

Customer Success Story: The Greenbrier

Markets Served
Community infrastructure

The company's broad product line, expertise in making energy saving/energy efficiency recommendations and ability to help us implement solutions that are in line with our goals have accelerated our ability to achieve energy efficiency and reduce operating cost.

*Ryan McClung
Director of Engineering and Logistics*

The Greenbrier Leverages Eaton Solutions to Achieve Energy Efficiency and Reduce Operating Cost

Location:

White Sulphur Springs, WV

Problem:

Future profitability of the resort hinged on its ability to implement energy efficiencies to reduce operating costs.

Solution:

A package of products, including MV switchgear, UPS, Power Xpert meters, ATS, EV chargers and energy audit services, focused on supporting increased energy efficiency.

Results:

Eaton will continue to work with The Greenbrier to implement building and transportation technologies to support its energy efficiency and sustainability goals.

Background

Since The Greenbrier was established in 1778 in White Sulphur Springs, West Virginia, it has become a National Historic Landmark and an award-winning resort. When West Virginia entrepreneur Jim Justice bought The Greenbrier in 2009, he recognized that the future profitability of the world renowned resort hinged on its ability to provide the ultimate guest experience while simultaneously implementing energy efficiencies and reducing operating cost.

Surrounded by the Allegheny mountains, The Greenbrier sits on 6,759 acres. With 710 rooms, including 33 suites and 96 guest and estate houses, The Greenbrier has 10 lobbies, more than 40 meeting rooms, a complete conference center facility, spa, gun club and four golf courses.

Challenge

The Greenbrier's Director of Engineering and Logistics Ryan McClung explains, "We recognized that the first step in our ability to optimize energy efficiency and reduce operating cost was to document our energy usage. Once we have the information, we can identify opportunities for efficiencies, implement state-of-the-art products and solutions that would enable us to make ongoing improvements in energy usage. To achieve those goals, The Greenbrier partnered with Eaton and began a process of implementing cost saving, sustainable solutions."

Solution

Soon after Justice bought the resort, he stood on the front lawn and announced that within six months a 100,000-square-foot casino would be built and operational under the lawn. The Greenbrier began working with Eaton on the design and engineering of the casino's electrical distribution that would provide energy efficiency and low cost operations.

Recognizing that The Greenbrier had no power monitoring program, Eaton installed Power Xpert® meters to enable the resort to see what power it was using and how it was being used. Metering enables the resort to monitor its usage, verify and identify peaks, monitor load reductions as energy efficient equipment is installed, determine when energy is being wasted and find ways to save energy through load shedding to offset the demand cost of peak hours.

After meters were installed on the casino's gear, Eaton recommended that meters be installed on all existing electrical gear. As a result, meters were added to monitor the various buildings and sections in the facility. McClung reports, "Since Eaton meters can interface with other suppliers' equipment via gateways, there was no need for us to incur the expense of replacing the installed base of equipment. With resort-wide monitoring, we can see inside the system, monitor its health, investigate discrepancies and streamline troubleshooting."



Powering Business Worldwide

Information collected from the meters also provides us with benchmark data, which will enable us to document the results of future energy efficiency improvements.”

In conjunction with installing the casino's medium voltage switchgear, Eaton installed a 750 kVA uninterruptible power system (UPS), which provides emergency power when the input power source fails. A UPS differs from an auxiliary, emergency power system or standby generator in that it will provide instantaneous protection from input power interruptions by supplying the casino with energy stored in batteries. To meet the stringent deadline for the casino's opening, Eaton was able to reduce the lead-time for the medium voltage switchgear and UPS from the normal 26 weeks to eight weeks.

Eaton then explained that a comprehensive energy audit would enable The Greenbrier to identify energy conservation opportunities for its entire operation which, when implemented, would reduce energy consumption and cost. The Greenbrier team agreed. The energy audit included collecting and analyzing historical energy data, studying the buildings and their operational characteristics, determining potential modifications or operational changes that would reduce energy use or cost and summarizing energy conservation opportunities along with their corresponding savings and cost, so that prioritization and allocation of resources could be done. The Greenbrier has already begun working with Eaton to take advantage of the opportunities discovered by the energy audit.

As the resort was working with Eaton, The Greenbrier was preparing to host the National Association of Automotive Industrial Design Engineers conference. Since the organization's members would be introducing their electric vehicles, electric vehicle charging stations would be

needed. To meet that need, Eaton installed six level 2 electric vehicle charging stations.

Power reliability is essential to The Greenbrier's ability to ensure guest comfort, access to the many services available as well as providing optimal service for special events. Since the resort hosts The Greenbrier Classic, which is part of the PGA TOUR FedEx Cup series, it had rented generators, air conditioning units, portable power, a transformer and distribution panel to ensure power needs were met in the event of an interruption of electrical service. McClung notes, “By purchasing the equipment, it will cut annual rental costs by \$40,000. This amount will continue to grow as we strategically continue to purchase and install permanent equipment on the golf course. This will enable us to use the saved funds for other energy improvement projects.”

In looking for additional solutions, The Greenbrier learned that the local utility had a demand response system. Since only so much power gets manufactured every second, the utility works with large users who agree to reduce their power consumption by a certain percentage, with two hours notice, when overall power demand is high. This enables the utilities to put power back on the grid to meet that demand. In turn, The Greenbrier receives \$125,000 annually, which it uses to fund energy improvement projects.

Implementing the demand response system has led The Greenbrier to implement alternative power that will enable use of its oversized casino generator to power and back feed if there is a demand response. This will be done using Eaton switchgear and an Eaton automatic transfer switch (ATS). As a result, if there is a demand response event and the resort is full to capacity with guests, all it has to do is reduce power to the casino and the one-megawatt generator

automatically picks up load for that section of the resort.

Another Eaton recommendation that The Greenbrier has implemented is using its Pow-R-Command panelboard in the “cart barn” for recharging its 400 golf carts. The programmable panelboard allows power to flow from midnight until six a.m. to further reduce the monthly demand charge.

Results

Eaton is already providing The Greenbrier with a range of energy-efficient technologies. With the company's wide range of power management solutions, Eaton will continue to work with the resort to implement building and transportation technologies to support The Greenbrier's energy efficiency and sustainability goals.

McClung reports, “Although we have added a 100,000 square foot casino and a 10,000 square foot warehouse, our power bill is lower now than it was 10 years ago. In fact, we have already reduced our power bill by 20 percent, and our goal is a 10 percent reduction per year for the next five years.

“The Eaton solutions that have already been implemented, those that are in the process of being installed, and the list of future recommendations positions us to achieve those goals. The company's broad product line, expertise in making energy saving/energy efficiency recommendations and ability to help us implement solutions that are in line with our goals have accelerated our ability to achieve energy efficiency and reduce operating cost.”

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