



Ellensburg's Solar Electric Project

The City of Ellensburg, located in the heart of Washington State, has its own municipal utility that provides its customers with electricity, natural gas, water and sewer. To help meet the future energy needs of our customers, the city wants to take advantage of one of Ellensburg's most abundant energy resources, the sun (over 300 days of sunshine a year). A pilot community solar electric project is in the final stages of development. Solar electric modules will convert free renewable solar energy directly into electrical power ready to be used in homes and businesses. With no moving parts, no noise and no pollution, solar electric modules are the simplest and cleanest power generation systems our community has available.

Ellensburg's Solar Electric Project provides a new and innovative approach to clean energy production. First and foremost, community is the cornerstone of Ellensburg's solar project. A strong partnership between the city, local citizens, Central Washington University and local businesses and community organizations has already begun. Historically, there have been several hurdles to widespread adoption of solar electricity. These hurdles have included aesthetic concerns with solar modules on private residences, lack of knowledgeable installation companies, high initial investment, maintenance issues, shading, and a general lack of knowledge regarding renewable energy. This project has attempted to address these hurdles in order to make solar electricity available to everyone in our community.

Secondly, a new marketing and financing concept has been created that gives everyone in the community the opportunity to invest in renewable energy. Other utility green programs in the Northwest ask for voluntary contributions from their customers, and in return, their customers gain the satisfaction of investing in clean renewable energy. Ellensburg's Solar Electric Project goes one step further by allowing customers the opportunity to become equity holders. As an equity holder, their contribution becomes an asset for them that increases in value as electricity cost go up. Customers are also entitled to a proportional share of the kilowatt-hour (kWh) output generated by the solar modules. This means that the utility will credit the customer's electric bill for their percentage of solar power produced.

For example:

If a customer's investment represents 3% of the total customer investments made toward the project, that customer would receive 3% of the total generated kWhs deducted directly from their utility bill.

Payments by our investors could be made through several different financing options;

- pay role deductions could be made through a customer's place of employment
- an amount could be added to the customer's utility bill
- funding from a home refinance could be invested into the project
- credit card investments allow customers to receive airline miles or dividend payments from their credit card companies.
- customers will also have the ability to give an investment donation on behalf of their favorite local organization, school or church.

At any time, a customer may sell, assign, or donate their equity in the project to anyone who is a customer of the Utility. The Utility

would also return their investment into the project for a cash payment equaling their proportional share of the project times the average depreciated value of the solar modules.

Location. Location. Location. Ellensburg's Solar Electric Project will promote renewable energy via its highly visible site. Located on the west end of a popular community park and adjacent to Interstate-90 Corridor, one of Washington's busiest highways, the large community solar electric system will be seen by roughly 30,000 travelers per day (see attached site plan and digitized perspective). This very visible site will be continually promoting solar power to those in our community as well as those in our surrounding communities. Their interest in the project will continue to increase as they watch the system grow. Information on the replication of this project will be made available to all interested individuals and communities. The initial project will be 24 KW (approximately 80 solar modules). Over the next 5 years we estimate the system to grow to 165 kW (approximately 528 panels). A solar-powered kiosk will also be located at the park near the solar system for those who want to stop by and learn more about the project and solar energy.

Lastly, but also a very crucial component of this innovative pilot project, is education. Central Washington University (CWU), one of the state's three comprehensive regional universities, is located in downtown Ellensburg. CWU's Engineering and Technology Department Dean would like to work with utility staff in developing a Renewable Energy Curriculum that will include solar, wind and fuel cell power generation systems. The city will make the solar project and site available to CWU students for system design, engineering, metering, testing and installation. The city will also continue working with Ellensburg's Community School District on ways to incorporate renewable energy into the local student curriculum. The utility has a 480-watt solar demonstration project installed at Mt Stuart Elementary School in which the teachers can pull up the daily performance of the system to review with their students.

Ellensburg's Solar Electric Project is administered and promoted by the City of Ellensburg, a 170-c-3 nonprofit municipality.

In April 2004, the city contracted with Washington State University's Northwest Solar Center to design the solar electric project, including a marketing plan and project budget. The final report is due to the City Council in October. City utility staff will manage all project related activities including system purchasing, installation, maintenance, monitoring, security, and insurance.

The City of Ellensburg is considered one of the leading conservation proponents in the Pacific Northwest. Our small community (population of less than 15,000) has completed more than \$16 million worth of energy conservation projects over the past 20 years including residential weatherization upgrades; Super Good Cents new home construction; low flow shower heads; CFL lighting; high efficiency appliances and water heaters; commercial and industrial fluorescent lighting upgrades; and high efficiency motors, refrigeration and boilers. Ellensburg is continuing its commercial efforts and launching a new residential Pilot Community Energy Star Program that provides rebates for compact fluorescent hardwire fixtures and for high efficiency residential appliances

City of Ellensburg management is supportive of the project and is providing the project site, a power distribution line to the site, and additional funding to help with the other infrastructure costs including the concrete footings, the steel framework for the solar modules, power inverters and meters. After securing City Council approval, additional funding from donations and grantor along with commitments from initial investors, the utility will begin construction. The solar modules for an initial 24 kW system are scheduled to be installed in the Spring, 2005. If successful, the remainder of the 165 kW initial site is slated to be installed over the next 5 years. Estimated 2005 program costs are \$280,000.

Approximately \$9000 of these funds would go toward the design and construction of an educational kiosk at the solar project site, \$5000 would fund a web-based monitoring program that would be specifically tailored to our project.

Walt Kaminski, Dean for CWU's Department of Engineering Technology has both senior and graduate students interested in

designing and constructing the kiosk for college credit. Professor Kaminski and city staff will review the student's design. The kiosk, which would be located near the site along a widely used walking path connecting two community parks, would include information about renewable energy, the benefits of solar electricity, conservation, and the actual kilowatts being generated at the site. A solar panel will be incorporated into the design of the roof for the kiosk and will produce the power needed to operate the computerized informational system. We will also encourage a partnership with CWU's Teacher Education Program in the development and delivery of the education program. By partnering with CWU, we are educating our country's future decision makers regarding the benefits and the importance of solar electricity.

Conclusion:

The influence of this project is far reaching; Ellensburg's Solar Electric Project will educate individuals regarding the many benefits of solar electricity, encourage other communities to utilize and promote renewable energy sources, and reduce pollution associated with traditional energy production.