

POWER PROFILE

Customer: The Joint Meeting of Essex & Union Counties

Location:

Elizabeth, New Jersey, USA

Customer Business Issue:

Reducing electricity costs with a reliable, energy-efficient solution in a combined heat and power system

Solution:

Four Cat® G3516B gas generator sets

Cat® Dealer:

Foley Power Systems



The Joint Meeting of Essex & Union Counties is a wastewater treatment plant in Elizabeth, New Jersey, that has been treating wastewater produced by more than a dozen municipalities for over 100 years.



Four Cat® G3516B gas generator sets produce 2.4 MW of power, enough to provide 92% of the power required to run the wastewater plant portion of the facility.

POWER NEED

The Joint Meeting of Essex & Union Counties is a wastewater treatment plant in Elizabeth, New Jersey, that has been treating wastewater produced by more than a dozen municipalities for over 100 years. The plant treats industrial, commercial and residential wastewater from a 65-square-mile area, and has an average hydraulic flow of 85 million gallons per day.

In the mid 2000s, Joint Meeting was using utility power for the plant and experiencing issues. Power cables would fail in the wintertime or during heavy rainstorms, resulting in a loss of power to the plant. Therefore, Joint Meeting required a more reliable source of power that could also keep up with New Jersey environmental regulations.

SOLUTION

The environmental regulations were met through the installation of a cogeneration system. Cogeneration systems, also known as CHP systems, generate both electricity and usable thermal energy. The systems provide a cost-effective method of reducing operating costs, increasing electrical reliability, and reducing greenhouse gases. They simultaneously convert mechanical work to electrical energy (in most cases) and produce useful heat.

Joint Meeting worked with their local Cat dealer, Foley Power Systems, to install four Cat G3516B gas generator sets.

Three of the generator sets are in full operation and run on either piped natural gas or methane gas that comes from two large anaerobic digesters. The fourth generator serves as standby power, if one of the others is shut down for scheduled maintenance.

With the cogeneration plant, waste heat from the generator sets is captured and used to provide heating to the Joint Meeting facility.

RESULTS

The cogeneration plant produces 2.4 MW of power, enough to provide 92% of the power required to run the wastewater plant portion of the facility, and 80% of the power for the entire facility.

The new cogeneration plant resulted in annual savings of approximately \$2.2 million. It also lowered Joint Meeting's carbon footprint by dramatically reducing both the use of fuel oil and the release of excess methane.

The switch from utility power to an onsite cogeneration facility also allowed Joint Meeting to remain fully operational during Superstorm Sandy.

"We elected to use natural gas as long as it was available, and then switch over to methane gas from our digesters in the event that the brunt of the storm hit us," recalled former Superintendent Joe Bonaccorso. "That enabled us to stay online from about midnight on October 29, a Monday, until mid-afternoon Friday, five days later."

The Joint Meeting of Essex & Union Counties is proud to have provided uninterrupted service during Superstorm Sandy when other wastewater treatment plants struggled to deliver.

"Without the cogeneration facility provided to us by Foley, we would not have been able to do that," says Assistant Superintendent Francis Bonaccorso. "When everyone else was dark, we were light. We were able to do the jobs that others weren't able to when the storm hit, and it was due in no small part to the performance of the Cat generator sets, and the timely support we received from Foley Power Systems."

For more information, please visit <http://www.cat.com/powergeneration>.