

Sustainable CU: Environmental
Improvement Initiative
Request for Proposal Funding

Paper Towel Reduction Project

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February 14, 2011

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1. Description of Project

This project aims to implement high-powered hand dryers to reduce conventional paper towel use and eliminate the conventional hand dryers in restrooms in the University Memorial Center (UMC). This project adheres to the University's commitment to increasing sustainable practices, and reducing waste and emissions associated with daily operations in the UMC. Funding will be directly spent on purchasing efficient hand dryers and the necessary costs of installing these units. Through these efforts, information will be collected on the environmental, social and economic affects of the project. Using community based social marketing, surveys, and table demonstrations, awareness will be raised for the motives of the project and opinions, thoughts, and comments will be gathered from user's interaction. Using information gathered from the Center for Community's facilities manager, in restrooms where efficient hand dryers have been

installed, paper towel use has been cut by as much as half. This information proves convincing that users prefer the new machines to paper towels as the data has shown. By phasing in the new hand dryers, reducing the amount of paper towels available, and removing the conventional ones, consumption trends will be monitored and compared to the business as usual scenario to measure the success of this project. The eventual goal of this project is to see efficient hand dryers installed throughout campus to decrease the total amount of paper towel products purchased.

2. Student Involvement

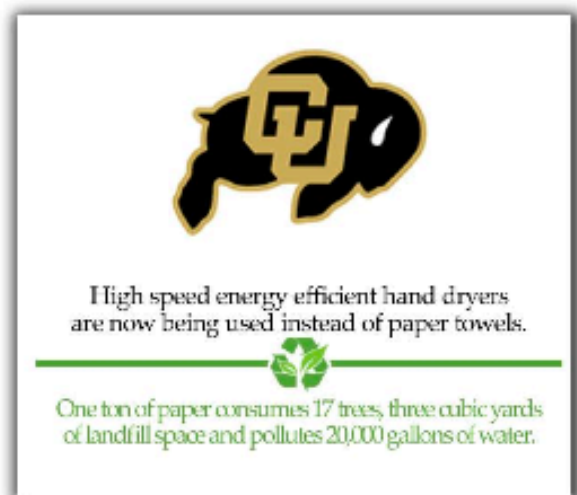
The degree of student involvement is far-reaching due to fact that the UMC budget is partly funded based on student fees and that the UMC's mission statement states, "We are the heart of campus providing an exciting gathering place to celebrate diversity, explore individuality, build community, and pursue big ideas." Everyday, thousands of students, faculty, staff and visitors enter the UMC for a variety of reasons, be it dining, entertainment, banking, shopping, studying, finding offices & departments, and more. Essentially, any student who uses the restrooms will have the opportunity to discuss his/her feelings about the project and voice their opinions. A table will be set up in a visible area within the UMC to raise awareness for the new hand dryers and inform them of the benefits of reducing paper towel use. The project is being proposed by a CU student and will be undertaken with the help of UMC facilities staff and hopefully one or two student volunteers who want to get involved to make a difference on campus.

3. Detailed Budget

The Xlerator High Speed Energy Efficiency Hand Dryer was chosen as the product to replace conventional hand dryers for a variety of reasons. Chiefly, these units are available through our current supplier Grainger and offer a very competitive price point. The Xlerators use a 1/3 of the energy required for conventional hand dryers and since they are designed to run on 15-amp service, they will swap out the old hand dryers without any problems. This product also qualifies for LEED credits. Funding will go directly towards purchasing these units as well as the costs of installation where upgraded wiring is necessary. UMC staff will do the installation.

A price quote was sought from Grainger for the Xlerators and was returned with each unit costing \$383. There are currently 12 conventional hand dryers installed in the men's restrooms in the UMC. Assuming that number is the same for the women's restrooms as well, it will take 24 Xlerators to replace the old units that use significantly more energy and are rarely used. Replacing all the conventional hand dryers is the main priority of this project while restrooms that are rarely used or only used by a few staff can continue using paper towels since their overall impact is minimal. By replacing all the conventional hand dryers, and eliminating 8 paper towel dispensers, it will take 26 Xlerators to effectively reduce paper towel consumption while still offering an option for users to choose a paper towel if desired. This will cost \$9,958 for the Xlerators plus an estimated \$6,000 for the six bathrooms where additional hardwiring may be required. An additional \$200 is requested for creating informational posters and purchasing gift cards as incentives for users to take an online survey. The amount to be requested based on these numbers will total \$16,158.

Custom Cover XLERATOR® Hand Dryers



4. Matching Funding

No external funding is being requested.

5. Feasibility

Once funding is secured, Xlerators can begin to be purchased and phased into the UMC starting on the fourth floor as recommended by Jimmie Baker, Associate Director of the UMC. Paper towel dispensers will be removed from each bathroom as the new products are installed. As soon as bathrooms are retrofitted, communication will begin with the janitorial staff in charge of restocking paper towels to determine the rate at which paper towel consumption has decreased. Once a significant number of bathrooms have been retrofitted with the Xlerators bathroom users will be encouraged to participate in an online survey to voice their opinions on the new system with incentives such as a \$10 gift card to a local restaurant in Boulder. Economic data will be gathered, and all of the project's results will be on display in the UMC to inform students of what is taking place. Once a significant number of restrooms have been retrofitted, a concise report will be created to summarize the results of the project. The report will detail the successes and shortcomings of the project and will then suggest whether more high efficiency hand dryers should be purchased to further decrease paper towel consumption or continue with the current situation.

