Emporia State University Energy Conservation

Emporia State University's campus-wide modernization initiative is a true game changer; demonstrating the critical role facilities can have in advancing a university's mission.

Quick Facts

Location: Emporia, KS
Industry: Higher Education
Products: Chilled Water System | Smart Building Technology | Energy Storage
Topics: Intelligent Services | Facility Upgrades | Energy Conservation | Building Automation Systems
Services: Consulting | Auditing | Data Analysis | Equipment Installation

Results

$10.2M
Energy Cost Savings

$3.2M
Operational And Maintenance Savings

$7M
Net Positive Return

$10M
Deferred Maintenance Expenditures Eliminated

Highlights

- Launched a campus-wide energy conservation and infrastructure modernization initiative.
- The improvements resulted in significantly enhanced experiences for students and faculty.
- 20 specific improvements were made, all intended to increase energy efficiency.
- The project included a central 410-ton chilled water plant containing 12 thermal energy storage tanks.

Challenge

In 2019, Emporia State University faced a pivotal moment that challenged its mission of "preparing students for lifelong learning, rewarding careers, and adaptive leadership." The university's campus, with buildings averaging 50 years old, was showing its age. An expanding footprint stretched maintenance resources thin, while declining enrollment reduced available funding, creating a perfect storm of challenges. Critical systems were operating well beyond their intended service life, with signs of imminent failure becoming increasingly apparent. These deteriorating facilities were not just a maintenance issue; they were a barrier to student engagement and faculty effectiveness. University leadership understood that without substantial investment in infrastructure, Emporia State would struggle to compete with peer institutions offering modern, state-of-the-art learning environments. Addressing these conditions became a strategic imperative to support Emporia State's goals of "pursuing distinctive initiatives" and "developing capacity for adaptive leadership." The situation demanded a comprehensive, forward-thinking approach to align facility improvements with the university's overarching mission and ensure a thriving future for its students and faculty.

Solution

How to tackle a campus-wide problem where no single issue quite qualifies as an emergency, but everything needs to be done right away? For that, Emporia State would first need a strategic plan, one that would help them address the needs of the campus in a fiscally responsible, data-driven way.

"This project was more than upgrading equipment, it was about reimagining what campus facilities can do to enhance the university's mission," said Bill McKernan, Assistant VP of Infrastructure, Emporia State University. "It was a true rethink of the relationship between facilities and higher education."

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The collaboration began with an Intelligent Services pilot program centered on data analysis and optimization. No equipment was replaced but even so the pilot realized $36,000 in electricity savings in just six months, which was enough to prove the concept. After a competitive selection process, Emporia State selected Trane to conduct a campus-wide audit to identify opportunities for a broader program.

The 2022 audit led to a list of 20 recommended energy conservation measures for implementation from Spring of 2024 through Summer 2025. These included addressing the deferred maintenance and equipment failure risks and upgrading many of Emporia State's iconic facilities.

New building automation systems were installed across campus, and those that previously existed were upgraded to enhance their data gathering and delivery capabilities. The largest of the project's infrastructure upgrades, a 410-ton chilled water plant, was installed in a central location on campus to provide service to multiple buildings at once. Containing twelve thermal energy storage tanks, the plant generates cooling capacity during off-peak hours for use during periods of peak demand, thus reducing energy costs.

The entire $13.36 million project was initially planned to be funded through the Kansas Energy Performance Contracting program (KSA 75-37,125) which allows Emporia State to use future energy savings to pay for current improvements. However, as time passed between contract acceptance and the payment due date, Emporia State was able to fully fund the project without bonding, thereby avoiding additional debt service expenses. Additional funding was secured through Inflation Reduction Act incentives (~ $802,000), utility rebates ($194,200), and Trane's prepayment discount (~$190,000).

Results

Overall, the program delivered a wide range of both tangible and intangible benefits to the university. Among them, significant improvements to operational efficiency, energy conservation, and a greatly enhanced ability to monitor and optimize systems and perform predictive maintenance. The program is projected to generate $10.2 million in energy cost savings, an additional $3.2 million in operational and maintenance savings, and a net positive return of approximately $7 million (after accounting for all incentives). Other improvements included a significant reduction in Emporia State's deferred maintenance project backlog, which eliminated $10 million in expenditures and greatly reduced the risk of disruptive failures.

Most importantly, the project significantly helped enhance experiences for students and faculty, who today enjoy an improved indoor environment including better lighting and more consistent temperature control. It all adds up to more comfortable spaces and modernized classrooms that help facilitate Emporia State University's educational mission.

"This program is an example of the ways in which efficient infrastructure can not only improve a university's operations, but the university itself," says McKernan. "It not only made Emporia State a lower cost, smoother running university, it made it a better university, both for now and for future generations. As a member of the implementation team who also happens to be an alum, I feel very good about that."

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