

**HOTEL AND HOSPITALITY**

**Company Name**  
Palace Hotel

**Location**  
New York, NY  
(New County)

**Installation Date**  
2013

**Operating Experience**  
Beginning 2013

**CHP Equipment**  
(12) - 65 kW Capstone Microturbines

**Generating Capacity**  
780 kW

**Heat Recovery Application**  
Domestic Hot Water  
Space Heating/Cooling

**Type of Fuel**  
Natural Gas

“The New York Palace is thrilled to be at the forefront of microturbine installations at hotels nationwide and we’re proud to help New York City become a more ecological and sustainable city...this new technology will help reduce energy used by the hotel each day and decrease energy costs...”

- David Chase,  
General Manager of  
the New York Palace

# Microturbines Help Palace Hotel Reduce Energy Costs

## BACKGROUND

The Palace Hotel, located in Midtown New York City at 455 Madison Avenue, offers 813 guest rooms and 86 suites, 22,000 square feet of meeting and event space, spa and fitness center. The hotel installed a combined heat and power (CHP) cogeneration system to reduce energy costs and increase energy efficiency.



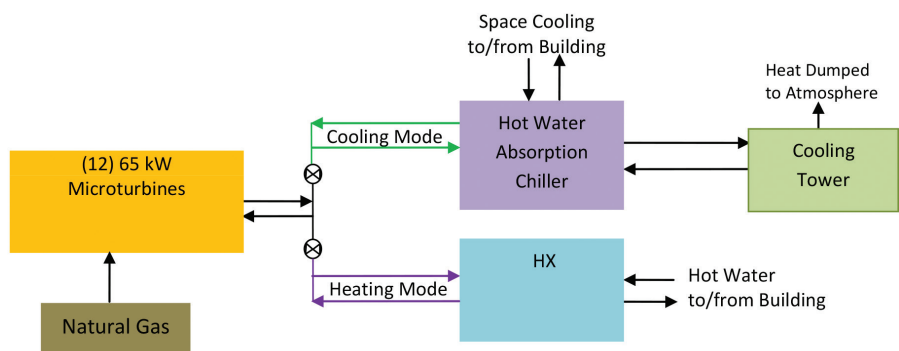
*New York Palace Hotel*

## THE APPLICATION

The CHP system was designed and developed by RSP Systems. The combined heat and power (CHP) system installed at the site includes twelve (12) 65-kW Capstone Microturbines to provide up to 780 kW of gross electrical generation capacity, and up to 3.45 MMBtu/h of hot water at 200°F using the ICHP integrated heat recovery heat exchangers. The heat recovery loop will operate in one of two modes depending on the season. The CHP units recover heat to supply the hot water absorption chiller or to supply the hotel with hot water. During the heating season, the heat recovered from the CHP system will supplement the building hot water loop. During the cooling season, the heat recovered from the CHP system will supply the hot water absorption chiller.

## CHP SYSTEM AND EQUIPMENT

Electrically, the microturbines are divided into two banks of six, with each set of microturbines displacing load on a separate Con Edison utility service. Hot water produced by the microturbine skid is used to either drive the 205-ton single effect hot water absorption chiller (COP 0.71) or to provide supplemental heat to the building hot water loop via a plate frame heat exchanger. The system alternates between the heating and cooling mode using isolation valves to dedicate the heat recovered solely to the chiller or heat exchanger as appropriate.



# Combined Heat and Power for Hotel and Hospitality Building

## ECONOMICS AND ENVIRONMENTAL BENEFITS

The CHP system reduces the Palace Hotel's carbon footprint with its ability to recapture the heat it produces and deploying the recovered heat on site. The system reduces the building's operating costs and its reliance on the grid with on-site generation of electricity. Monitored data is being collected from the site and are available in an hourly format on NYSERDA's DG/CHP website, [chp.nyserda.org](http://chp.nyserda.org), starting from 11/1/2013.



C65 ICHP

## SUMMARY OF BENEFITS

- Reduces carbon footprint.
- Decrease in energy use from the grid.
- Reduction in energy costs.
- Improves energy efficiency.

## ADDITIONAL RESOURCES

- **Developer/Engineer:** Capstone Turbine Corporation®, [www.rsp-systems.com](http://www.rsp-systems.com)
- **Equipment Manufacturer:** Capston Turbine Coproration®, <http://capstoneturbine.com/>
- **DG Integrated Data System:** [chp.nyserda.org](http://chp.nyserda.org)

[nyserda.ny.gov/chp](http://nyserda.ny.gov/chp)  
**1-866-NYSERDA**