Student Impact

This project will have a wide impact on the student body seeing as the UMC is the student union where thousands convene each day. The project is student created, led, and implemented with help from students in different groups such as the Environmental Center, and the Energy Club. Once the benefits of this new system are measured, the impact on students could be enormous after restrooms throughout the campus are retrofitted.

Sustainability

The University of Colorado, at Boulder (CU) has long been a leader in the environmental movement. Since the establishment of the University's Environmental Center in 1970, funded by student fees, the University has worked towards minimizing environmental effects as a result of campus activities as well as raising awareness and providing education for the challenges it combats. In 1997, CU signed on to the Talloires Declaration that set a precedent for setting examples of environmental responsibility in teaching, research and operations. In 2000, the Environmental Center drafted the Blueprint for a Green Campus making it a national leader in

sustainable environmental practices. As the Blueprint has since undergone revisions to include more areas aimed at improving sustainability, a greater commitment to the environmental action plan has been taken. The University also joined Governor Bill Ritter's Colorado Climate Action Plan to reduce greenhouse gases (GHG) by 20 percent by 2020 and deeper emission cuts by 2050. The University also committed to targets of the Kyoto Protocol in efforts to reduce GHGs by seven percent below 1990 levels by 2010. More recently, CU has signed on to the American College & University Presidents' Climate Commitment in 2007, joining 677 of other schools to date in a combined effort to achieve carbon neutrality and increase climate change awareness. These partnerships and commitments all help to define what makes CU unique and a forerunner on the sustainable front. CU's involvement in the community as an advocate for sustainability is another defining characteristic of the university. This information is useful in demonstrating CU's dedicated work to reduce its carbon footprint throughout time and hopefully shows how this project will contribute to the greater effort as well.

The UMC commits thousands of dollars each year to purchasing paper towels in its numerous restrooms. Though efforts have been made to compost all paper towel waste, this is only a remedy to the solution of the waste, rather than looking at the source of the problem- the paper towels. Money is spent to purchase and dispose of the waste, whether it is composted or sent to the landfill. Aside from the financial benefits, with few paper towels to dispose of and restock, UMC staff will have more time to focus on other tasks. The chance to eliminate this source of spending, waste, and time presents a huge opportunity that lies within CU's goals to be a greener university. Through student led research in previous years, estimates have been made that eliminating paper towels through using high efficiency hand dryers can repay the initial costs within a few years. Reducing paper towels will decrease the University's scope three emissions associated with purchasing, transporting, and disposing of paper products while slightly increasing the scope two emissions from using the high efficiency hand dryers. This project will reduce the upstream and downstream emissions associated with using paper towels, making CU's practices more environmentally friendly while sparing the hard and soft costs of constantly restocking paper products. While the hopes are of spreading the project to all of campus, the end result for both the project and the future would ensure less trees be harvested to sustain CU's paper consumption. Excel states that 1-ton of paper towels equals 17 trees. Based on consumption calculations, the UMC purchases 200 cases of paper towels weighing 41lbs

each. After doing the math, that equals nearly 70 trees just to meet the UMC's demand. By calculating the declining share of paper being purchased each year, estimates will be given as to the number of trees saved annually. When considering all the energy, water, and waste that goes into supplying this demand, it is clear that our practices could be more environmentally friendly.

This project includes social equity in that it reaches out to all who enter the UMC and is not limited to any certain groups or populations on campus. This project is also to the benefit of all students as thousands of dollars can be saved annually once the project is fully implemented.

Innovation

This project would demonstrate innovation in a new approach to reducing waste on campus. By replacing the outdated hand dryers that are currently installed in the restrooms but seldom used, this project implements change in two ways. First, retrofitting the restrooms will eliminate the outdated technology that the current hand dryers offer. The high efficiency hand dryers will meet the challenge their predecessors couldn't and actually serve a purpose. The second aspect, which really defines the project, is reducing the paper towels that are the source of the waste and all the externalities associated with their purchase. The benefits included will have a profound impact on both the UMC and the University's commitment to the environment. The Environmental Center has committed to ensuring CU reduces its carbon footprint, and this project can greatly help them. The benefits of avoided costs, reducing the cradle to grave cycle of paper products, and providing a sanitary restroom experience will make the UMC a more enjoyable place.

Project Timeline, Scope and Feasibility

- A. Within the first weeks of securing funding for the Xlerators, a meeting will be held with the UMC board to seek approval of the project. Soon after, the machines will begin to be purchased. Starting on the 4th floor, an area serving many student groups/offices will be the first to experience the restroom retrofitting. The busiest bathrooms will be upgraded towards the end of the spring semester and into the summer causing as little inconvenience as possible.

