

What Starts Here Chills the World: UT's efficiency places it at forefront of environmental sustainability



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Published on April 17, 2016 at 11:20 pm

Last update on April 18, 2016 at 3:52 pm

Designed to keep students comfortable in extreme Texas weather, UT air conditioning is one of the most water and energy efficient cooling systems in the world.

The Dell Medical School will be the first building ever to meet the three highest standards of building sustainability and efficiency: the LEED, PEER and SITES certifications, according to Juan Ontiveros, associate vice president of Utilities and Energy Management.

The Dell Medical Center will use reclaimed water, or recycled sewage water, in the new Chilling Station 7. The station will maintain building temperature through evaporative cooling and come online at the end of June.

UT is the most efficient university in the world, according to Ontiveros. UT runs with 87 percent efficiency, while the average efficiency of power plants in the U.S. is only 32 percent.

“We have won international awards on this, like from the International Energy Agency,” Ontiveros said. “We won a global climate award in 2009. We competed against 26 countries. We won. We were one of six winners.”

UT remains at the forefront of environmental sustainability by using more inexpensive types of water in its air conditioning operations: reclaimed and recovered water.

Reclaimed water, which is carried in underground purple-colored pipes, is highly treated wastewater and not drinkable, said Leonard Friesenhahn, associate director of Utilities and Energy Management.

“Once Austin processes water, it returns to the Colorado River and it flows downstream to the next user,” Friesenhahn said. “When the city returns it to the river, it’s not chlorinated, so it doesn’t kill the wildlife.”

Recovered water is clean water that is collected in white or gray pipes. The recovered water comes from various sources, including AC condensate and rainwater.

The air conditioning in the Belo Center for New Media and the Biomedical Engineering Building primarily uses recovered water, said Markus Hogue, irrigation and water conservation coordinator.

According to Friesenhahn, reclaimed water is cost-efficient, especially when it is used for purposes, such as air conditioning, that do not require complete removal of chemical impurities.

Chilling Station 5, located near Engineering Teaching Center II, was the first cooling plant to use reclaimed water. UT piloted the reclaimed water system almost three years ago.

Since then, using the reclaimed and recovered water for air conditioning operations has saved about 80 million gallons of potable, or drinkable, water per year.

“The whole purpose of reclaimed water is to use it for those type of resources that do not require potable water,” Friesenhahn said.

However, there are some challenges with using reclaimed water.

“Fertilizer residual-type chemicals are in the reclaimed water,” Friesenhahn said. “That is probably the biggest challenge to use the water, to treat the water so it doesn’t cause problems when it’s mixed in the cooling tower basin.”

Students and faculty can use public data about water conservation issues on campus to research more efficient solutions, Hogue said.

"Why look at scenarios from the textbook when you can look around campus?" Hogue said. "I can tell students how much water this building uses here, and then they can do the calculations to see how much of a rain tank we need. The students are actually using what they’re learning in class and can actually make a change on the campus.”

With the construction of the Dell Medical School and other expansions, UT is constantly trying to find ways to be even more energy efficient, according to Friesenhahn.

“We use over 300 million gallons a year to serve our cooling towers, and we’ve been able to bring that number down by more efficient operations,” Friesenhahn said. “We’re just trying to be good stewards of the water we use.”
