



Mohegan Sun Pocono Goes Green and Bolsters Power Reliability Through a Combined Heat and Power and UPS System

By Jeff Seidel and Mark A. Fennell

Mohegan Sun Pocono, located on 400 acres in the hillside of Plains, Pennsylvania, is one of the largest, most distinctive, and spectacular entertainment, gaming, shopping and dining destinations in Pennsylvania.

Since it was acquired in January 2005, Mohegan Sun Pocono has continued to evolve and today features a 238-room hotel with a luxury spa and adjacent 20,000 square foot convention center. It is currently home to 82,000 square feet of gaming space including more than 90 table games and over 2,300 slot machines. The facility is also home to a variety of dining and shopping options, nightlife, entertainment and live harness racing.

As Mohegan Sun Pocono looks forward to celebrating the ten-year anniversary of the opening of the casino this November, it is also excited to be starting its second decade in a more efficient, energy-reliable, and more environmentally-friendly way.

UGI Performance Solutions (UGIPS), a division of UGI HVAC Enterprises, Inc., worked with Mohegan Sun Pocono to evaluate and develop a Combined Heat and Power (CHP) project that would reduce the Casino's energy costs and increase power resiliency. The result is a system that will provide 22% of the casino's electrical requirements and achieves a 14% carbon footprint reduction. To increase power resiliency for critical electrical loads such as slot machines, Uninterruptable Power Supply (UPS) systems were also added to the project which will serve to reduce or eliminate power outages.

"We are a 24 hour a day 7 day a week business," explains Mike Bean, Mohegan Sun Pocono's President and General Manager. "In fact, we have never closed since our grand opening in November 2006. The power stability that this project brings is extremely valuable to help us provide the highest level of service to our guests. While we have back-up generators to provide power, whenever there is an interruption from the electric grid power supply even the slightest interruption, as the power supply switches from the grid to the generators, can cause slot machines to power down. It becomes very inconvenient for guests to wait for the slot machines to power back up. Often times there is damage to the machines or they need to be repaired or manually restored."

The \$3.1 million project involves the installation of a CHP System package, including an 828 kW internal combustion engine and a heat recovery hot water heat-exchanger. The hot water from

the CHP system will preheat the hot water return which is then piped back into the existing boilers.

“I expect this will reduce the load on the existing boilers to a point where we can sell one of our boilers,” states Jeff Seidel, Director of Capital Projects for Mohegan Sun Gaming Authority. “It will also provide us with a reliable power source for a couple of decades that will significantly reduce the cost of our utilities.”

Back in 2012, Mohegan Sun Pocono began exploring CHP for three of their facilities including casinos in Connecticut and New Jersey. Seidel explains, “I thought the Pennsylvania project was going to be the last one that would happen because we have lower relative utility costs compared to New Jersey or especially in Connecticut. But because of the incentives in Pennsylvania and the electrical issues we have, this is the one that flew.”

After evaluating three different CHP design/build firms, Mohegan Sun Pocono decided on UGI Performance Solutions (UGIPS). One of the early steps UGIPS performed was submitting and receiving approval for a Commonwealth Financing Authority Alternative Clean Energy (ACE) Grant. “The state’s contribution is something that we are thankful for and very much appreciate,” says Bean. “The 30% participation through the ACE grant played big part in helping us make the decision to move forward.”

The design/build project team includes Quad3, a Wilkes-Barre based architecture, engineering and environmental science firm who is handling the electrical engineering, mechanical engineering and air-permitting needs for the project. It was Quad3 who originally introduced UGI Performance Solutions to Mohegan Sun Pocono. “We are always trying to assist our clients with implementing real world cost saving measures” said Brent Berger, President & CEO of Quad3 Group, Inc. “We have been monitoring CHP projects for some time and it seemed like a perfect fit for our existing client. We discussed the opportunity with the casino management team and set up a meeting with UGI Performance Solutions to get into the details. The electric usage along with the heating and cooling load of the facility were a perfect fit for the clean and efficient power created by a natural gas fired CHP unit.” Berger continued, “Our team is excited to be a partner with UGI Performance Solutions on this dynamic project that will reduce the carbon footprint of the casino facility while dramatically reducing the electricity pulled from the PPL grid.”

The UGIPS team has developed over 6,000 KW of CHP projects in the past four years. “We are excited about moving this project to the construction phase and being able to provide another customer the opportunity to reduce their energy costs while improving reliability”, stated Gary Fechter, GM Performance Solutions and Engineering Services for UGI HVAC Enterprises. The team also includes Berkshire Mechanical Services, another division of UGI HVAC Enterprises, and the electrical installation will be completed by Native Sons LTD, Winsdor Mill, MD.

The team is now in the process of finalizing the detailed design and has released certain major pieces of equipment for manufacturing. The project is scheduled to be fully operational by October 2016.

Jeff Seidel is the Director of Capital Projects for Mohegan Sun Gaming Authority and **Mark A. Fennell** is the Business Development Manager for UGI Performance Solutions.



Q & A with Mohegan Sun Pocono's Mike Bean – President & General Manager and Mohegan Sun Gaming Authority's Jeff Seidel – Director of Capital Expenditures.

What was your experience going through this process?

Bean – “When UGI Performance Solutions presented the project to us it had several elements that were appealing. One, of course, was that there would be a positive financial impact to us, which is something we are always looking for. It also enabled us to be a responsible business by reducing CO2 emissions. Those combined with the increased stability of the electricity to our facility were our drivers.”

What impacts do you expect as the result of the project?

Bean – “This will bring increased power quality, lower costs, and reduced emissions. We also would like to be a model and progressive in our business and in our community. This project may serve as an educational tool and as an example to others. We would be happy to help anybody else by talking about our experiences.”

Seidel – “Anytime you can find ways to use less of the earth's resources to give you the same output it's a terrific thing. We should always look for ways to do things more efficiently and ways to be good to Mother Earth.”

What advice would you give to other organizations considering CHP and power resiliency projects?

Bean - “I would say that every situation is different but it's definitely worth taking the time to research and analyze whether or not it's something that could work for your organization. We always figure there is very little downside to look at something and make a determination whether it makes sense for us. I would encourage others to look closely at it to see if there is a fit.”

Seidel – “I would say they are definitely worth looking at and every circumstance is unique. So in some cases it makes sense and in some cases it doesn't. But I think most every application is definitely worth starting to take a look at.