

Case Study: Residential Solar Energy

Peace and quiet in sunny central Oregon

John Chasteen grew up in a big, noisy city. He didn't enjoy it. As an adult, he wanted a quieter environment.

“San Diego got too big and noisy. So I moved to Portland in 1965. But, Portland is so crowded now and full of traffic,” Chasteen said. He found peace and quiet in central Oregon.



In 1998, Chasteen bought his remote country home. It was so remote that no utility power was available. A 15-kilowatt diesel generator supplied the rural home's electrical power. “It would cost my neighbor and me \$35,000 just to bring in a utility line,” Chasteen said. A friend suggested he look into solar electricity.

A noisy diesel generator supplied power to John Chasteen's home before he opted for solar power.

Chasteen found a solar system supplier in Portland to provide a power panel with all the necessary parts pre-wired. He built a support rack next to the house and assembled the system himself. He qualified for a tax credit from the Oregon Office of Energy for investing in the system.

By April 1999, his system was up and running. The system is now totally automated with a back-up generator. The generator comes on during extended cloudy periods or when he refills his water tank once every two weeks.



Chasteen is impressed with the trouble-free operation of his solar photovoltaic system. He checks the inverter often. “Nothing's ever been wrong,” he said. “It just functions maintenance free.”

John Chasteen's large solar array provides more than enough power.

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Systems like Chasteen's do require some maintenance such as adding water to the batteries, clearing snow from the array and servicing the diesel generator. To Chasteen, however, setting up the system and maintaining it have been hassle-free like his quiet country setting.

"A few years ago, I would never have believed you if you said I'd be living off solar power," Chasteen said. "But now, I can't imagine doing anything else. It's so quiet and there's no pollution."

Chasteen is now exploring other uses for solar power. "Looking at the rising cost of propane for water heating, I'm thinking seriously about a solar water heater," he said.

For John Chasteen, sunny central Oregon is heaven found. Quiet, clean solar power fits in to his peaceful, natural environment.

System Details

System type:	Utility independent
Array size:	1,600 Watts-peak (under standard test conditions)
Solar modules:	(16) Siemens SR 100 modules 25-year warranty
Inverter:	Trace 4048 96 hours of back-up battery power
House:	Built in 1970s Propane heated Energy-efficient lighting, appliances

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.

Performance and Economic Details

Energy produced:	2,200 kWh per year
Back-up power:	Diesel generator
Equipment cost:	\$18,773 (before \$1,500 tax credit)
Installation cost:	Mostly self-installed
Line extension	\$20,000 (saved)

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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