



bigshift

Moving UC Davis Toward a Carbon-Neutral Future

The Regents of the University of California set a goal for all the UC's to achieve net zero carbon emissions by 2025 and our campus has a plan to get there. It involves a series of shifts:

- › **Shifting our investments to dramatically decrease our reliance on fossil fuels**
- › **Shifting our use of energy to those with renewable resources**
- › **Shifting our commitment, as a campus community, to understanding, supporting and reinforcing these changes with our own behavior**

It won't happen all at once, so to prepare, we must capitalize on every opportunity to move toward this future.

The spring of 2020 UC Davis begins a project that literally lays the groundwork for reducing our reliance on fossil fuels while immediately decreasing our energy and water use.

UC Davis
Campus Planning
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Management

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It's going to get messy, but it's worth it. Learn more.



The Big Shift Project

Seventy-five years ago, our campus laid the groundwork to heat our buildings with steam. This steam is generated at our Central Heating and Cooling plant by heating water to above boiling temperatures with natural gas, and delivering it to individual buildings via a maze of pipes. Now the system is old, inefficient, reliant on fossil fuels and in need of renewal. Consequently, as a campus, we had a choice to make: Upgrade the deteriorating system with a new, but outdated, inefficient technology (steam), or invest in a cleaner, greener, safer, more durable system that uses hot water generated by electricity (a renewable resource).

We chose to move toward a more sustainable future and away from fossil fuel use but, a seemingly easy choice, but actually implementing this shift is anything but. It's going to get messy, but it's worth it.

Scope

Beginning the spring of 2020, and for the next two years, we are going to replace a portion of our campus's oldest, natural-gas powered steam-heat system – located throughout the Quad District – with a new, hot-water system that uses less energy and water. This involves the installation of two new distribution heat exchangers, one located at our campus's central heating and cooling plant and the other on the southwest side of Wickson Hall and laying 4 miles of underground supply and return piping to connect the new system to 32 buildings. Lastly, the buildings served by the new system will need their existing heating, domestic and industrial hot water exchangers replaced.

Steam vs. Hot Water: What's the Difference?

Steam. Our current steam system uses natural gas to boil the water that creates the steam to heat many of our campus buildings. Beyond the fact that steam heat relies on fossil fuels, it is inefficient. If you have ever seen steam rising up from underground grates or the chimneys of our Central Heating and Cooling Plant that's not just steam, it's lost energy. **We currently lose an estimated 30-50% of the heat we generate as a result of steam loss** via our aging infrastructure and distribution system. When steam is lost that means water and energy are also lost.

Hot water. Our hot-water system will ultimately use electricity instead of natural gas to heat the water that warms our buildings. Not only can electricity be produced from a renewable resource – thanks to our campus's solar power plant and other off-site solar power programs and partnerships – hot water does not need to be heated to the same boiling levels as steam, making it more efficient and safer to maintain. **It saves energy, takes advantage of renewable resources, reduces our reliance on fossil fuels and, reduces our water use** since steam will no longer be lost to the atmosphere or escape from our aging infrastructure.

Preparing for the Big Shift Project

This project will be disruptive to highly trafficked areas throughout central campus and will involve taking building systems off line for a couple days in order to upgrade them to work with the new system. Project managers from Design and Construction Management will be working with our campus community to schedule construction so that it impacts research, students or other programs the least degree possible. In addition, they will be working with FOA communications staff and others to create a project website where our campus community can learn more about the project, its benefits, the schedule, detours, FAQs, news, contact information and more.



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