

# Janesville Wastewater Treatment Plant

Government/Municipal

## The Challenge

Located in the city of Janesville, Wisconsin, the Janesville Wastewater Treatment Plant (WWTP) was established in 1970. Fifteen years later, it implemented its first combined heat and power (CHP) system as a strategy to reduce annual energy costs while also increasing energy efficiency and improving the use of available energy resources. In the years that followed, the system was upgraded three times, including in 2011 when the site replaced two aging reciprocating engines with four Capstone C65 microturbines. By 2014, the system had generated energy cost savings and gross revenues of roughly \$205,000 through a reduction in natural gas purchasing and generated revenue from selling electricity at a premium rate to the utility.

Based on the success of past upgrades, beginning in 2024, the Janesville WWTP embarked on another system expansion. This project led by Vergent, Capstone's distributor for the Upper Midwest, New England, and Eastern Canada, includes the commissioning of a C200 microturbine in November 2024 and two new C65 microturbines commissioned in April 2025. Retaining the two C65 microturbines from its original 2010 installation, the resulting on-site generation capacity provides a total of 460 kW, offering even more benefit to the plant and surrounding community.



**Our facility is operating a new microturbine at a fraction of the cost. Vergent has been excellent at handling the upgrade for us, with minimal involvement from our team. We're thrilled to have taken advantage of so many external funding programs for our community. The process couldn't have been more seamless. All wastewater treatment facilities should explore similar opportunities to improve efficiency and reduce costs."**

— David Botts, P.E., Utility Director,  
City of Janesville

## Power Profile

### Customer

Janesville Wastewater  
Treatment Plant

### Location

Janesville, Wisconsin

### Commissioned

2011; 2024; 2025

### Fuel

Biogas

### Technologies

- (4) C65 ICHP Microturbines
- (1) C200 Microturbine
- (1) Vergent controller

### Capstone Green Energy Partner

Vergent

An aerial photograph of a wastewater treatment plant, showing several large, circular, concrete-lined aeration tanks. The water in the tanks is a dark, murky green. The surrounding area includes some industrial buildings and infrastructure. The image is overlaid with a semi-transparent green filter.

**Smarter Energy  
for a Cleaner Future**



**A Capstone microturbine system at the Janesville Wastewater Treatment Plant converts biogas from anaerobic digestion into on-site electricity and heat, boosting energy efficiency and sustainability. The installation includes four C65 and one C200 microturbine, delivering 460 kW of clean, low-maintenance power.**

## The Solution

This microturbine system implemented in 2011 uses biogas from anaerobic digesters after it has been treated to reduce moisture, H<sub>2</sub>S, and siloxanes content. Here is how the system works. All wastewater treatment/reclamation plants produce organic sludge that requires treatment prior to its disposal. The anaerobic digestion process breaks down the organic waste contained in the sludge in a controlled, oxygen-free environment.

The anaerobic process produces two useful products: a sludge that is ready for land application and a biogas that contains about 60% methane. Biogas is the most valuable product of anaerobic digestion because it can be used for a number of processes in addition to fueling CHP prime mover equipment, like the microturbines. Through the energy generation process, the heat produced by the turbine exhaust gases is captured and used to heat the anaerobic digesters.

## The Results

Back in 2011, the project's replacement of the biogas generators resulted in an average 58 percent increase in monthly electricity production for comparable gas production. In addition to the energy savings and revenue from electricity sales, the microturbines, which have just one moving part, delivered significantly reduced annual maintenance costs.

The Janesville plant's decision in 2024 to expand its Capstone microturbine system was driven by the plant's positive experience with the reliability and performance of the technology as well as the availability of substantial financial incentives, including the federal Investment Tax Credit (ITC) and Department of Energy (DOE) ITAC grant, which together cover 90% of project costs.

The project is an excellent demonstration, not just the ability of CHP systems powered by digester gas to reduce costs and increase sustainability, but also to serve as a model for how wastewater treatment plants can take advantage of innovative energy solutions and financing supports to benefit their communities.

By leveraging Capstone's advanced microturbine technology and Vergent's expert project management, the City of Janesville continues to lead the way in adopting energy-efficient, clean technology that benefits both the environment and taxpayers.

## Capstone C65 ICHP Microturbine



**A C65 provides up to 65kW of electrical power while the UL-Certified C65 ICHP provides up to an additional 150kW of thermal power for CHP and CCHP applications.**