

Proposal to Sustainable CU small grant for Labs Conservation Manager contractor

APPLICANT

The Energy Program in the CU Environmental Center in conjunction with the CU Office of Resource Conservation (in Facilities Management) is applying for a Sustainable CU small grant as part of a composite fund for contractor fees for a Laboratory Conservation Manager in the CU Laboratory Water and Energy Efficiency Program (LWEEP).

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DESCRIPTION OF PROJECT

The Need:

Starting in summer 2006 the Energy Program and Office of Resource Conservation have managed Kathy Ramirez, a former CU lab technician and PhD graduate, in a 6-month temporary position in this role. This 6-month period was initiated to investigate the feasibility, effectiveness and potential impact of a dedicated job title and set of responsibilities.

During her 6-month tenure as Laboratory Conservation Manager, Kathy has demonstrated that there is much potential for such a role and Kathy, specifically, has laid much of the groundwork for continued success in making an impact on reducing energy and water usage in the labs where she has worked. State government rules, however, prohibit us from being able to continue this position in the role of temporary employee and the current freeze in state government hiring has precluded consideration of this role as an official CU staff person. With these funds she would be hired as a contractor to continue the excellent and important work she has done to date. At the end of 2010 this role will be reviewed for possible creation of a part-time or full-time staff person. Moe Tabrizi, CU Resource Conservation Officer in Facilities Management is in full support of this role and of this grant proposal.

The extensive amount of resources (energy, water, steam) consumed by laboratories make them key targets for conservation. Buildings housing laboratories are 5-7 more energy-intensive than other buildings and have a lot of large energy-using equipment running 24/7.

Because lab spaces have previously not been a focus of targeted efficiency and conservation initiatives and education, increasing water and energy efficiency and conservation in lab spaces presents many challenges. These include educating a broad range of students, staff and faculty and working with the appropriate individuals on major equipment issues, such as equipment retirement and Energy Star purchasing policies.

This all points to a need for a dedicated coordinator of efficiency efforts, someone who is familiar with lab operations, equipment and the lab technician mindset (concerns, motives, decision-making processes, etc.)

The Benefits

Please see **Appendix A** for a 6-month accomplishment report and future plans for the Laboratory Conservation Manager role.

STUDENT INVOLVEMENT

The Laboratory Conservation Manager is recruiting and coordinating a team of Lab Eco Leaders who will be responsible for educating to other lab users energy and water efficiency actions and programs in each lab.

DETAILED BUDGET and MATCHING FUNDS

The request is for \$2,500 which will be matched with funds from Facilities Management and the Environmental Center Energy Program to complete the proposed contractor fee for 2010. The contractor will be paid \$23.00/hour for 12 hours/week for 45 weeks in 2010 equaling \$12,500 for calendar 2010.

Funding composite:

Energy Program student staff budget	\$1,500
Colorado Carbon Fund Reinvestment fund	\$2,500
Facilities Management match	\$6,000
Sustainable CU grant	\$2,500
Total	\$12,500

FEASIBILITY

The roles and actions of the Labs Conservation Manager are already defined and underway, including fostering relationships with key individuals and “allies” with decision-makers. Please see Appendix A for more details on the demonstrated success and feasibility of this program to date.

STUDENT IMPACT

All students (more than several hundred) working in labs will be impacted by the conservation education and outreach that is part of the Laboratory Conservation Manager’s responsibilities. Changes toward more sustainable behaviors will be encouraged. For many of these students this outreach will be their first and/or only exposure to having their actions put into a sustainability context.

SUSTAINABILITY

The environmental impact of the role of Laboratory Conservation Manager will be reduced water and energy usage, with corresponding reductions in carbon emissions both on and off campus.

The economic impact will be long-term reductions in operating budgets from reduced and more efficient use of water and energy in lab spaces.

INNOVATION

Although the potential for water and energy savings in academic research labs is great, few campuses (to our knowledge) have a job role dedicated to this target. Besides being innovative in this way, the Laboratory Conservation Manager will also be implementing innovative programs and practices in these labs. These are innovative, again, because they have not been implemented through such a focused effort and across such a broad audience.

