

Micro-turbine Cogeneration Demonstration for Multifamily Buildings

Install CHP with service water heating using a 70kW Ingersoll Rand micro-turbine with heat recovery.

BACKGROUND

Stevenson Commons, a 948 apartment, master-metered, multi-building complex located in the Bronx, is primarily occupied by residents receiving government financial assistance. This site is the subject of a NYSERDA-funded project to demonstrate an Integrated Building Control Module [IBCM] which provides electrical submetering and monitoring of other building conditions (temperature, smoke, security). The incorporation of a microturbine based combined heat and power [CHP] system would help improve thermal and electrical efficiency and reduce energy related expenses. However, barriers have limited the acceptance of CHP in large residential buildings, due primarily to owner's perceptions of difficulties in meeting utility impose interconnection requirements; system complexity; and bad operational and reliability experiences with reciprocating engine-based cogeneration applications in the past.

OBJECTIVE

Address barriers to multi-family, residential applications of CHP by demonstrating the new microturbine-based technology; development of a blueprint for more easily meeting utility interconnection requirements; and disseminate results to a broad base of building owners to encourage replication. Integrate the CHP system into the existing IBCM to utilize its monitoring and control capabilities.

DESCRIPTION

This project will design, install and monitor a Honeywell Parallon 75kW cogeneration unit. Installation and operating experience will be heavily disseminated through the Federation of New York Housing Cooperatives and the Council of New York Cooperatives and Condominiums.

BENEFITS

The 75kW Honeywell unit will provide 40% of annual domestic hot water requirements, 27% (620,000 kWh/yr) of the complex's total annual electrical needs and reduce monthly kW demand charges by 37.5 kW. The CHP application is expected to reduce total emissions below what would be required if the building's energy needs were met traditionally (central generation plant, dedicated boilers).

Funding	Encumb to Date	Pending	Total Anticipated
DSM Engineering Associates, P.C.	\$23,232.00	\$0.00	\$23,232.00
Federation of NY Housing Cooperatives	\$3,328.00	\$0.00	\$3,328.00
Herbert E. Hirschfeld, P.E.	\$67,450.00	\$0.00	\$67,450.00
Ingersoll-Rand	\$49,655.00	\$0.00	\$49,655.00
Intech 21 Inc.	\$36,000.00	\$0.00	\$36,000.00
NYSERDA	\$355,838.00	\$0.00	\$355,838.00
Other Participants	\$28,068.00	\$0.00	\$28,068.00
Stevenson Commons Housing Company	\$25,714.00	\$0.00	\$25,714.00
TOTALS	\$589,285.00	\$0.00	\$589,285.00

Manager	Douglas, Peter
Contracts	STD-6548
Contractors	Herbert E. Hirschfeld, P.E.
Technologies	Cogeneration
Cities	Bronx
Counties	Bronx