UNISON ENERGY

Case Study

Gaylord National Harbor Resort and Convention Center

National Harbor, MD

With 2.4 million square feet of space, Gaylord National saved $1 million in annual energy costs after Unison Energy installed Maryland's largest microgrid.

Gaylord National Harbor Resort and Convention Center, owned by Ryman Hospitality Properties and run by Marriott International, is the central pillar of a 42-acre National Harbor development project along the Potomac River in Prince George's County, Maryland. At 2.4 million square feet, it is the largest non-gaming, combined hotel and convention center on the Eastern Seaboard, encompassing 2,000 guest rooms, over a half-million square feet of convention and meeting space, a 19-story glass atrium, seven restaurants, and a 20,000-square-foot spa.

Powering this impressive structure is no simple task. Gaylord National Harbor consumes a tremendous amount of energy, with three utility feeds, an electrical lineup 90 feet long, five 700 HP boilers, and four 2000-ton chillers. Ten years after the resort opened in 2008, Unison Energy worked with Ryman and Marriott to install a more efficient energy solution — a combined heat and power (CHP) plant that functions as a microgrid, the largest of its kind in Maryland.

Unison Energy designed, built, and continues to own and operate the 6 MW system, which now provides the facility with over 85% of its electricity. The system captures waste heat to provide 1.3 million therms of hot water annually, offsetting over 60% of the hot water system's natural gas

6.0 MW of installed electric capacity, with three 2.0 MW generators operating at 70% efficiency

25 kV operating voltage with three 2500 kVA step-up transformers

Load following and island mode capabilities

Variable frequency drives for chillers were included in ESA at no upfront cost to Gaylord

Carbon footprint reduced by 59% or 32,800 tons per year*

*EPA non-baseload emissions data (eGRID 2016)

Gaylord National Harbor Resort and Convention Center, host to a 6.0 MW Unison Energy CHP system that provides over 85% of the site's electricity.

usage and allowing Gaylord to shut down three of the five boilers on site while keeping the remaining two boilers on low-fire during warmer months.

With Unison Energy's CHP system in place, Gaylord has reduced its energy costs by approximately $1 million a year, a 15% drop from prior total energy spend. The resort has also lowered its carbon footprint by an impressive 32,800 tons per year, representing a 59% reduction compared to the Maryland electricity grid. What's more, Gaylord staff now have peace of mind knowing the lights will stay on for hotel guests and convention hosts, even during grid outages.

Almost two years into operations, Patrick Chaffin, COO of Ryman Hospitality, said,

"Unison Energy has been a reliable and dependable partner. Their team is responsive, proactive, and very professional. When the CHP system has issues they fix them quickly and take ownership of the situation. For Ryman, this has resulted in greater power resilience, bottom-line savings, and environmental sustainability."

Unison Energy

Who We Are

We own and operate distributed generation systems that operate as microgrids.

We operate systems in CA, MD, NJ, and NY, with additional projects underway.

We finance projects on our balance sheet, with no outside capital required.

We design and implement our systems using internal engineering and project management teams.

We operate our sites using in-house field service technicians, engineers, and a 24/365 staffed monitoring center.