

Dreams Hotel

Jamaica

Hospitality



The Challenge

As a five-star luxury hotel in Montego Bay, Jamaica (formerly Hilton Rose Hall Montego Bay), the DREAMS ROSEHALL hotel uses a tremendous amount of energy each day.

From air conditioning, water park, cooking, heating, lighting, laundry, showers, swimming pools, and more, the demand on the city for local electricity and LPG was high and very costly. Aiming to reduce costs for energy and the hotel's greenhouse gas emissions, CWS convinced the management of this oceanside, 498-room icon, to install a natural gas-fueled system that could generate electrical and thermal power, onsite, for the hotel's own use.

The Solution:

CWS proposed and installed a fully financed solution that allowed the hotel to install a combined cooling, heat and power system (CCHP) without any upfront costs for the equipment. The solution includes one Capstone C1000 natural gas microturbine, as well as a World Energy Absorption chiller and Alfa Laval Heat Exchanger, generating electricity and heat to provide base-load power, air conditioning and hot water. The installed solution reduces total electricity consumption by more than 30% and covers 100% of the hot water needs and the rest of the hotel's daily operational needs.



"We always strive to find the best solutions to reduce operational costs and increase efficiency and sustainability, and the cutting edge technology of Capstone turbines together with CWS's CCHP solution provided exactly that: Reduced energy consumption, reduced energy and operating costs and lower emissions"

- Panna Utpaul, VP Operations Jamaica
Hyatt

Power Profile

Customer:

Dreams Jamaica, formerly Hilton Rosehall Jamaica

Location:

Rosehall, Montego Bay, Jamaica

Comissioned:

May, 2024

Fuel:

Natural gas

Technology:

- One Capstone Microturbine C-1000
- World Energy Absorption Chiller with a cooling capacity of 456 TR
- Alfa Laval Micro 522 Heat Exchanger
- E-Finity Controller



Using natural gas, the CCHP system provides the hotel with 870kW of electricity, 456 refrigeration tons of cooling year-around at 80% efficiency, which is almost maximum overall efficiency for this type of systems.

CWS's all-inclusive Operation & Maintenance contract with its performance and output guarantee extends the warranty of the installed equipment up to 15 years and provides DREAMS Montego Bay with a predictable operating cost and the certainty, that all installed equipment is maintained correctly and operating at its maximum capacity.

The Results:

The installed microturbine-based CCHP solution has reduced electricity consumption for cooling by 30% and covers 90% of the hotel's electricity demand. The World Energy absorption chiller covers 100% of the cooling needs during most of the year and during extreme peak demands, the previously existing direct fired gas chiller can cover additional cooling needs. Annual savings of USD 823,000 and an emission reduction of 64% are a testament to the effectiveness of the implemented solution. Since its Start-up in May 2024, the microturbine has operated with a 99.8% uptime, proofing the high quality and reliability of Capstone microturbines and CWS's operating and maintenance plan.

Since the microturbine is weather resistant, air cooled and with a very low noise level (75.8 dB at 10 meters) , it could be installed outside,

close to the guest rooms, avoiding a costly investment in a specific plantroom and high interconnection costs.

The ultra-low emissions (< 9 ppmv NOx at 15% O2), make this onsite power generation system a clean-and green, environmentally friendly option and allow DREAMS ROSEHALL to promote themselves as a sustainable hotel.

The fact that the Capstone C1000 is divided into 5 microturbines of 200kW each, allows to operate the system with optimum efficiency, even during the moments of reduced demand and maintain each turbine while the others are still operating. This avoids downtimes and guarantees that the hotel receives power and thermal heat at all times.

Smarter Energy for a Cleaner Future

The Signature Series Microturbine provides 1MW of reliable electrical power in one small, ultra-low emission, and highly efficient package

