Texas Woman's University

CUSTOMER BENEFITS

- Comprehensive campus-wide building controls system
- Implementation of energy-saving technology
- Streamlined maintenance
- Local or remote access of control systems
- Reduced energy costs

PROJECT AT A GLANCE

Project Type:
Energy Performance Contract

Location:
Denton, Texas, USA

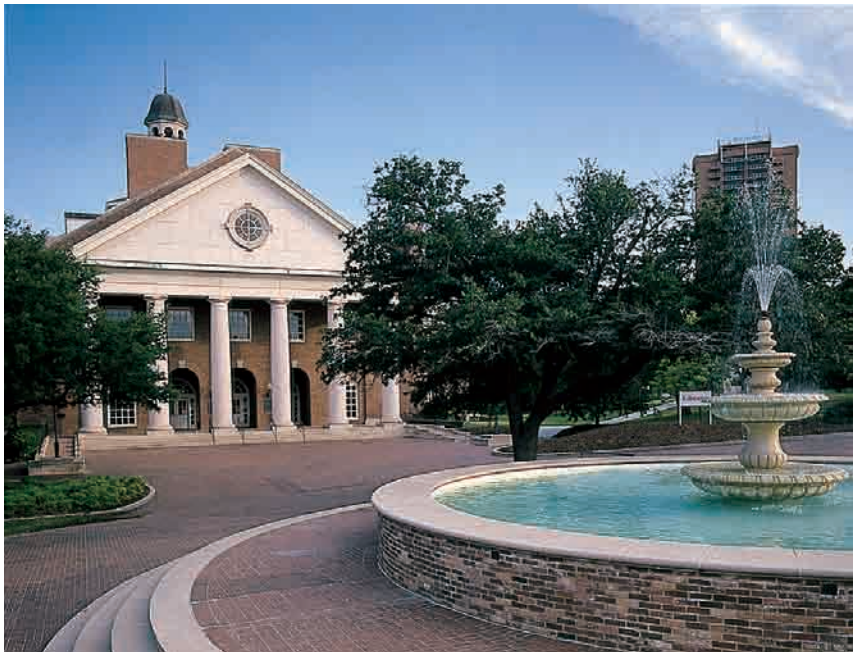
Number of Buildings:
37

Total Area:
2+ million sq. ft.

Guaranteed Annual Savings:
$2,158,166

Energy Conservation Measures:

- New central chilled water plant
- New chilled water distribution loop
- Comprehensive lighting retro-fit
- VAV box replacements
- Steam boiler replacement
- Domestic water conservation
- Direct digital controls retro-fit
- Backup high-voltage substation



Like many state universities, Texas Woman's University (TWU) faced rising energy and maintenance costs stemming from obsolete mechanical equipment and aging facilities. In September 2001, the university embarked on a program to turn the situation around and point TWU towards a brighter future.

The Challenge

TWU's original steam absorption chillers had exceeded their useful life and rising natural gas prices caused utility bills to skyrocket. The low electrical power factor led to unexpected, additional charges on the university's electric bill and the campus building control system relied primarily on decentralized pneumatic controls. TWU faced potentially large expenditures to bring the existing central steam plant into compliance with new air emission standards. The university was in need of a cohesive, campus-wide building controls system, and an upgrade to campus utility equipment, but did not have the money to finance the capital improvements.

In 2001, TWU released a request for proposal (RFP) for the construction of a co-generation plant and a retro-fit of campus lighting to address the need for a more energy-efficient lighting solution. The RFP also required guaranteed payback for the project. Schneider Electric responded to the RFP with a comprehensive performance contract.

Environmental Facts:

As of January 2008, Texas Woman's University has saved energy that is equivalent to ...

- Reducing 138,144 tons of CO_2 from the atmosphere
- Removing 27,629 automobiles from highways
- Planting 35,575 acres of trees

At the time, Schneider Electric had been working with TWU for more than five years, installing TAC I/NET™ digital controls in various buildings on an as-needed basis. TWU awarded the contract to Schneider Electric and the project was launched in September 2001.

The Solution

Schneider Electric surveyed the entire campus and coordinated efforts with the TWU staff to develop a new central 4,000-ton chilled water plant controlled by TAC I/NET™ technology. The project involved replacing three obsolete boilers with two new 35,000 lbs/hr steam boilers that enabled the university to comply with current emission standards.

The project also called for Schneider Electric to replace existing pneumatic controls with direct digital controls (DDC) throughout the campus and to perform comprehensive lighting and domestic water conservation retro-fits. Schneider Electric also constructed a backup high-voltage electrical substation feed to provide redundancy in the event the main electrical service to the campus fails.

Schneider Electric and TWU worked together to find the funding needed to upgrade and replace many aspects of the campus' infrastructure. They agreed on a contract that guarantees an annual savings of $2,158,166 to the university – a sum sufficient to amortize the annual debt service of the financed $19,356,139 project. TWU financed the project by combining a traditional tax-exempt lease/purchase with financing arranged through a Texas Public Finance Authority (TPFA) lease/purchase program.

Schneider Electric performed the initial audit, generated the final project proposal, and presented it for review to TWU and an independent, third-party, professional engineering firm. Schneider Electric also assisted TWU in preparing and presenting the project to the Texas Higher Education Coordinating Board and the Texas Bond Review Board.

The Bottom Line

In addition to replacing all obsolete control equipment point-for-point with TAC I/NET™ technology, Schneider Electric supervised all new construction.

The university's facilities staff uses laptop computers to maintain the system via local access or remote access. Six TAC I/NET™ workstations located around the campus post information back to a centralized monitoring area.

Schneider Electric trained in-house technicians on the TAC I/NET™ system; HVAC basics, DDC logic, sensor calibration, system troubleshooting, controller repair and replacement – everything they need to assure cost-effective operations.

Schneider Electric 1650 West Crosby Road, Carrollton, TX USA Telephone: +1 972 822 4636 Fax: +1 972 323 5359 www.schneider-electric.com/buildings

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