NEW YORK–NEW JERSEY

CHP TECHNICAL ASSISTANCE PARTNERSHIPS

PROJECT PROFILE

Stevenson Commons

525-kW CHP System

Stevenson Commons
Courtesy of Aegis

Quick Facts

LOCATION: Bronx, NY
MARKET SECTOR: Affordable Multifamily Housing
FACILITY SIZE: Nine mid-rise apartment buildings
FACILITY PEAK LOAD: 525 kilowatts (kW)
EQUIPMENT: Seven 75 kW Aegen-LE CHP modules
FUEL: Natural gas
USE OF THERMAL ENERGY: Domestic hot water, space heating
CHP TOTAL EFFICIENCY: 83.1%
ENVIRONMENTAL BENEFITS: Reduction in CO_2 emissions, conversion from #6 fuel oil
TOTAL PROJECT COST: $0 for site; third party ownership
YEARLY ENERGY SAVINGS: Contracted reduction in heating and electricity costs from market rates
CHP IN OPERATION SINCE: 2012

Site Description

Stevenson Commons is a nine building multi-family complex housing spread across three twenty-four story towers and six six-story buildings. Of the 948 units, 379 are Section 8 assisted living units. These buildings surround around a common yard that includes a playground. The three towers host first-floor retail, including a grocery store, a pharmacy, and a medical center. Built in the 1970's, Stevenson Commons was originally heated entirely with No. 6 heating oil. In 2012, CHP was installed in the three 24-story towers to reduce heating costs and maximize emissions and efficiency benefits.

Reasons for CHP

Stevenson Commons is constantly looking for ways to reduce energy costs, a primary source of the operating budget, and improve reliability to the affordable housing community. Using waste heat from CHP for heat and hot water was also a cost-effective and environmentally conscious way to replace oil-fired boilers before New York City's No. 6 heating oil ban, which occurred in 2015.

- Compliance with Local Law 43 banning No. 6 heating oil
- Reduced cost of operation
- Improved reliability
- Reduction in emissions by 400 tons CO_2/year

CHP Equipment & Configuration

Stevenson commons has seven Aegen ThermoPro 75LE cogeneration modules split between the three 24-story towers. These natural gas fired systems supply 525 kW of electricity, which reduces each building's consumption from the grid by 50%. The waste and exhaust heat is captured, replacing the oil boiler, to create domestic hot water and comfort space heating loops meeting 47% of each building's heat and hot water demand. Traditional boilers service the remaining heating load.

CHP Operation

The CHP system operates 24 hours a day. As part of the 15-year contract, Aegis provides all maintenance and constant, real-time remote monitoring of the engines. This monitoring allows for Aegis to detect and correct any inefficiencies before there is impact on the savings and reliability the CHP is providing.

75 kW Aegen-LE CHP module
Courtesy of Aegis

Innovation in Financing

Management firms face pressure to adhere to a budget and comply with local laws. Aegis Energy Services was able to work with the site to provide the equipment and maintenance for 15 years at no installation cost. Aegis owns and operates the engines, and sells the electricity and recaptured heat for hot water and heating to the complex at a rate well below normal utility rates. Stevenson Commons is contractually obligated to purchase from Aegis for 15 years, but also has the option to buy the engines outright from Aegis at a depreciated value at any point during the contract if they choose. The site is a NYSERDA-funded pilot program to demonstrate an Integrated Building Control Module using CHP to improve thermal and electrical efficiency and reduce energy-related expenses. This agreement saved the management financing any up-front investment, while complying with Local Law 43, reducing building emissions, and reducing energy costs long-term.

Lessons To Share

By operating this system as a behind-the-meter utility, Aegis and Stevenson Commons were able to install and operate this clean energy technology without any upfront or ongoing costs to the site. This pilot program has developed a blueprint for meeting utility interconnection requirements and encouraging application of this proven technology in the affordable multi-family housing sector.

For More Information

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