

GRANT APPLICATION

Applying for a
EWEB Greenpower Grant
From
Eugene Water & Electric Board

Contact Information

Please fill out the contact information below:

Adams Elementary

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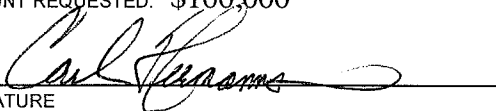
<http://schools.4j.lane.edu/adams/Site/Home.html>

WEB SITE

PROPOSAL TITLE: Solar Initiative at Adams

AMOUNT REQUESTED: \$100,000

SIGNATURE



DATE

02/16/2010

When to apply

Proposals are reviewed on a semi-annual basis. Application deadlines are:

February 22, 2010

Solar Initiative at Adams

EWEB Greenpower Grant Proposal
Adams Elementary School
4J School District
Eugene, Oregon

Partners: Friendly Area Neighborhood Association
 University of Oregon Environmental Leadership Program
 Lane Community College Energy Management Program

I. Background

Adams Elementary School, part of Eugene’s 4J School District, is centrally located within the Friendly Area Neighborhood (“FAN”), a vibrant neighborhood near Eugene’s downtown core. The school currently serves approximately 200 students in kindergarten through fifth grade, and anticipates increased enrollment over the next several years. Adams is strongly supported by a committed staff, a dedicated parent community, and an active neighborhood. Adams is also a Title I school, a federal program which funds additional instruction for qualifying students. Approximately 58% of Adams’ students receive support through the free and reduced lunch program. The Life Skills Learning Center is also located at Adams, and it serves many children with disabilities, who are fully integrated into the classrooms.

Significantly, Adams is one of Eugene’s first “Oregon Green Schools,” and the only elementary school to reach merit status under the Oregon Green Schools program. In turn, Adams has recently and enthusiastically defined a vision or theme for the school: “Learning About and Respecting a Diverse, Interconnected and Sustainable World.”

Born from the emerging needs of our city, our country, and our world, Adams’ vision is based on the reality of shrinking resources, and the urgency to achieve sustainability, decrease our carbon footprint, and collaborate globally. Adams is committed to teaching its students how to be stewards of their planet and partners in the global community. Adams has two complimentary guiding statements:

- Adams inspires each child to discover her or his unique abilities, to respect diversity and to leave positive footprints as she/he grows and learns through exploring the interconnections in the school, the neighborhood and the world.

- Adams provides a rich diverse community, a caring environment, and family involvement opportunities, with an emphasis on peaceful interaction and sustainable living.

Adams' focus also reflects the neighborhood in which it is located -- the FAN is filled with residents who value ecological living and the needs of the future. Examples of how the neighborhood is addressing the needs of the future include: Madison Meadow, an historic meadow which was successfully saved in 2007 from development through neighborhood donations, and is now managed entirely by a community non-profit group; College Hill Reservoir, the repository for the drinking water for the city that was transformed from a safety liability to a popular park and stargazing site with the help of concerned residents; and the old Friendly Garage site, a vacant lot since 2004 that is now approved for the development of efficient housing and retail space for a local business with a focus on sustainable features, which was the result of close collaboration with neighbors. Friendly neighborhood residents not only look to the future, they also understand that a sustainable community needs continuous individual effort, which is exemplified by the numerous backyard gardens, as well as the high neighborhood enrollment in EWEB's Greenpower Program. Because of the commitment of the school and the neighborhood to sustainability, and because of its central and strategic location in Eugene, Adams is uniquely poised to be a model green school for students, and the wider community including our district, our country, and perhaps the world.

Under the Oregon Green School program, Adams has excelled at reducing waste, recycling, composting, and conserving energy and water. Adams is also active in both the walk and bike to school initiatives, the clean streams program, and the many local ecology/environmental project-based learning modules (*e.g.*, coast field trip, butterfly project, salmon egg incubation, etc.). As part of its active vision, Adams has developed an articulated green curriculum that encourages and supports sustainable practices across all grades. In fact, each grade studies the themes of water, energy, and waste in an integrated manner so that each child's learning builds on material studied during the prior year.

Recently, Adams created 4J School District's first wheelchair accessible school garden and outdoor classroom. The garden, designed and implemented by committed parents, neighbors, and school teachers, is truly a community garden where children, neighbors and families can experience and learn about gardening and how to grow the food we eat. Adams' existing compost system serves the garden, and plans are underway to harvest rainwater to irrigate the garden.

In November, 2008, Adams submitted to the 4J School District a plan that identified several program priorities to further "green" Adams, including specifically: adding more native landscaping; creating a farm-to-schools and local foods program; and establishing solar initiatives. This application for an EWEB grant is to fund the complementary solar initiative.

