Case Study

Peninsula Regional Medical Center

Salisbury, MD

Thanks to an award-winning, CHP-based microgrid from Unison Energy, Peninsula Regional has cut its energy costs and emissions — while ensuring grid outages won't affect its operations.

Reliable, affordable, and sustainable power matters to Peninsula Regional Medical Center (PRMC). With 3,300 physicians and staff supporting 500,000 patients annually, the hospital has been the primary healthcare provider for Maryland's Eastern shore since 1897 and is the only trauma center on the Delmarva Peninsula. For trauma patients, the nearest alternative is over 100 miles away in Baltimore. Yet the facility's coastal location in Salisbury, Maryland, makes it vulnerable to outages caused by hurricanes and other storms.

Thanks to grants from the Maryland Energy Administration and PEPCO's EmPOWER program, PRMC was able to contract Unison Energy to implement a microgrid based on a combined heat and power (CHP) system. The resulting system, which is designed, built, owned, and operated by Unison Energy, consists of two 1,560 kW engines that can support the hospital's load during utility outages. Unison Energy added controls to the existing primary gear to allow the facility to easily load follow and enter island mode to operate as a microgrid. Now, if a storm cuts power to Salisbury, the hospital can continue to serve its patients with no interruption to its operations.

While the CHP system provides critical resiliency, it also allows PRMC to manage its operating costs by offsetting 81% of its annual energy consumption. In fact, Unison Energy ensured the hospital could benefit from efficiency savings by installing two customer thermal loops that connected the CHP system to the boiler rooms on opposite sides of the campus.

- Winner of 2019 Association of Energy Engineers Region 2 Energy Project of the Year
- 3.2 MW of installed electric capacity, with two 1,560 kW engines operating at 65% efficiency
- Load following and island mode capabilities
- Carbon footprint reduced by 58% or 16,800 tons per year*
- 4,000 ft of hot water piping installed for two boiler rooms
- 25 kV operating voltage with 3750 kVA step-up transformer

*EPA non-baseload emissions data (eGRID 2016)

Peninsula Regional Medical Center hosts a 3.2 MW Unison Energy CHP system that supports the hospital's load during utility outages.

Unison Energy installed over 4,000 linear feet of pre-insulated hot water piping with leak detection, routing the pipes underground, over a portion of the hospital roof, and along the walls. Where the pipes were visible, Unison Energy installed a decorative cover that matched the existing architecture. They also installed heat exchangers, pumps, and valves, and incorporated digital controls into the existing building management system in order to optimize heat delivery.

The resulting system provides hot water for the facility and allows the hospital to minimize its boiler usage. In the first two years since implementation, Unison Energy has already saved the hospital some $500,000 in energy costs.

What's more, by choosing a Unison Energy solution, the hospital was able to step into a new role as an environmental leader. Thanks to its improved energy efficiency, PRMC has reduced its carbon emissions by 58% annually. Dr. Naleppa, PRMC's president at the time, said,

"By installing the CHP, we achieve both environmental and economic stewardship that is a benefit to our community."

For Peninsula Regional Medical Center, a Unison Energy CHP system is an investment in the future. But it has already proven to be a success — in fact, it won a 2019 Energy Project of the Year Award from the Association of Energy Engineers (AEE), recognizing the project for the value it has brought to PRMC and the patients it serves.

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.