



Stevenson Commons

525-kW CHP System



Quick Facts

LOCATION: Bronx, NY
 MARKET SECTOR: Multifamily housing
 FACILITY SIZE: Nine midrise apartment buildings
 CHP PEAK LOAD: 525 kW
 EQUIPMENT: 7 x 75kW 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 CO₂, conversion from #6 fuel oil to natural gas
 TOTAL PROJECT COST: \$0 for site; third party ownership
 YEARLY ENERGY SAVINGS: Contracted reduction in electricity from market rates.
 CHP IN OPERATION SINCE: 2012

Site Description

Stevenson Commons is a multifamily housing complex spread across three twenty-four story building and six 6-story building. Within the 948 residential units, 379 are Section 8 assisted living units. These buildings are surround a common yard that includes a playground. Three of the buildings host first-floor retail including a grocery store, pharmacy, and medical center. The complex had been heated with oil since its construction in the 1970's, but in 2012 transitioned to natural gas-fed CHP to meet a large portion of its heating needs.

Reasons for CHP

The management of these buildings is constantly looking for ways to reduce energy costs, a primary expense in 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 the No. 6 and subsequently No. 4 heating oil bans.

- Compliance with Local Law 43 banning No. 6 heating oil
- Reduced cost of operation
- Improved reliability
- Reduction in emissions by 400 tons CO₂/year

CHP Equipment & Configuration

Each of the buildings being served by the CHP units is master metered. The full system has 7 Aegen ThermoPro 75LE cogeneration modules split between three of the buildings in this community. These natural gas fired systems supply 525kW of electricity, which reduces the complex's consumption from the grid by 50%. The exhaust heat is captured, replacing the oil boiler, to create domestic hot water and comfort space heating loops meeting 47% of the complex's heat and hot water demands. Traditional boilers service the remaining demand.



CHP Operation

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

7x75 Aegen-LE cogeneration modules supplying

Innovation in Financing

Management firms face pressure to adhere to a budget and comply with local laws, Aegis energy was able to work with this 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 use in hot water and heating to the complex at a rate well below normal utility rates. Stevenson Commons is contractually obligated to purchase energy 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, furthering possible savings. 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 both in energy and in upfront investment, which resulted both compliance with Local Law 43 and in reduced emissions associated with these buildings.

Lessons To Share

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 multi-family building sector.

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

MORE CHP PROJECT PROFILES:
<http://northeastchptap.org>
Date produced: 2017