

Case Study: Residential Solar Energy

Solar electric power in Portland

Gary and Ulrike Calaba of Portland want to leave the world in better shape. Their decision to invest in solar electric power was based on this philosophy. “It means being a good example for the next generation,” said Gary Calaba.



Solar panels are barely visible at the rooftop.

The Calabas were concerned with the mounting evidence of global warming. They wanted to use a renewable resource that wouldn’t contribute to the problem. They also wanted to lower their rising energy bill. They decided to “go solar.”

The Calabas use the electricity produced by their solar electric system to reduce the amount they buy from Portland General Electric (PGE). During sunny days when the system is producing more electricity than their home needs, the extra amount goes back to PGE. Their electric meter actually spins backwards. At the end of each month, PGE bills them for their net energy consumption under a net metering agreement. Net metering reduces the amount of electricity the Calabas are billed for on an annual basis by about a third.



Gary Calaba’s meter spins backwards on sunny days.

The Calabas also received a tax credit for installing their solar electric system. Tax credits are available from the Oregon Office of Energy’s Residential Energy Tax Credit Program.

Gary Calaba did his homework before he made the jump to solar. “I did a lot of comparison shopping all over the country before I bought where I did,”

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The solar panels are mounted on the north roof.

Calaba said. He did the installation using off-the-shelf parts with the help of friends and neighbors. “I like how simple this system is,” he said.

The Calabas also shopped to find a system that looked good with their older home in an established neighborhood. The area is noted for its well-kept homes. The Calabas, long-time residents, didn’t want to do anything that would change that.

“We wanted the neighbors to be happy and accepting of the solar units. Fortunately, the

backside of our roof is the ideal site for our solar modules,” said Gary Calaba. The panels, mounted on the north roof, are barely visible from the front of the home.

Some neighbors warned the Calabas that solar just wouldn’t work in Oregon. Gary and Ulrike Calaba say their experience proves that statement to be a myth. Their solar system provides a third of their power needs.

“We need to tell more people about solar and just set up houses with solar as a matter of course,” said Gary Calaba. The Calabas say if that would happen, this planet would be better for us and future generations.

System Details

System type:	Photovoltaic (solar electric)
Array size:	900 Watts-peak (under standard test conditions)
Solar modules:	(9) Siemens SR 100 modules 25-year warranty
Inverter:	Advanced Energy Systems GC-1000
House:	Built in 1920s Well insulated, gas heated Energy-efficient lighting, appliances

Performance and Economic Details

Energy produced:	900 kWh per year (estimated)
Energy value:	One third of their annual electric bill
Equipment cost:	\$7,000 (before \$1,500 tax credit)
Installation cost:	Self-installed

Oregon’s Solar Resource

Oregon’s solar resource varies substantially with the season. On an annual basis, however, Northwestern Oregon gets as much sun as the national average. Southern and Eastern Oregon get as much or more than Florida. Because of our cooler temperatures, solar collectors in Oregon are more efficient, and also have greater opportunity to collect the sun’s energy.

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State Tax Credits for Solar

The state of Oregon provides tax credits for homeowners and businesses that invest in renewable energy sources, energy conservation and recycling.

Consumers can receive a tax credit for installing solar electric or solar water heating systems in their homes. The tax credit is based on system performance and is a maximum of \$1,500.

Businesses can receive a tax credit of up to 35 percent of the cost of the system. The credit is over five years. Unlike the residential tax credit, an application must be submitted **prior** to financially committing to the project.