

New York University CHP Proposal

New York University will install environmentally clean natural gas fired turbines to replace old inefficient diesel fired engines to satisfy on-site power requirements.

BACKGROUND:

New York University (NYU) presently owns and operates a combined heat and power (CHP) plant which provides electricity, high temperature hot water and chilled water to numerous buildings throughout the campus. The plant's older components range in age from 20 to 30 years and many are approaching or have passed their useful life. In 2002, NYU completed a feasibility study that was co-funded under NYSERDA's Technical Assistance Program (PON 583-00). The existing CHP system generates approximately 24% of the university's electrical requirements and consists of the following equipment: (1) Steam Boiler; (1) Steam Turbine Generator; and (7) Diesel Generators; (3) High Temperature Hot Water Boilers; (1) Electric Centrifugal Chiller (1500 ton); and (4) 1650 ton absorption chillers. The total installed electric generating capacity from these generators is 8.7 MW. Due to mechanical problems and environmental permitting issues, the generators typically provide only 4 to 5 MW of on-site generation.

OBJECTIVE:

As a result of the study, NYU plans to install a state-of-the art co-generation plant consisting of three natural gas fired combustion turbines equipped with heat recovery high temperature hot water generators. The total power output from these combustion turbines will be 15.5 MW. The facility's maximum peak electric demand of 17.5 MW occurs during the summer months.

BENEFITS/ METRICS

The demonstration project will be evaluated according to the following metrics:

- (1) Reduced on-site energy costs
- (2) Reduced on-site criteria pollutant emissions (NOx, SOx, PM, CO, VOC)
- (3) Improved reliability
- (4) Reduced greenhouse gas emissions (CO2)
- (5) Reduced peak load on the grid

STRENGTHS:

- Overall energy efficiency exceeds 74% year-round.
- Back-end pollution control equipment (SCR and catalytic oxidizer) will be installed to minimize emissions
- Excellent technology transfer potential
- System will be operated in a grid-parallel mode - host site is willing to coordinate with Con Edison on the export of power to support grid operation during emergency periods.
- NYU has implemented many energy conservation projects already (lighting, high efficiency motors, VFD's) - therefore incorporating effect

Funding	Encumb to Date	Pending	Total Anticipated
New York University	\$44,140,000.00	\$0.00	\$44,140,000.00
NYSERDA	\$1,000,000.00	\$0.00	\$1,000,000.00
TOTALS	\$45,140,000.00	\$0.00	\$45,140,000.00

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Contracts STD-7854
Contractors New York University
Cities New York
Counties New York