

From computer operations to facility functions,
campus couldn't be the place it is without...

by Sam Goldfarb and Toby Barrett
Photo by Ben Hao

The power to

do anything.

Almost everything in the U.S. is on the grid. Climate control. Lighting. Computers. Wireless internet routers. Televisions. Each is entirely dependent upon electricity for power.

But energy is expensive — not only financially, but also environmentally. Big power draw means a big bill. Households, businesses and schools pay for energy consumption as much with carbon emissions as with dollars. With energy usage proving so impactful in the world, efficient energy management has become a key aspect in resource preservation.

On campus, energy is mainly drawn on power to facilities, according to Mark Webb, campus director of the physical plant.

"[Energy] is primarily used through our central plant mechanical systems," Webb said. "Through pumps, chillers and air handlers on the mechanical side. And of course, a large user would be the lighting."

Webb knows the financial toll consumption can have on budgets.

"Our school uses about four and a half megawatts to five megawatts of power a year," he said. "Over a year's time, you're looking at 260 to 310 thousand dollars. How we use our power and how much power we use makes a big difference in the bottom line."

One of Webb's main goals on campus is cutting down on electricity usage.

"It's one of the most important mandates from a personal level that I have," he said. "If my department is not looking at best practices, we're not doing our part for the school to make sure that we're doing something sustainable."

One important way Webb has been able to save energy is by converting fluorescent light bulbs to light-emitting diodes (LED), a cheaper and stronger light source. LED lighting cuts back on electricity use and the costs that come with it.

"A traditional light bulb will use 100 watts," he said. "We can go to an LED bulb that uses 15 watts. If you take a look at a classroom that has 30 bulbs in there that are 100 watts apiece and you take them down to 15 watts and you're changing over 15 classrooms, you're going to reduce energy usage by a lot."

Licensed campus electrician Stefen Glenn has been installing LED lighting wherever possible. He, too, believes fluorescent light

bulbs aren't as viable for campus lighting as newer LED panels.

"That technology is old, and LED is the way to go," Glenn said. "We went with these flat panel LEDs, and they hardly use any energy. It's way less than what fluorescent uses, and it saves energy and costs to run it. It's kind of a no-brainer."

Additionally, Glenn attests that the cheaper price of LED light sources provides for cheaper maintenance and installation.

"We paid \$35 apiece [for LED bulbs]," he said. "That's it. So we're saving electricity because it's cheaper to run it, but now we've also saved at least five times the money on maintenance."

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Mark Webb, director of physical plant

Efforts to save energy here go beyond modernizing campus lighting. The school has a comprehensive energy management system capable of handling a wide range of processes.

"We're able to schedule all of our equipment in each building, our central plant and our lighting accordingly," Webb said. "So when we know that we have periods when there's not going to be a whole lot going on, we shut everything down early or we may not even run at all."

Climate control adds another complexity to energy management, especially once temperatures start rising as summer months approach.

"We run an extended period to make sure that we keep the buildings cool," Webb said, "because if we have to start up on a Monday morning, then we have to get everything pretty cool for the start of school. That can be costly."

Warming campus up in the winter can be just as challenging.

"If we have some cold snaps and some freezing weather, then we have boilers, pumps and air handlers preheat all the buildings," Webb said. "We have to pay attention to those two situations in how we [oversee] 360 thousand square feet, based on our years of experience and knowledge of how our campus works."

Newer buildings here were designed with environmental consciousness in mind. Centennial Hall and the Hoffman Center are both Leadership in Energy and Environmental Design (LEED) certified, and the Winn Science Center was also designed to a similar standard.

The building's systems include some of the latest in sustainable technologies.

"There are 200-ton air chillers on top of that building, separate from our campus equipment, that are energy efficient," Webb said. "There is a lighting control system called a wattstopper that trims back the lighting system to depending on how much daylight comes through the window."

LED certification goes even deeper than installed technology.

"That building has been approved as a Silver LEED building," Webb said. "That has to do with a lot of different things — even the way the building was built and the levels of insulation installed."

They also take into account other forms of resource consumption, including water.

"[New toilets here] only use about half a gallon per flush," Glenn said. "In Centennial, Hoffman and the new science building, we have those waterless urinals, so there's no water used at all to flush. The less water we use, the more we're going to save."

Currently, the school sources its power through the TXU Energy company, with contracts in place until 2028. As the school prepares for the future, on-campus renewable energy could play a role in sourcing power — once technology catches up with the demands here. Solar panels could eventually be implemented to provide some power right from campus rooftops.

"With technology [today], we can only get so much out of them," Glenn said. "We'd still have to have the other resources to provide power for when there are rainy days or at night. There's a lot of stuff on this campus that takes energy, so we would have to have a huge solar panel system here."

As the efficiency of alternative energy sources increases and costs correspondingly stabilize, 10600 Preston Rd. could rely more and more on generating its own energy. Becoming greener environmentally saves a different sort of green — letting the school expand its opportunities in other areas by managing our energy use.

It's about power, not just electricity. ■

going for gold Three steps 10600 Preston Rd. can take to boost its sustainability, achieve LEED Gold certification and waste less electricity.

1. Use sustainability metrics such as Arc that track water, waste, energy, transportation and human experience.

2. Keep up with changes to building code in order to stay current with changing environmental standards.

3. Ensure school runs energy-efficiently and continue to monitor for inefficiencies in the system.

SOURCE: USA Today