II. Project Description

The primary purpose of Adams' solar project is to create a school-wide and community-based educational tool on generating renewable energy while reducing the school's own energy footprint. Adams believes that education on energy use and energy generation, and the importance of renewable energy sources, is critical to the future of our community.

This belief, and project purpose, relates directly to EWEB's mission: *To be an outstanding provider of energy and water products that meet customer needs and benefit the citizens of Eugene.* As a citizen-owned utility, EWEB depends on educated citizens, who understand the limitations of non-renewable energy, for the utility to operate most effectively. If citizens continue to demand increasing amounts of energy and water from non-renewable sources and from increasingly distant locations, EWEB will soon have difficulty accomplishing its mission. Adams supports and seeks to enhance EWEB's efforts to include more energy and water education through its programs. One of the best ways to provide this education is to teach the youth through the schools in our community and, through related outreach, their families and neighbors.

Adams' solar initiative addresses this fundamental issue by incorporating three components: (1) a solar energy installation; (2) an educational program that will incorporate renewable energy into the Adams curriculum; and (3) a community outreach program, including a wheelchair-accessible educational kiosk on the Adams' grounds. The proposal reflects genuine community building. The school's vision and commitment is complemented by the expertise and dedication of its partners -- Lane Community College's Energy Management Program and the University of Oregon's Environmental Leadership Program.

Solar Design and Installation

The solar installation will be composed of a photovoltaic system and a solar thermal system which will demonstrate the performance of two current solar energy technologies while providing an offset to Adams' energy consumption. Both systems will be installed on the rooftop of the school's cafeteria. After consultation with local solar experts, this location was found to have several important features for a solar installation, including: (1) excellent solar exposure, without any trees nearby that might shade the installation over the lifetime of the solar equipment; (2) ample open roof space for the installation, including room for future expansion; (3) a roof that was installed recently (summer 2006) that is not expected to require repair or replacement in the near future; (4) close proximity to existing building plumbing and electrical equipment for straightforward integration; and (5) limited access that will provide easy cleaning as well as protection against damage from vandalism and/or theft. The budget will provide funding for nearly 8kW of photovoltaic modules and all associated materials, as well as funding for a solar thermal system sized for the hot water needs of the school. Products manufactured in the US will be given preference over foreign-made products. In particular, photovoltaic inverters will be manufactured in Oregon, in an effort to support Oregon businesses. Preliminary estimates for total savings for Adams School will be about \$900 per year.

The project will be implemented according to 4J School District procurement procedures. To date, several Eugene companies have expressed interest in and support of the project, including Energy Design and The Green Store. To develop the solar design, Adams will work closely with 4J engineers, but in addition, Adams will partner with the Energy Management students at Lane Community College (LCC). LCC's Energy Management program is a highly respected and successful program that trains students on important energy topics, including renewable energy system installation technology. This partnership would not only help Adams meet 4J requirements and help create the solar design that is needed, it would also provide a great educational opportunity for aspiring solar design students at LCC. This partnership reinforces the main goal of this initiative: to use this installation as an educational tool.

This project will likely qualify for additional funding through Oregon's Business Energy Tax Credit (BETC) program. As a public school, Adams does not have a tax liability, so would not be eligible for a tax credit. However, BETC allows for a project such as this to pass the available tax credit benefit along to a business partner through the BETC Pass-through Option. In exchange for an initial lump-sum payment of about \$24,000 toward this solar installation, a business partner would receive about \$36,000 from the state of Oregon over a period of five years. Also, Adams is applying for an additional \$33,000 from the Bonneville Environmental Foundation's Solar 4 R Schools Program. This additional funding would mean a significantly larger photovoltaic system could be installed than could be funded with the Greenpower Grant alone. Estimates for total photovoltaic system size would increase from 8kW to about 13kW. Annual savings from the combined installation of both photovoltaic and solar thermal systems would be approximately \$1400.

Educational Program

While the impact of this initiative on Adams electric bill is important, the primary purpose of the initiative is to use the solar installation as a tool for educating students and the community about renewable energy. The second component of the solar initiative will involve creating an educational program that will incorporate renewable energy into the Adams curriculum. To do this, Adams will partner with the Environmental Leadership Program of the University of Oregon's Environmental Studies Program. The Environmental Leadership Program (ELP) teams up graduate and undergraduate students with organizations such as Adams to work on real-world projects such as education and public outreach. ELP will work with Adams to develop educational and outreach tools for both Adams students and the community through lesson plans, project-based learning modules, demonstrational materials, mural art reflecting renewable energy sources, and community outreach information (e.g., web accounting of energy generation, monthly energy related newsletters/challenges, etc.). This partnership will benefit Adams by providing structured academic assistance in implementing its education and community outreach programs. The partnership will also benefit UO students by providing important and relevant learning experiences that put into practice the principles, knowledge, and skills they are pursuing in their academic work.

