
Courtesy of Aegis

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 allow them to decrease the electric and heating costs for all residents. The Hamilton anticipated energy cost savings of $7,500 per month, but once the system was installed and operating, the owners were saving $9,200 per month. The decreased emissions of CO_2 and other pollutants also helps the residents meet their goals of increased environmental friendliness.

Lessons to Share

- CHP system outperformed its projected energy savings
- Total yearly savings are $70,448
- CO_2 emissions were reduced by 310 tons annually
- Reduced particulate matter emissions by offsetting oil-fed boilers
- Lowers cost of electricity and heat for resident cooperative members

"Since the installation in October 2010, the monthly fuel costs for The Hamilton have shown a significant reduction in energy costs for both fuel and electricity. Overall, the system's performance has far 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 NEW YORK-NEW JERSEY CHP TECHNICAL ASSISTANCE PARTNERSHIP (CHP TAP)
Thomas Bourgeois
(914) 422-4013
tbourgeois@law.pace.edu

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

More CHP Project Profiles:
http://nynjchptap.org
Date produced: 2019