

Duquesne University

Developer: Duquesne University in Partnership with Equitable Resources Inc.

Location: Pittsburgh, Pennsylvania U.S.A.

Installed: November 1997



A *Taurus*[™] 60 gas turbine generator set manufactured by Solar Turbines entered service at Duquesne University in Pittsburgh, Pennsylvania in November 1997. The university established a partnership with Equitable Resources Inc. to refurbish the university's outdated heating and cooling system, while addressing environmental concerns.

The university was operating an outmoded, decentralized campus cooling system with 30 large mechanical units used for air conditioning. These units were spread throughout the campus. The local electric utility supplied the electricity, and electrical centrifugal chillers located at each of the buildings they served produced chilled water. Four boilers operated by the university from an on-campus central steam plant provided steam for heating. The system was inefficient as well as environmentally damaging.

One of the goals of the project was to consolidate the large number of chillers on campus into one central plant and to increase the capacity to produce electricity and steam, recovering previously wasted heat and using it to stabilize energy costs. The solution was the installation of a 5-MWe natural gas-fired cogeneration facility, known as the Duquesne University Energy Center.

The facility has a *Taurus* 60 gas turbine generator, with a *SoLoNO_x*[™] combustion system which meets about 95% of the university's needs. Since the turbine meets local load only, power is not sold back to the utility.

The exhaust steam from the *Taurus* 60 is directed to a steam generator through a diverter valve. The steam generator has a nominal steam capacity of 23,000 pounds of steam per hour, with 6166 hp (electrical) and 6530 hp (mechanical) to meet energy demands.

The university is now saving about \$750,000 annually on its energy costs and was selected to be part of the federal government's Energy Star Buildings program. The project was completed ahead of schedule and on budget.

For more detailed information on the easy-to-install, economical and reliable 1-to-14.25 MWe *Solar*[®] gas turbine power generation product line, contact:

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