Solar® Turbines
A Caterpillar Company

COMBINED HEAT AND POWER PROJECT

Powering the Global Energy Demand

Jesse Brown Veterans Affairs Medical Center

Location: Chicago, Illinois
Energy Service Company: Energy Systems Group

In 1997, the United States Department of Veterans Affairs (VA) initiated a research project to determine ways to reduce utility expenses at their 168 hospitals and medical centers. The study determined that 48 VA sites could realize a net savings by converting to combined heat and power (CHP) systems. CHP is a process that allows using the waste heat generated from electricity production, recycling it by routing the heat from the turbines through a recovery boiler to make steam, which, in turn, is used in heating and cooling processes.

Before building the CHP plant, the Jesse Brown VA Medical Center purchased its electricity from Commonwealth Edison and its steam from the nearby Chicago campus of the University of Illinois. The VA worked with Energy Systems Group (ESG), an energy services and performance contracting company to engineer a plant that would produce its own power, electricity and steam.

It was determined that the new CHP plant could be adequately housed in an existing 200,000 square foot warehouse on the property, and a *Centaur*® 40 natural gas turbine, designed and manufactured by Solar Turbines, was the equipment of choice. The gas turbine produces 3.4 MW of electricity and can generate up to 50,000 pounds of steam per hour. The steam provides for all of the medical center's heating needs, and when run through an evaporative chiller, handles most of the warm weather cooling needs.

It is estimated that over its 25 year projected lifespan, the new system will save the Jesse Brown VA Medical Center in excess of $41 million dollars, and potentially millions more if electricity costs continue to rise.

The CHP plant was funded through an enhanced-use leasing program, in which the VA came to an agreement with ESG, who formed an owner trust to raise money to cover the purchase and installation of the CHP system. The program included the renovation of the existing building into a power center as well as operating and maintaining the system for 25 years. The program essentially allowed the VA to convert to a new system and achieve energy independence with no initial outlay of capital.

In nearly 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:
Solar Turbines Incorporated
Telephone: +1 619 544 5352
Email: powergen@solarturbines.com
Web: www.solarturbines.com

DSCHP-JBVAMC/511/EO