

Solar® Turbines

A Caterpillar Company

COMBINED HEAT AND POWER PROJECT

Powering the Global Energy Demand

University of Cincinnati

Location: Cincinnati, Ohio

As energy prices continue to rise, and the failure of the aging and overtaxed electrical grid persists, more and more institutions are opting to build their own power generating systems. Everett Wolverton, Associate Director of Facilities Management at the University of Cincinnati remarked that more and more public institutions and private industries are seeking to provide for all or part of their own energy needs, thereby relying less on public utilities. "A university like ours simply cannot be without power, and risk medical and other forms of research."

To tackle this predicament, the university chose a combined heat and power (CHP) central utility plant, in which waste heat generated from electricity production is recycled by routing the heat from a gas turbine through a recovery boiler to make steam, which is then used in heating and cooling applications.

At the heart of the new power plant is a pair of 12.5 MW

Titan™ 130 gas turbine generator set packages. The gas turbines are designed to run primarily on natural gas, but in case of an unforeseen interruption of supply, can also run on fuel oil. In addition to providing 90% of their electricity demands, the CHP plant produces 80,000 pph of unfired steam to heat a large portion of the university's 12,000,000 square feet in the winter and cool it in the summer.

The plant operates at a very impressive 70% efficiency, uses 22% less fuel and reduces greenhouse gas emissions by over 34,000 tons per year, the equivalent of removing over 6,000 vehicles from our roads. As a result of the more efficient production of electricity and essentially "free" heating and cooling, the CHP plant is projected to save \$5,000,000 per year.

In acknowledgment of their contribution to the nation's energy efficiency, the university was awarded a Certificate of Recognition by the United States Environmental Protection Agency and the United

States Department of Energy. The project was also honored in 2005 by the International District Energy Association as Plant of the Year.

In more than 14,000 installations worldwide, *Solar*® gas turbines generate clean electrical power from natural gas with power generation packages designed to limit the impact on the environment, protect people who operate the equipment, and respect people who live nearby. Operating on the least carbon-intensive fossil fuel, our products can provide significant reductions in greenhouse gas emissions by displacing power generated from more carbon-intensive sources, while at the same time maintaining very low pollutant emissions levels.

For more information on our projects, contact:

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