Community Outreach

The third component of Adams' solar initiative will focus on using the solar installation as a tool for teaching the greater community about renewable energy. This will involve a wheelchair-accessible educational kiosk on Adams' grounds, in a high-visibility location. It will have information about the solar installation, including a real-time display that will show current output of the photovoltaic array. The kiosk will also provide a location for displaying current information about the state of the art in renewable energy across the world. Adams will work with ELP in order to develop the content of the educational kiosk into a coherent message, as well as to provide additional experience for UO students.

Also a part of the community education component, Adams and ELP will develop a presentation for school boards, community organizations, or other entities interested in renewable energy projects and education. Adams students will be involved in teaching the community as well. As a part of ELP's educational curriculum, students will complete service and outreach activities in order to educate the community about renewable energy and conservation. This educational content will help address a need in the community to understand where the energy comes from and where it goes, important concepts to understand if energy use is to decrease. Also, the state of the art technology aspect of the kiosk display will ideally help address a need in the community for a hope towards a brighter future. These needs are not unique to the Friendly neighborhood. They are shared throughout Oregon and the rest of the modern world.

To address this global need for energy education and hope, the kiosk will also provide some additional educational material with a focus on Spanish-speaking communities. This is important to Adams because in addition to renewable energy education, Adams' mission stresses cultural pluralism and a Spanish language program. Adams will also work with ELP to integrate Adams' multiculturalism and global citizenship programs into the Spanish language material included in the kiosk.

As already mentioned, this proposal has many benefits to the school, the community, and to all EWEB ratepayers, but there are some final benefits that are worth highlighting. If Adams is selected as one of the finalists for the grant program, it has planned a sequence of community outreach measures to rally behind its sustainability theme, its solar initiative, and to emphasize the importance of renewable energy and EWEB's Greenpower Program. Our campaign, to be spearheaded by Adams' students, will culminate in a specific goal of increasing enrollment in EWEB's Greenpower Program, with a focus on residents of the Friendly neighborhood. Increased enrollment will make additional money available for further renewable energy projects such as this one, which would in turn boost enrollment in the Greenpower Program, creating a momentum that is deeply needed today. It is a way for us as energy consumers to start investing our energy dollars into our community.

Also, although Adams School is unique in Eugene and in Oregon in its commitment to being "green," there is no reason why any other school cannot benefit from a program

such as the Greenpower Grant program. Adams hopes the ideas in this proposal, together with the school's efforts toward sustainability, could be used as a possible model for other schools in Eugene. In fact, considering how this initiative is capable of impacting such a diverse community of people, from the very young to our community's seniors; from economically disadvantaged to privileged families; from people from different cultural backgrounds to students from kindergarten through college, Adams' program could be a valuable model for every city in the world struggling with excessive energy use.

III. Project Evaluation

The project will be considered a success if the solar installation can be used as a school and community-wide educational tool.

Criteria for success and expected results are as follows:

1. **Installation:** Within the one-year grant period, Adams will complete the design and installation of a solar thermal and photovoltaic system. The systems will provide energy for Adams Elementary School.
2. **Education:** Within one year, Adams will develop and implement the educational components both in and out of the classroom for all grades.
3. **Outreach in the Community:** Within one year, Adams will complete the educational kiosk and complete a presentation of its solar program that can be used to present to school boards, community organizations, or other entities interested in renewable energy projects and education. Adams students will have completed at least two service/outreach activities in order to educate the community about solar energy and conservation.
4. **Educational Experience:** Adams will provide UO and LCC students with solar education and design experience. As more students are involved with the project, the project becomes more successful.
5. **Greenpower Enrollment:** Adams will increase the number of EWEB Greenpower ratepayers in FAN. With each additional Greenpower enrollment in FAN, the project will be considered to be more successful.
6. **Renewable Energy Installations:** This project will increase the number of FAN residents who install renewable energy systems. As more renewable energy systems are installed, the project will be considered more successful.
7. **Informational Requests:** This project will increase the number of requests for information about solar energy or the educational program that Adams receives from outside of the school. With each request for information that Adams receives, the project will be considered to be more successful.

In addition to these criteria, Adams will measure the effectiveness of the project using an evaluation method. Teachers, students and parents will be asked to report about how deeply the solar initiative has been incorporated into Adams' mission and its educational program.

