

## The Royal Playa del Carmen & Gran Porto Real Hotels

The luxurious Royal Playa del Carmen and Gran Porto Real hotels – which sit on a protected stretch of swim-friendly beach just steps from the popular Playa del Carmen’s famed 5th Avenue and its trendy shops, restaurant and night clubs – faced increased energy costs due to management’s decision to begin heating their pools.

In 2010, as part of its energy savings initiatives, management of the 5-star hotels decided to install a new power supply that was reliable, efficient and could lower both energy costs and emissions. The decision to choose a Capstone clean-and-green C1000 Power Package® was obvious.

“As part of our energy savings plans and with an additional need to begin warming our pools for better guest comfort, we reviewed possible energy technologies,” said Samuel Zarate, Corporate Maintenance Director of Real Resorts Group.

“We considered installing additional generators for peak generation plus solar energy for heating of the pools,” Zarate said. “But when we learned that the C1000 could lower our energy consumption while provide us with additional services – such as hot water and steam for laundry services – by utilizing waste heat, we knew we had found the answer we were looking for.”

The 44,329-square-meter (477,153-square-foot) Royal Playa del Carmen hotel features 513 guest rooms and suites while the 8,760-square-meter (94,291-square-foot) Gran Porto Real hotel has 287 rooms. With an annual average occupancy of over 90 percent, finding a system that lowered energy consumption and that also provided hot water and steam for the 24-hour laundry facility was a huge bonus.

In late 2011, Enerxpert SA de CV., Capstone’s local distributor, installed an onsite CCHP system consisting of a liquid propane-fueled

### At a glance

#### Location

Playa del Carmen, Quintana Roo, Mexico

#### Commissioned

December 2011

#### Fuel

Liquid Propane (propane-butane mix).

#### Technologies

- Capstone C1000 Dual Mode Power Package in a combined cooling, heating and power (CCHP) application.
- 4,076 MBTU/hr heat exchanger.
- 150-ton absorption chiller.

#### Customer

- The Royal Playa del Carmen and Gran Porto Real hotels, owned and operated by Real Resorts Group, located in the Riviera Maya.

#### Results

- Exhaust heat is captured to provide steam and hot water for the hotels’ facilities, including a 24-hour laundry facility and to heat two large pools to a comfortable 28–31°C (82–88°F).
- System provides the hotels with 40% of their electrical needs and 100 refrigeration tons (RT) of cooling.
- Energy consumption at the hotels has been lowered by almost 25%.
- A Supervisory Control and Data Acquisition (SCADA) system allows for operators to monitor the CCHP plant 24/7 both locally and remotely, facilitating preventive maintenance actions.
- C1000 saves The Royal Playa del Carmen hotel an estimated \$450,000 to \$500,000 Mexican pesos a month.





Capstone C1000 Power Package, a 4,076 MBTU/hr heat exchanger and a 150-ton absorption chiller. In addition to providing hot water to keep the two large pools at a comfortable 28–31°C (82–88°F) and providing the laundry facility with hot water and steam, the system provides the deluxe, all-inclusive hotels with 273,750 kW-hours of energy per year – more than 40 percent of the hotels' needs – and up to 100RT of cooling for restaurants and The Royal Playa del Carmen property main kitchen.

"The power reliability and monitoring capabilities makes the C1000 system an ideal power source for the busy hotels," said Ruben Velazquez Avendaño, Mechanical Engineer at Enerxpert, who carries out the preventive and corrective maintenance of the C1000 microturbine. "The C1000 is dual-mode, allowing it to island when there is a

grid-power failure ensuring the hotels are provided with secure and reliable power even during power outages."

Additionally, thanks to a SCADA system, the CCHP plant is monitored 24/7 both locally and remotely facilitating preventive maintenance actions.

"Maintenance costs have decreased in addition to achieving greater control over the operating systems involved," Zarate said. "Real-time monitoring of the hot water supply, laundry, air conditioning, and pool-water heating has been invaluable."

The Real Resorts Group, who owns and operates both properties, estimates The Royal Playa del Carmen hotel has a monthly saving of \$450,000 to \$500,000 Mexican pesos thanks to the installation of the Capstone C1000 Power Package.

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*— Ruben Velazquez Avendaño, Mechanical Engineer  
Enerxpert SA de CV.*

Both hotels have won prestigious awards for service and quality, but there is one they are especially proud of.

The American Academy of Hospitality Sciences has awarded Real Resorts Group with the Green Star Diamond Award for its commitment to ecology and the environment. With its low emissions and noise levels, energy savings, low maintenance requirements, and patented air-bearing technology that does not require lubricants or coolants, the Capstone C1000 system allows Real Resorts Group to continue being environmentally and socially responsible.

"The management at Real Resorts Group is not only committed to providing their discerning guests with exceptional service," said Jorge Hernandez Aguilar, Director at Enerxpert. "But also to employing sustainable operating practices," he added. "With the installation of the C1000 system, they have lowered the hotels' energy consumption by almost 25 percent, doing their part to contribute to the Mexican government's efforts to reduce conventionally-produced electrical consumption." ■