

Environmental Improvement Initiative Funding Request: Going Solar on High-Installation of Solar Panels at the Mountain Research Station

The Director of the Mountain Research Station (MRS) and students in the CU Biology club propose adding 2 44-panel solar arrays to offset electricity currently purchased from Xcel Energy at the MRS, the field station for the University of Colorado. This proposed addition of renewable energy is consistent with the goal of having the MRS become the first carbon neutral campus.

The MRS, located west of Boulder near Nederland, has supported education and research in environmental sciences for over 80 years. The MRS provides field courses for several CU departments, including EBIO, ENVS, GEOG, and GEOL, as well as the site for field investigations by undergraduates and graduates. The MRS is also used for academic retreats for multiple groups from the CU Boulder campus. Information on the MRS and its programs can be found at <http://www.colorado.edu/mrs/>. The primary contact person for the MRS is the station director Dr. Bill Bowman, also a professor in the EBIO department and is also a fellow of INSTAAR.

The Biology Club is a student-run volunteer organization affiliated with the Department of Ecology and Evolutionary Biology, but open to all students on campus and to the broader community interested in biology and environmental issues. The purpose of the club is to foster interactions among students, faculty, and the broader environmental and biological communities. Activities of the club include: A speaker series by professionals in the biological and environmental sciences, clearing house of opportunities for undergraduate to get involved in research opportunities, internships, honors, and community service, providing a student voice in the department, interactions with faculty and professional outside a classroom setting, promoting awareness of graduate studies in biology and career opportunities, social events and an environmental/nature film series, and increasing environmental awareness on campus. The contact person in the Biology club is Bridget Molloy.

1) Project Timeline

December 2008	Set up CU construction account
Jan-Feb 2009	Award bid to solar contractor
Mar-April 2009	Contractor materials scheduled to arrive
May-June 2009	Start construction
August 2009	Test and sign off on the system
Sept 2009	Xcel Energy install net meter

We have already consulted with experienced solar contractors concerning this project. We would like to make sure the contract would be awarded to a qualified local contractor with at least 5years experience in the field and having a proven track record.

The contractor receiving the bid should also be required to be NABCEP and COSEIA certified.

2) **Student Involvement**

Undergraduate students from the CU Boulder campus have been involved with designing “green” projects at the MRS for the past 5 years, as part of several environmental design studios, and as part of the Biology Club involvement in infrastructural improvement at the MRS. Students will be involved in evaluating the impact of the solar arrays on energy use and availability. Savings in energy costs will be passed on through reduced tuition costs for undergraduate students taking summer field courses.

3) **Social Equity**

The MRS participates in 2 projects that bring students from underrepresented groups in the biological sciences in Denver and Boulder elementary and middle schools to the field station to learn more about careers in environmental science. The MRS also hosts a National Science Foundation program aimed at getting more students from underrepresented groups in ecology and evolutionary biology into graduate programs. Additionally, several Summer Multicultural Access Training Students have undertaken research at the MRS, as have students from the Biology Club on campus during annual field trip events. The solar arrays would be used as a teaching aid demonstration for K-12 classes and other groups which visit the MRS on a regular basis (BVSD and Denver public schools).

4) **Innovation**

The remote nature of the field station, and its extreme climate provide at 9500 feet elevation provide a unique situation for use of green technology to provide needed power, while not impacting the delicate environment of the Colorado Front Range.

5) **Environmental Impact**

The installation of solar panels at the MRS fits into the CU system plan for a Renewable Energy Program and is one step in the process toward the mountain campus becoming CARBON NEUTRAL. The installation of solar panels will provide a model for visitors to the MRS from other academic institutions, promoting green changes on campuses/research stations nation wide.

6) **Budget/Savings**

2 9.9 KW systems would cost ~ \$80-85,000 each, less the Excel Energy rebates the cost adjusts to \$36-40,000 each

The MRS would provide a \$5000 investment to match the funds requested in this proposal. Thus, we request \$75,000 for the entire project.

Each array would produce (est.) 14,725 KWH/year

Each array would equal a reduction of CO₂ lbs/year (est.) 27,022

The total cost savings for the University of Colorado range from \$4000-5,000 range/year at current energy prices.

7) **Project Longevity**

The solar panel arrays should last and function for at least 25-40 years with low maintenance. If needed, we have access to expertise of CU Facilities Management to help maintain the panels.