IV. Project Management

Adams' budget and timeline are as follows:

February 22-April 23, 2010

- Participate in public outreach campaign including a drive to increase EWEB Greenpower rate payers

April 26, 2010 – January 1, 2011

- Secure available additional funding through other grant opportunities (e.g., Bonneville Environmental Foundation) and BETC Pass-Through Option partnerships
- Finalize 4J District Approval for Project Design
- Complete required public contracting/procurement process for solar thermal and photovoltaic design and installation
- Design solar thermal and photovoltaic system for installation at Adams Elementary
- Begin developing educational materials for use in classrooms (UO ELP work to begin in January, 2011)
- Begin designing the outdoor informational kiosk for outreach in the community (UO ELP work to begin in January, 2011)

January 1, 2011 – June 30, 2011

- Develop educational materials for incorporation into Adams' curriculum
- Install solar thermal and photovoltaic system at Adams Elementary
- Install informational kiosk

Budget

\$4,500	Prepare design specifications for solar thermal and photovoltaic systems at Adams Elementary
\$79,000	Installation of solar thermal and photovoltaic system at Adams Elementary, including materials, labor, fees, and structural engineering costs as needed.
\$7,000	Funding for University of Oregon Environmental Leadership Program to provide educational and outreach materials
\$500	Materials for Educational Supplies and Outreach, such as paint for murals, paper for brochures or other presentation supplies
\$4,000	Installation of outdoor informational kiosk
\$1,000	Maintenance and repair costs
<u>\$4,000</u>	4J grant administration overhead charge
\$100,000	TOTAL GRANT REQUEST

Additional funding obtained for this project will be used to increase the size of the PV system on Adams' roof. However, Adams can fully implement the program with EWEB's Greenpower Grant.

V. EWEB Criteria Summary

- (1) Projects or programs must have a renewable energy focus that can be connected to EWEB mission: *To be an outstanding provider of energy and water products that meet customer needs and benefit the citizens of Eugene.*
 - ✓ Adams' solar initiative furthers EWEB's mission of being an outstanding provider by supporting community educational needs and expanding its commitment to renewable energy.
- (2) The project enables new renewable energy generation or an enhancement to existing renewable projects. Funding priority will be given to new projects or proposals rather than ongoing operations and maintenance.
 - ✓ Adams' solar initiative will result in new renewable energy generation at Adams, and through Adams' outreach, in the FAN, in Eugene, and through an increase in EWEB's Greenpower Program ratepayers.

(3) The project supports renewable energy research and feasibility studies that develop and strengthen an understanding of the origin, development, and utilization of renewable energy resources.

- ✓ Through the development of two available solar energy technologies (solar thermal and photovoltaic), Adams' system will demonstrate the feasibility of renewable energy installations for institutional and residential use.
- ✓ Adams' educational and outreach materials will strengthen our children's and communities' understanding of the need, origins, development, and utilization of renewable energy resources.

(4) The project addresses a demonstrated educational need that exists in the community.

- ✓ Our common future requires a new focus on sustainability and yet much of our community is just beginning to realize the significant economic, energy, and environmental transformation that lies just ahead. While larger institutions, including Oregon's colleges and universities, have made strides in preparing its constituents for an emerging sustainable future, the Eugene community has had few resources to incorporate these concepts at the elementary and secondary school level or at the neighborhood level. For Eugene, to maintain a leadership role in progressive environmental and sustainability practices, we must educate, inform and prepare our citizens at all levels, beginning with our youth.

(5) The grant application describes how the effectiveness of the project will be evaluated; has a detailed budget that clearly describes how grant funds will be used and what available matching funds or support will be made available; and clearly defines the project's objectives and goals.

- ✓ Adams' renewable energy project's objectives and goals are to bring solar power to the Adams building, to both offset current energy usage and to educate the students and community about renewable energy systems.
- ✓ Adams' proposal has outlined seven ways it will measure the success of the program and provided a detailed budget for the project.
- ✓ Adams' has identified a number of sources of matching funds including an additional \$33,000 from the Bonneville Environmental Foundation's Solar 4 R Schools Program and partnerships with private entities interested in enlarging our project in exchange for pass through tax incentives and subsidies.

(6) The project has potential for widespread application and could impact a large number of people.

- ✓ The project's epicenter is Adams Elementary but its impact will radiate outwards to include the 4J School District, the Friendly Area Neighborhood, and the wider Eugene community.
 - ✓ The project has great potential to serve as a model for other educational institutions through our community, state, country and world.
- (7) The project supports underserved populations, including but not limited to seniors, disabled and low-income customers.
- ✓ The primary beneficiaries of this project will be children, who, lacking an income, an education, and any decision-making power, are arguably the most underserved segment of the population, but at the same time will be the most impacted by future energy issues. Also, because of the diverse population that Adams serves, this project will impact low-income and disabled families. Additionally, because of Adams' multicultural focus, the project will also reach Eugene's ethnically diverse populations.
 - ✓ Ultimately, through its educational and community outreach components, Adams' solar program will impact a diverse community of people, from the very young to our community's seniors, economically disadvantaged and advantaged families, people from different ethnic and cultural backgrounds and students of all ages, from kindergarten through college.