The University-National Park Energy Partnership Program

The University-National Park Energy Partnership Program (UNPEPP) is a national program that supports partnerships between universities and national parks to provide energy services to the parks and educational opportunities to university students. Humboldt State University (HSU) became an UNPEPP partner in 2000.

UNPEPP was developed in 1997-98 as a pilot project between James Madison University and Shenandoah National Park. UNPEPP is currently housed at the Rochester Institute of Technology and operates under the Green Energy Parks Program.

The Green Energy Parks Program began in 1999 with a Memorandum of Understanding between the U.S. Department of the Interior and the U.S. Department of Energy. The goal of the Green Energy Parks Program is to make the national parks a showcase for a sustainable energy future.

The Schatz Energy Research Center (SERC), affiliated with HSU's Environmental Resources Engineering department, is working to promote clean and renewable energy. SERC engineers design and build proton exchange membrane fuel cells, fuel cell testing systems, and solar hydrogen power systems. SERC also assists local governments in energy efficiency and energy planning and teaches students at all levels about sustainable energy.

SCHATZ ENERGY RESEARCH CENTER

Thomas H. Kuchel Visitor Center

Solar Water Heating System

Redwood National and State Parks

Redwood National and State Parks are committed to reducing fossil fuel use in the parks. Since 1997, the University-National Park Energy Partnership Program (UNPEPP) has teamed university students and faculty with the National Park Service to develop sustainable energy use practices in the national parks. Projects focus on reducing fossil fuel use in accordance with the Green Energy Parks Program. UNPEPP provides technical assistance to the parks while offering valuable, real-world, educational experiences for students.

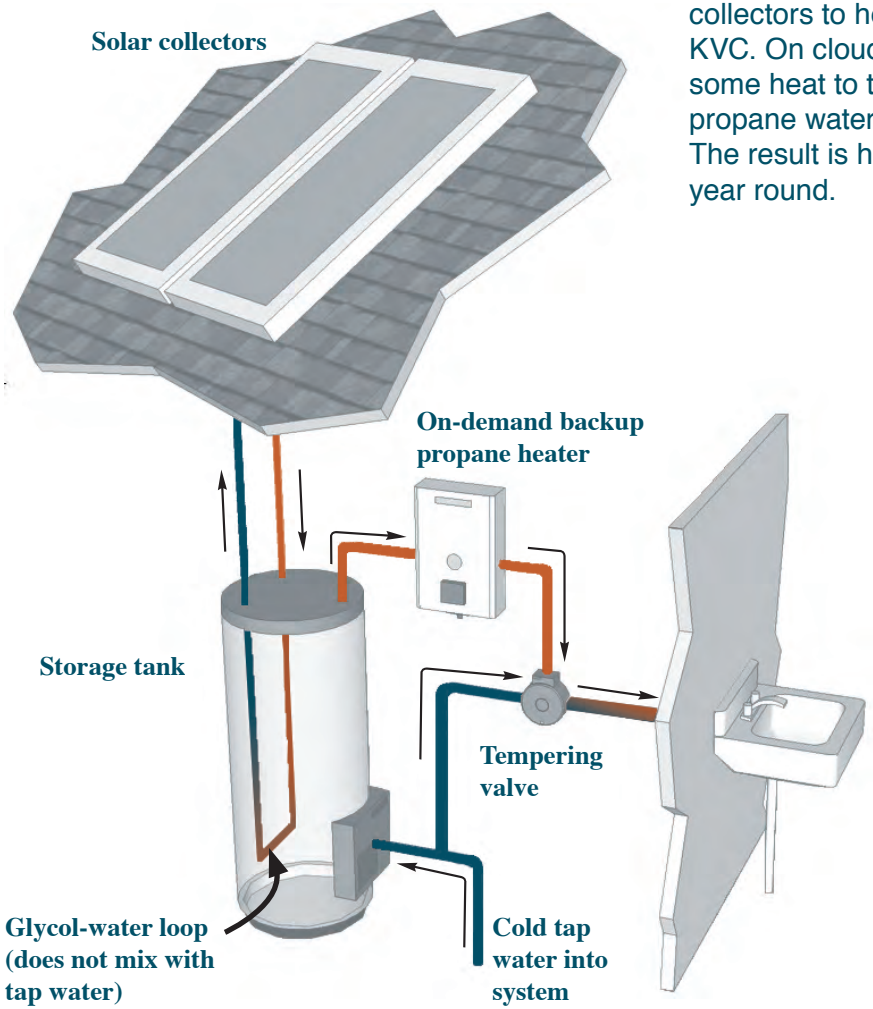
Partners Humboldt State University (HSU), Schatz Energy Research Center (SERC), and Redwood National and State Parks (RNSP) selected the Thomas H. Kuchel Visitor Center (KVC) at Redwood National Park as a project site for the UNPEPP 2002 partnership. HSU Environmental Resources Engineering students worked with SERC and RNSP to design and install a solar water heating system to replace the electric water heater at KVC.

How KVC's Solar Hot Water System Works

A mixture of glycol and water is pumped up to the solar collectors on the roof. Heat from the sun warms this mixture which is then carried to a storage tank filled with tap water. The heat from the sun-warmed glycol-water mixture is transferred to the tap water in the storage tank through a heat exchanger.

Heated tap water is then delivered to the restrooms. If the water coming from the storage tank is too cool, a backup on-demand propane heater turns on and boosts the temperature. If the water coming from the tank is too hot, a tempering valve mixes some cold water into the flow going to the tap.

On sunny days, enough energy strikes the collectors to heat all the water needed at KVC. On cloudy days, the sun still adds some heat to the water, with the on-demand propane water heater providing the rest. The result is hot water delivered to the taps, year round.



Solar for Your Home

You can install a solar hot water system to save energy in your home. The type of system you choose will depend on your budget, your hot water needs, and your local climate. By installing a solar water system, you will save on your energy bill and help the environment. Rebates and/or incentives may be available from your local utility. For more information on solar hot water systems see: **www.eere.energy.gov/RE/solar_hotwater.html**