Appendix A

Accomplishments and Future Plans for LWEEP Manager Position

Progress Report after Four Months in Temporary Position, July 10 - November 8, 2009

By Kathryn A. Ramirez-Aguilar, Ph.D.

Completed accomplishments

- Just Shut It Contest organized and running (will result in ~\$50,000/yr in energy savings)
- Website up and running (www.colorado.edu/conservation/LWEEP)
- 110 stickers posted and ~50 posters associated with Just Shut It Campaign
- Identified & reported 12 VAV fume hoods with problems (~20% of campus VAV hoods)
- Identified ~30 chemical fume hoods which are not being used and which could be targets for hood decommissioning or being taken offline (but left in place)
- Per my request, EH&S established guidelines for 1) taking a hood offline but leaving it in place and 2) hood use as it relates to SAAs for the storage of chemical waste.
- Identified and helped address other sources of energy and water waste:
 - ~2.75 million gallons of single use water/year for cooling in Bierbaum Lab
 - ~50,000 kWh of annual consumption could be reduced in Bierbaum Lab by turning diffusion pumps off for 10 hours overnight with timers

- Resolved problem with Cristol autoclaves timers
- Successfully encouraged completion of autoclave shutdown project in MCDB
- Discussed BES program with 5 laboratory building proctors
- Highly engaged involvement of MCDB department in LWEED and BES including support to establish a Lab Eco-Leader program where each lab in the department will have a leader who is my contact and with whom assessment of resource saving opportunities in their lab can take place.
- Surveyed MCDB building for hazards which would require enhanced ventilation needs compared to a normal lab (this is part of the FM project aimed at reducing ventilation in the building for energy saving purposes)

Accomplishments to be completed by end of 6 month position

- Completion of Just Shut It Campaign including reception at end promoting LWEED
- Create posters focused on efficient energy and water use in labs
- Add Just Shut It stickers to newly converted ECCH fume hoods
- Finish survey of lab hazards in Ekeley for ventilation re-commissioning project
- Likely have Eco-Leader established in every lab in MCDB building & begun assessments
- Add information to the LWEED website for hoods, large plug loads, etc.
- Likely have permission for FM to remove 2 fume hoods- one in JILA and one in Ekeley
- Per my request, inclusion of guidelines for fume hoods use with radioactive materials by Health Physics in their new Radiation Safety Handbook
- Apply for a Sustainable CU grant for timers for lower consumption equipment which Eco-Leaders have expressed interest in addressing. Timers are a visual which promote an atmosphere of conservation (example at <http://www.greencampus.harvard.edu/node/421>).

Ongoing projects

- Continue search for unneeded fume hoods on campus
- Periodic checkup on VAV hood sashes to continue to promote closure & ensure proper working order of hoods
- Conduct annual Just Shut It Campaign
- Establish new relations and maintain good relations with lab building proctors and labs
- Manage and continue expansion of Lab Eco-Leader Program
- Search for more labs with diffusion pumps on which timers can be placed
- Continue promotion of BES program
- Continue surveying of lab buildings for ventilation reduction project with Shannon
- Continue investigation of use of Biomatrixa products to reduce freezer use
- Continue updates to website

Ideas for Future Projects

- Poster/sticker campaign for CAV fume hoods to aid in search for unused fume hoods and promote awareness of large consumption by fume hoods
- Investigate substituting deli refrigerators for cold rooms
- Campaign to have biosafety cabinet blowers turned off when not in use
- Work with IT person in each lab building to identify possibilities related to computers
- Project targeting refrigeration (timers for conical centrifuges, shutdown procedure for floor centrifuges, upgrading old frig/freezers)
- Project targeting single use water cooling by condensers, rotovaps, etc.
- Work with purchasing to red flag large energy consumers and suggest alternatives
- Develop Green Lab Certification (i.e. <http://www.greencampus.harvard.edu/node/443>)
- Grant writing for funds for energy efficiency related to labs

What resources do I need?

- Higher pay rate (as described in my email message) and yearly evaluation of my performance/pay rate
- Funds for light food at periodic gatherings of Eco-Leaders & annual Just Shut It reception
- Funds for printed materials and supplies related to LWEED
- Wattage power monitor from FM, borrowed on a long term basis