- B. Working with the Facilities Management to determine the pace, restrooms will be retrofitted according to their schedule as they have the superior knowledge of the most demanding restrooms and the best way to go about the installation process.
- C. After consulting with Facilities Management, installation should not be a difficult process save for the few restrooms that may require additional wiring. These will be done during the summer at the latest so as to not interfere with daily operations.

Environmental Impact

- A. The Conceptual Plan for Carbon Neutrality features a segment on Materials Management. This section talks about adopting a goal of “Zero-Waste” in operations of existing facilities and achieving a paper use reduction goal of 20% by 2011-2012. While I’m sure this figure refers to office paper, shouldn’t paper towels be included in this? This document stresses the reduction of unnecessary waste to decrease handling and disposal costs associated. Landfill Diversion is another key component. While the UMC pays to have paper towel waste composted, a percentage of the paper towels inevitably ends up in the trash and sent to the landfill. This project also adheres with CU’s Blueprint for a Green Campus document in its waste reduction and recycling section as well. When considering all the energy, water, and resources it takes to keep the UMC stocked with paper towels, it is very encouraging to think we can drastically reduce the amount we consume on a daily basis and the up and downstream effects are both important items highlighted in the Plan for Carbon Neutrality.

Student Involvement

- A. This project has been entirely conceived, planned, and proposed by Randall Horn. He is an undergraduate geography major student who is also pursuing a certificate in energy and sustainable practices. Other students may be called upon to help with educating students about the project’s goals.
- B. This project has little student involvement in its execution however, it will affect every student who uses the UMC which is the majority of the student body. Because this project will be undergone in the UMC, it will receive attention from any

restroom user in the building. Also, the majority of the Xlerators will have labels on them that demonstrate their environmental benefits as seen in the photo above. This way, all the students who use the restrooms will be aware that they have the ability to help CU decrease its environmental impact by choosing to use the Xlerators versus paper towels.

Social Equity

- A. This project is environmentally just because it is going to reduce the amount of paper the university must purchase to stock its restrooms. By reducing the number of paper towel receptacles as well, the UMC's capacity for paper towels is reduced so that a reduction is inevitable. The social equity is integrated into the project in that it is being implemented in the UMC, which is the center of all student functions. Rather than being executed in the business school, physics department or catering to a limited campus population, the UMC offers all students a chance to make a difference by choosing to use the new hand dryers versus paper towel as a way to reduce our consumption. With less waste in the restroom, the custodial staff will have more time to focus their cleaning efforts elsewhere to improve the overall facility rather than spend time restocking and emptying waste receptacles in the restrooms. The project does raise awareness for environmental issues because the Xlerators will have displayed on them "high speed energy efficient hand dryers are now being used instead of paper towels." This will also inform users of the environmental benefits with another quote on the machines that reads, "One ton of paper consumes 17 trees, three cubic yards of landfill space and pollutes 20,000 gallons of water."

Innovation

- A. While the Conceptual Plan for Carbon Neutrality and the Blueprint for a Green Campus both talk about reducing paper waste, neither address paper towel use and the vast amount CU consumes and spends on these products each year. This project is innovative in that it takes a look at daily operations and seeks to make them more efficient. Not only will this project reduce waste and save money but it will also

entail soft costs such as more time for the janitorial staff to spend on other tasks. This may not be a very glamorous subject when talking about restrooms, but the truth is that they are part of daily operations and contribute to our overall carbon footprint. The Xlerators are the innovation that will simply replace the conventional hand dryers that are functionally obsolete. Using these machines is exciting as they will change your perception on hand dryers and they will actually dry your hands!

Detailed Budget and Savings

- A. The amount requested totals \$16,158 to cover the cost of purchasing the new machines, installing them, creating an information campaign, and offering incentives for survey feedback. The actual number may be less but this amount assumes the “worst-case scenario” in the event of a costly installation. Likely, less than \$6000 will be needed for installation however, this was a number suggested by Facilities Management as to what it may cost to upgrade wiring.
- B. This project will quickly save the University and its student’s money, as savings will accrue quickly. Each case of paper towels costs \$54. Marino Lerma, Operations Manager, stated that the paper towels are replaced every day or every other day in the busiest restrooms. There are 6 rolls of paper towels per case. The Xlerators in the busiest restrooms will pay for themselves in just a few months. In the bathrooms with less traffic, it will take a little longer to realize the savings of not having to purchase paper towels so frequently. The upfront costs are the biggest expense but then the operating cost is extremely low and fewer purchases of paper towels will need to be filled.

Longevity

- A. There is substantial longevity in this project being as once the new machines are installed, they will last for many years with little to no maintenance and minimal operational costs. The machines come with a 5 year limited warranty as well so any malfunctions will be covered. There is no maintenance for the Xlerators after the units are installed and they will continue to save the University money as long as they continue to decrease the amount of paper towels consumed.

I appreciate your consideration for the funding of this grant. Please respond with any helpful comments or questions and I would be more than happy to accommodate your requests.

Most Sincerely,
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