



30 MWe – DUAL FUEL GAS COMBINED HEAT AND POWER PLANT Cornell University

OWNER

Cornell University

PROJECT ENGINEERING

GIE Niagara Engineering, Inc. PC

CONSTRUCTION MANAGEMENT

LeChase Construction Services

PRODUCT

**Two (2) Titan 130 Dual-fuel Gas Turbine
Generator Sets With Heat Recovery
Steam Generators**

CUSTOMER VALUE

**Reliable, Efficient,
Environmentally Friendly Power**

To improve efficiency and reduce emissions, Cornell University replaced coal-fired boilers in 2009 with two (2) 15 MWe Titan™ 130 gas turbine generator sets for its combined heat and power plant. Previously, the campus in Ithaca, New York, purchased 80 percent of its electricity from the local utility. The dual-fueled turbines now fulfill 80 percent of the campus power and steam needs. With each steam generator producing steam at up to 150,000 pounds per hour, the plant also provides all heating needs to 150 buildings covering 14 million square feet. The turbines run to satisfy thermal load — both in winter, one in summer and one cycled for peaking power during the shoulder months. The generators can operate independent from the utility grid (island mode) to ensure stable and reliable power and heat supply at any time. They also can operate in parallel with the grid, allowing the export of 5 to 6 MW of power to the grid in the winter.

Solar® Turbines

A Caterpillar Company

30 MWe Combined Heat and Power Plant



PLANT DATA

Two (2) 15 MWe Titan 130 Gas Turbine Generator Sets

Two (2) Heat Recovery Steam Generators

NO_x and CO Reduction Catalysts

Fuel: Natural Gas and Diesel Fuel

Steam: Up to 150,000 Pounds Per Hour Per Unit



OUR PRODUCTS AND SERVICES

Gas Turbine Packages and Auxiliary Equipment

Startup and Commissioning

Operation and Maintenance Training

Extended Service Agreement

PROGRESS TOWARD CARBON NEUTRALITY GOAL

REDUCED POLLUTANT EMISSIONS

ENERGY SELF-SUFFICIENCY

HIGH-POWER RELIABILITY AND EFFICIENCY

FUEL FLEXIBILITY

CAPABLE OF OPERATING IN ISLAND MODE

The project is helping Cornell reach its long-term goal of carbon neutrality. By early 2011, the university discontinued use of all coal as a fuel source. The conversion to the turbines reduced CO₂ emissions by 30 percent below the 1990 levels, even as campus square footage increased by 15 percent. The dual-fuel units can transition between natural gas and ultra-low-sulfur distillate while in operation. A CO catalytic system and selective catalytic reduction (SCR) system on each package minimize emissions. Timothy Peer, Project Manager with the university, called the Titan units “the best match for us. We provide all the thermal requirements for 14 million square feet, which is primarily high-end research space, so reliability is a major priority.”

Solar’s Customer Services provides a comprehensive service agreement for the turbomachinery to ensure high reliability, availability and optimum performance. The Extended Service Agreement uses InSight System™ to determine required maintenance activities based on equipment condition. The agreement also provides all package replacement parts, emergency callout support, generator services and gas turbine overhaul. The Extended Service Agreement coverage results in more uptime, greater productivity and optimized life cycle.

Solar Turbines Incorporated

Tel: +1 619-544-5352

Mail: infocorp@solarturbines.com, Web: www.solarturbines.com

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