



## WASHTENAW COMMUNITY COLLEGE

**GEM ENERGY SERVED AS THE TURNKEY DEVELOPER FOR THE DESIGN/BUILD PROJECT TO INSTALL WASHTENAW COMMUNITY COLLEGE'S FIRST COMBINED COOLING, HEAT AND POWER (CCHP) SYSTEM.**

This on-site CCHP system generates 130 kW\* of electricity, 800,000 BTU (British Thermal Units) per hour of hot water and 50 tons for chilled water for the United Association Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry (UA) Great Lakes Regional Training Center located on the Washtenaw Community College campus in Ann Arbor, Michigan.

As a signatory of the American College and University Presidents Climate Commitment, WCC is striving to become a sustainable, carbon neutral campus in a variety of ways such as integrating energy efficiency curriculum into its construction and advanced manufacturing courses, among others.



\*The CCHP system's energy output is equivalent to 50-60 homes and will reduce the training center's greenhouse gas emissions by 889 metric tons, equivalent to 146 automobiles.

Total annual utility savings is projected at \$60,000.

The two natural gas-powered Capstone C65 micro turbines generate on-site electricity and hot water for use in campus buildings. Excess heat generated from the system is captured and used to help with air conditioning of the buildings. Other components of the integrated system include an absorption chiller and new cooling tower. GEM Energy also donated another micro turbine unit which is housed in the HVAC classroom lab where engineering staff from GEM Energy conduct training for future energy professionals.

Real-time monitoring of the CCHP system is controlled by FlexSetDG. Center staff log in remotely via the web-enabled application to view the system's operations and balance the facility's energy output and needs 24/7.



Located on a rooftop 'classroom', the cooling tower allows the training center's students to interact with the equipment in a hands-on learning environment.

*"The whole beauty of this system is that you gain from one energy source, in this case the natural gas, and receive the output of two different energy sources. Additionally, our carbon footprint is reduced by the fact that we're not using other power sources which use fossil fuels."*

Damon Flowers, Vice President of Facilities, Washtenaw Community College



For on-site power generation, Capstone gas-powered CHP systems offer the highest efficiency in energy supply possible along with lower carbon emissions.



The heat exchangers transfer the exhaust heat from the micro turbines to generate hot water.