

Sustainable CU
The Environmental Improvement Initiative

UMC Bakery Walk-in Cooler & Freezer Replacement

Description of project

This project has the purpose of replacing one of the UMC Events Planning and Catering refrigerators and freezers. The current equipment in place is beyond the projected useful lifetime, and is inefficient as well. By working with Dining Services, we plan to fund the purchase and installation of this new equipment to make the UMC's operations more sustainable.

Matching fund or in-kind support

We do not have matching funds for this project, but we are working closely with CU's Dining Services department to complete this project.

Project Timeline, Scope and Feasibility

The project is relatively simple, only involving the procurement and installation of the proposed cooler and freezer system. The project can be finished as early as this coming summer (2017) and be operational by the beginning of this fall. Only the Dining Services in the UMC will be involved--thus the scope of the project is manageable--yet the environmental benefits are enormous, as explained below. This project is 100% feasible since we have full support from Housing and Dining Services.

Environmental Impact

The University of Colorado Boulder's Blueprint for a Green Campus report states a long-term energy goal of reducing 5% of building energy use per sq. foot, in each consecutive year from the publication year (2006) of this report (1). Purchasing and installing a Thermo-Kool Walk-in Cooler and Freezer in the UMC's kitchen facilities would ensure that one of the most active dining facilities on campus would be using less energy and water on a daily basis, which would reduce the UMC's impact on the municipal water supply, as well as its carbon footprint from energy use.

The University of Colorado Boulder's Carbon Neutrality Plan highlights a particular goal: a **20% reduction** of campus greenhouse gas (GHG) emissions by 2020. Furthermore, Phase 1 of subsection 4.4.1, named *Conservation and Efficiency*, claims that enhanced conservation projects and programs in concurrence with on-campus electricity and heat generation should result in a **23% reduction** in campus-wide net GHG emissions by 2020 (2). Installing one of these walk-in cooler/freezer could be one of CU Boulder's energy and water conservation

projects that enhances and protects the environment, while bringing campus towards achieving its sustainability goals. The walk-in cooler currently being used in the bakery is a water cooler-compressor, which uses around 2 gallons of water per minute to cool itself. Extrapolating that energy usage over the course of a typical cooler lifespan (15 years) shows that these older coolers can use nearly 10 million gallons of water in a single lifespan. The new installation is cooled with air instead of water, potentially cutting out millions of gallons of water being used in the future.

Student Involvement

The students involved in this project are the members of the CU Student Government Sustainability Think Tank, which includes six students.

This project will impact individual students as it will allow the UMC dining team to store food ingredients in a less energy-intensive manner. Many students frequently eat using the UMC dining services, therefore these coolers will allow for the food production system in the UMC to be less environmentally harmful as these coolers will reduce GHG emissions by up to 23%. Furthermore, the food needs of the larger student body will be able to be provided for in a more efficient manner. This would substantially decrease the total electricity and water demands of UMC dining services, and make the entire UMC more sustainable. Furthermore, this project would ultimately enhance the educational experience of all CU-Boulder students as it will allow CU-Boulder to better achieve its sustainability goals.

Social Equity

The environmental benefits from this project contribute to the overall sustainability goals of the CU Boulder community. Underprivileged groups typically bear a disproportionate impact of environmental burdens, like the harmful effects of energy production from non-renewable sources, and the effects of excessive water use on water quality management infrastructure, and therefore overall water utility pricing. By promoting the use of energy and water efficient products on campus, we are having a positive impact on local social-environmental justice issues.

Innovation

Other refrigerators and coolers in the UMC have been replaced with this newer, more energy efficient model. These models are very energy efficient, and are the premiere option for this type of utility.

Detailed Project Budget and Savings

The only budget item is the acquisition and installation of the machine, which is outlined in the quote.

(See quote attached)

Project Longevity

The manufacturer-estimated lifetime of the system is about 15 years, but according to Juergen Friese, the Associate Director of Campus Dining Services, it can last much longer than that time frame. The project can be finished as early as this coming summer (2017), and it will become a valuable asset to the dining services starting from the fall, for many years to come. To reiterate, with a new waste-water compressor, the new system will save up to 660,000 gallons of water per year, compared to the current system. As the catering and dining services demands on campus increase over time, so will the inherent benefits of this more energy and water efficient system.

Applicant Information

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Citations:

(1) Martin, Marianne Moulton, Dave Newport, and Spencer Sator. "2006 Blueprint for a Green Campus: A Sustainability Action Plan for the University of Colorado at Boulder." *Www.colorado.edu/center*. CU Environmental Center, 14 Jan. 2006. Web. 2 Apr. 2017.

(2) Working Group, CU Carbon Neutrality. "Conceptual Plan for Carbon Neutrality at the University of Colorado Boulder." *CU Environmental Center*. CU Environmental Center, 8 Oct. 2009. Web. 2 Apr. 2017.