energy recovery®

FULL-SUITE ENERGY RECOVERY SOLUTIONS

for Multiple Palladium Resorts in the Cancún Region

LOCATION
Quintana ROO, Mexico

PROJECT
Palladium Resorts in
Costa Mujeres & Riviera Maya

GUEST CAPACITY (BOTH HOTELS)
1,650,000 annually

TOTAL CAPACITY (BOTH PLANTS)
9,600 m^3/day

TOTAL ANNUAL COST SAVINGS (BOTH PLANTS)
$593,000 USD annually

TOTAL ENERGY SAVINGS (BOTH PLANTS)
7,239,410 kWh annually

CO_2 EMISSIONS AVOIDED
3,448 metric tons annually

THE CHALLENGE

Energy Consumption for Rising Water Demand

The tourism industry in Mexico is concentrated in the Mexican Caribbean, with Cancún attracting a large share of visitors. In 2023 alone, Cancún and surrounding areas drew approximately 21 million visitors to its beach resort getaways. Two desalination plants were built to provide water to several resorts in this region: one in Costa Mujeres, supplying water to the Grand Palladium Costa Mujeres Resort & Spa with a capacity of 800,000 guests annually and another Grand Palladium in Riviera Maya, which supplies drinking water to five hotels in the area, with an annual guest capacity of more than 850,000. Universal Environmental Technologies, Inc. (UET Water) was contracted to design and supply two desalination plants serving these resorts and opted to use Energy Recovery's complete product solutions, including the company's PX® Pressure Exchangers® (PX), Aquabold™ high-pressure pumps, and booster pumps to drive the plants' energy efficiency, reduce energy consumption, and cut operating costs.

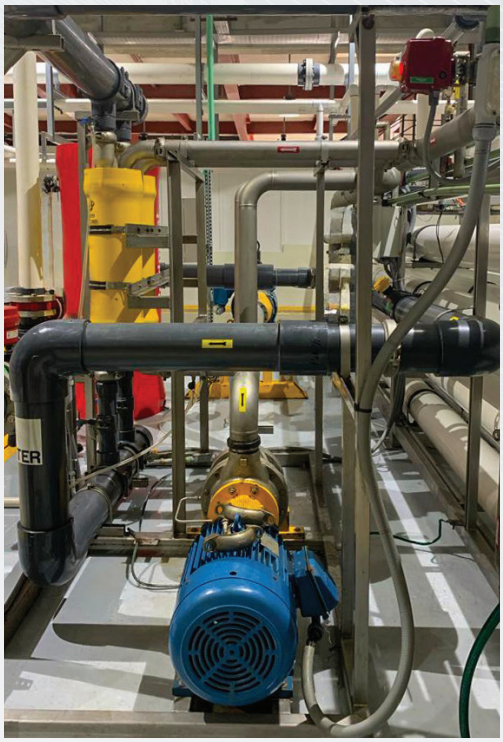
THE SOLUTION

A Complete Solution for Energy Savings

Due to high energy consumption driving up costs to meet water demand, the desalination facility in Costa Mujeres, with a production capacity of 6,000 m^3/day, and the facility in Riviera Maya, with a production capacity of 3,600 m^3/day, both chose to utilize Energy Recovery's full suite solution of pumps and energy recovery systems. The two plants implemented the Aquabold high-pressure (HP) pump, VPXP booster pump, and PX Q260s sized to their capacity requirements.

A primary deciding factor for the resorts and UET Water in utilizing Energy Recovery's full suite of solutions was its high reliability and very low maintenance. Obtaining the complete package directly from Energy Recovery's product offerings allowed the desalination facility the convenience of using one supplier while maximizing efficiency.

The PX is a critical factor in reducing energy consumption in both plants, as it recycles high-pressure energy from the reject brine and circulates it back into the system. Engineered with corrosion-resistant ceramic, the PX requires no scheduled maintenance and can reduce the energy consumption of seawater reverse osmosis (SWRO) by up to 60%*. The PX operates at a peak efficiency of 98%*, and the Aquabold high-pressure pump with an efficiency of up to 85%*. Energy recovery devices (ERDs) paired with the company's high-pressure and booster pumps provide maximum efficiency, hydraulic flexibility, and savings.



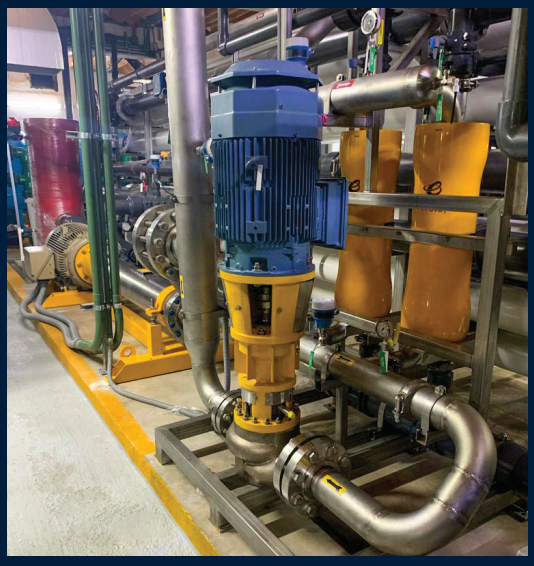
> *"We are satisfied with the quality of the pumps that have operated successfully since their installation in April 2019. We have used two high-pressure Aquabold pumps in our Palladium Resorts in Riviera Maya having two trains each with a permeate capacity of 1,800 m^3/day."*
>
> – Desalination Manager for Palladium Hotel Group

THE RESULT

Tourism Focused on Energy Efficiency

Since its commissioning in 2019, the desalination plant in Costa Mujeres has been successfully operating with three trains, each with a capacity of 2,000 m^3/day. As one of the highest capacity seawater reverse osmosis plants for hospitality in the Mexican Caribbean, the plant can save 11,706 kWh/day, reducing costs by approximately $375,000 USD annually. The desalination facility in Riviera Maya is projected to save 8,128 kWh/day, resulting in roughly $218,000 USD in annual cost savings.

With the increasing demand for water in the region, Energy Recovery's full suite of ERDs with complementary pumps not only aids in decreasing the energy consumption associated with distributing water for tourism but also reduces operating costs for the resorts.



**Actual results may vary.*

To learn more, visit energyrecovery.com

energy recovery®

April 2024