



Entity..... EOCI  
 Project Type:.....Solar Thermal  
 Stimulus Funds: .....\$450,000  
 Energy savings/yr: .....\$72,817

## Eastern Oregon sunshine pays off for Correctional Institution

Eastern Oregon Correctional Institution (EOCI) in Pendleton has 700 inmates housed in nine housing units. The facility and its occupants consume approximately 110 million gallons of water annually. An estimated 60,000 gallons of water a day must run through the domestic hot water system for inmate showers, lavatories, etc.

Unfortunately, the facility had a 25-year-old hot water heater system that required frequent and costly repairs. For Eastern Oregon Correctional Institution Physical Plant Manager Mike Cleveland the time was coming sooner, rather than later, to replace the system. The institution worked with the Oregon Department of Corrections (DOC) Facilities Services section and decided to move forward with a replacement system.

When replacing the aging domestic hot water system, everything pointed toward a solar thermal system:

- A solar water heater system would be more reliable and greatly reduce maintenance
- A solar water heater system would provide significant natural gas savings
- Eastern Oregon has plenty of sunshine year around to support a solar thermal system
- State government leadership emphasizes clean energy options such as a solar thermal project
- The Oregon Department of Environmental Quality requires annual reports on greenhouse gas emissions and encourages efforts to reduce emissions, which a solar water heater system would do
- Lastly, EOCI has existing solar panels (installed in 2004) that successfully pre-heat water for the boiler during the summer

In 2009, the American Recovery and Reinvestment Act (stimulus) funding provided an unexpected opportunity for EOCI to move forward with their solar thermal project. The US Department of Energy awarded federal Recovery Act funds—\$42.1 million—to the Oregon Department of Energy’s State Energy Plan program. The program was intended for projects that save energy and invest in the local community.

The Oregon Department of Energy awarded EOCI a State Energy Plan grant of \$450,000 in a competitive solicitation to plumb water destined for heating through a heat exchanger fed by a solar panel array. Essentially it pre-heats the water prior to being fed to a new high-efficiency domestic water heater.

**Eastern Oregon  
 Correctional Institution  
 will save  
 \$72,817 per year**



**A solar thermal system is more reliable and requires less maintenance than a domestic hot water system for Eastern Oregon Correctional Institution in Pendleton. It was paid for in part with Recovery Act (stimulus) funding from the Oregon Department of Energy.**





**A small building was constructed in the courtyard at EOCI to house the new high efficiency water heater. Eastern Oregon contractors were hired to perform the work. The project was paid in part with Recovery Act (stimulus) funding.**

Twelve solar thermal panels were installed along with an insulated storage tank, piping, pumps, and high-efficiency water heater. Since an estimated 70 percent of the heated water is needed during daylight hours, this use of the solar panels was a viable option.

DOC selected SOLARC Architecture and Engineering of Eugene to design the solar heating system and upgrades to the existing domestic water heaters. SOLARC utilized the services of DLR Group's Portland office to provide the structural design for the new equipment pad and shelter.

The EOCI solar water heater project was completed while the existing system was still operating so the new system could be brought on line with minimal disruption to service. Once the new system was commissioned and operating as intended, EOCI had the old system decommissioned and demolished. The new system was completed in March 2012.

The project involved Gyllenberg Construction of Baker City as the prime contractor. Other contractors included Walla Walla Electric Co. of Walla Walla, Washington, Action Plumbing of La Grande, and McDaniel Plumbing Heating and Solar Systems of La Grande.

Oregon Department of Energy Project Manager Lee Willeman called on Greater Eastern Oregon Development Corporation (GEODC) to assist with the project. GEODC, located in Pendleton, helps support job creation and expand businesses in seven Eastern Oregon counties including Umatilla.

“With any federal funding project there is considerable documentation and oversight,” Willeman said. “We called on GEODC as they are located in Pendleton and readily available with expertise to assist EOCI in successfully managing their project. Melisa Drugge and Karen Kendall with GEODC did a wonderful job. They were very responsive and supplied the local help that I couldn't provide being based in Salem.”

Recovery Act funding requires that all contractors be paid with Davis-Bacon prevailing wages and provide weekly certified payroll reports to review for accuracy. In addition, all iron, steel and manufactured goods used on a public building Recovery Act project must be produced in the United States.

“The purpose of the Recovery Act was to stimulate the US economy,” said Willeman. “We required documentation from manufacturers that even the screws used were made in the US. The Buy American requirement can be difficult for contractors and project owners who often purchase based on cost alone.”

DOC Project Manager Dan L. Howard said, “This project came together on schedule and within budget due in large part to the commitment of the two state agencies (ODOE and DOC) to make this happen. GEODC staff members Melisa Drugge and Karen Kendall reviewed the Davis-Bacon wage certifications, verified the contractor's Buy American compliance, and were instrumental in assisting DOC with the successful outcome of the project.”

The new solar thermal system is up and working and providing the hot water needed at the facility. The best news is that the project will save an estimated \$72,817 for the facility each year it is in operation. The Eastern Oregon sunshine is paying off for EOCI.

The Oregon Department of Energy (ODOE) awarded this energy project with American Recovery and Reinvestment Act (stimulus) funds through the State Energy Program. These funds are designated for energy efficiency and renewable energy projects. The U.S. Department of Energy administers the funds, approves the projects and reviews the state's progress. The Oregon Department of Energy received \$42.1 million in SEP funding.

This material is based upon work supported by the Department of Energy under Award Number #DE-EE0000140. This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.