# *Snohomish County, Washington Undergoes Retrofits and Solar Installation at County Facilities*

## Project Statistics

County: Snohomish County, WA
Project Scope: 15 buildings, HVAC and building system replacement, solar panel installation
Project Cost
- *Retrofits/System Upgrades:* $1,500,000
- *Photovoltaic Panel on County Facilities:* $200,000

Completion Time: Winter 2010
- *Retrofits/System Upgrades:* TBD
- *Photovoltaic Panel on County Facilities*: 1 month completion time

Project Manager: Matt Emlen and Scott Harthorne
General Contractor: Johnson Controls
Subcontractor: Solis Electric

## Overview

Snohomish County is undergoing retrofits in 15 county buildings to achieve a 10% greenhouse gas emission reduction goal. Solar panels will be installed on the buildings' roofs. The creation of vehicle recharging stations, fueled by the buildings' solar panels, will facilitate the expansion of the county's electric vehicle fleet.

## Challenge

A 2010 greenhouse gas inventory indicated that county buildings accounted for one-third of Snohomish County government's emissions.

Snohomish County's Green Ribbon Climate Task Force in 2008 recommended ways that the county could meet greenhouse gas reduction goals by demonstrating county leadership and promoting "green jobs." The county adopted a goal of reducing "grid" energy use by 30% in 30% of existing buildings through weatherization, energy efficiency retrofits, and applied renewable energy technology, such as solar photovoltaics. The County also elected to participate in the SnoPUD 10% Challenge, a challenge of Snohomish County's Public Utility District to reduce greenhouse gas emissions by 10% over the next 2-3 years.

## Solution

With a combination of EECBG grant money and bond funds, the County's Facilities Management Department has begun retrofit efforts. EECBG grant funds have allowed Snohomish County to implement long-awaited projects for which funding was previously unavailable.

Energy retrofits are well underway in 15 county buildings. EECBG funds will replace HVAC and otherbuilding systems, as needed. In most buildings, the HVAC systems are now controlled through 1 server, which can easily be adjusted. Additional retrofits, including lighting updates and occupancy controls, will be completed simultaneously using bond funds. Retrofits will be completed by the middle or end of 2011.

In addition to upgrades recommended by the initial assessment, Snohomish installed a system of 96 Cascade Module photovoltaic panels on the county's administration building in May 2010. The solar panels were expected to generate roughly 16,000 kilowatt hours annually, greatly reducing grid-supplied electricity at the county's downtown campus, and the panels are currently producing more power than anticipated. The solar panels are connected down through the parking garage where fifteen solar electric charging stations will be set up for electric vehicles. The county currently owns 2 electric vehicles but expects to purchase a dozen more within the next 18 months.

The solar panels were produced by Silicon Energy, a Washington-based manufacturer. A local company, Solis Electric, did the installation.

*Photovoltaic solar panels were installed on the rooftop of the Snohomish County administration building*

## Retrofits and Solar Energy Generation at County Facilities

Improving energy management in county facilities and operations has many benefits, including freeing up resources for other uses, increasing the stability of county budgets, and reducing greenhouse gas emissions.

Air distribution systems bring conditioned air for heating and cooling to building occupants, and therefore directly affect both energy and consumption and occupant use. Many buildings continue to rely on obsolete, inefficient systems for this critical function and need to be upgraded. The best ways to create energy saving improvements in air distribution systems include:

- Ensuring systems are calibrated correctly to serve building needs
- Adjusting ventilation to conform with code requirements and occupant needs
- Implementing energy-saving controls that power systems down when not in use
- Taking advantage of free cooling whenever possible with good outdoor ventilation
- Upgrade to high efficiency system components

Solar energy generation is proving to be a lucrative investment for many counties nation-wide. According to the 2010 NACo County Sustainability Survey, investment in renewable energy generates significant cost savings for county government and is projected to rise over the coming years.

## Additional EECBG Projects

- High Efficiency Lighting Upgrades for Solid Waste Transfer Stations
- Energy Efficiency Improvements for Leachate Pre-treatment Plant
- Transit Passes for Snohomish County Employees
- Transportation Demand Management—encourage use of transit, vanpooling, carpooling, walking, and biking during peak use periods
- Green Fleets—build 4-stall solar carport at Snohomish; installing solar array and charging infrastructure for 20 vehicles at Evergreen State Fairgrounds (park-and-ride location); conversion of fleet Priuses to plug-in hybrid electric vehicles; enhanced training of local technical students to maintain and repair hybrid and biodiesel vehicles
- Residential and Small Commercial Energy Audit and Conservation Education Programs
- Loan and Grant Program for Energy Efficiency and Conservation
- LED Streetlight Relamp Pilot Project (change out 37 streetlights with LED lamps)
- Create County Energy & Sustainability Office

## Developing the Work Plan

1. Develop plan for addressing NEPA, Davis-Bacon, and Historic Preservation requirements of project.
2. Discuss grant requirements with a County project manager team, and as a team, develop plan for addressing requirements.
3. Begin projects that involve RFPs, contract development, and/or approval by County Council or Legal Department.

In Snohomish County, activities of a certain budget require Council approval, and contracts require Legal review, both of which can take several weeks. These requirements, and the overall coordination among different agencies, significantly slowed project start dates. Snohomish County learned that prioritizing work in the above way allowed their work to progress in an organized way.

## Financial Benefits

Through retrofits and system upgrades, Snohomish County will save approximately $176,000 per year. The solar panel project will generate at least 4 jobs and $466,000 additional spending within the community. Nearly 40 jobs will be created by the retrofit and solar panel projects.

## Environmental Benefits

The solar project will reduce 21,000 pounds of greenhouse gas emissions annually, as well as reducing water consumption by nearly 1,700 gallons monthly.

**County Benefits**

These projects resulted in:

- Reduction of approximately 500 tons of GHG
- Energy saved/renewable energy generated: 227,600 kWh or electric & 8,807 therms of natural gas
- 20,400 gallon reduction in annual water consumption
- Creation of nearly 40 jobs

## On-going Measurement & Verification

Meters installed with the system upgrades will indicate how much energy is being saved at each facility.

## Lessons Learned

Lisa Dulude, Energy & Sustainable Development Analyst, encouraged counties to seek DOE resources for assistance with their projects. DOE's new technical assistance team is quick to respond to questions, said Dulude, and the web-based training has been really helpful, too.

## Links

http://www1.co.snohomish.wa.us/