

Portland Solar Business Gets All Its Energy from the Sun

Mr. Sun Solar has been around since 1981, but had their best year ever in 2007. That's because the company's owner, John Patterson, realized a long-held dream of getting all the company's energy from the sun.

Patterson installed a 7 kilowatt photovoltaic system in August, 2007 that provides all the power needed to light and heat the office, run the computers, and power all the company's manufacturing tools. The system will save two tons of carbon dioxide per year, virtually eliminating the company's greenhouse gasses and carbon footprint.

The system is intertied with Pacific Power's electric system (grid-tied). On sunny days, the photovoltaic modules generate more power than the company can use, with the excess power going back to the grid for Pacific Power to use. The company's electric meter will actually spin backwards, and they will receive a credit. On dark, rainy days, the company will purchase electricity with the credit, resulting in a "break even" or zero net energy use.

It took a lot of planning to get to this point. "I knew that to reach zero net energy, I'd first need to make our building very energy efficient," Patterson said. "We fixed areas where cold air was infiltrating, then re-insulated. Then we did everything we could with solar energy to reduce our power load."

Patterson installed seven tubular skylights that provide the majority of the building's lighting, two solar attic fans for summer cooling, and a solar hot water heating system. Efficient back-up lighting and a heat pump keep energy use down. "Plus all our employees pitch in to conserve. We dress warmly, keep doors closed and turn out lights when we leave a room," he added. They unplug the coffee pot and pour the hot coffee into a thermos after it's brewed. "Little things really do add up over time," he said. With stealth conservation and efficiency improvements, he was able to get his average energy use down to about 23 kilowatt hours per day. The 7 kilowatt PV system provides a little over that on an annual basis.

A nice package of incentives and tax credits helped offset the \$67,500 cost of the system. The company will receive an Energy Trust of Oregon incentive of \$8,000. When Patterson files his Federal income tax return he'll get a \$17,676 refund (30% of cost less the Energy Trust of Oregon incentive). Oregon's Business Energy Tax Credit was even more generous, about \$27,000, although it has to



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be taken over five years. The Business Energy Tax Credit increased in 2007 from 35 percent to 50 percent of eligible project costs and the maximum has doubled from \$10 million to \$20 million.

Energy Trust of Oregon, a nonprofit organization promoting energy efficiency and clean, renewable energy for Oregon utility customers, is happy to provide the incentive. "It's great to see Mr. Sun Solar, one of our valued solar contractor trade allies, so boldly walk his talk," said Kacia Brockman, Energy Trust's solar program manager. "As providers of cash

incentives for both energy efficiency and solar energy, we're especially pleased that John chose to make his building as energy efficient as possible before installing solar."

Patterson is proud to be the first business west of the Cascades to have zero net energy use. "Even in the Willamette Valley, we get more than enough sun to completely power a business," he said. "A system half this size and half the cost would power most energy efficient homes." In fact, his company partners with area home builders to make their new construction homes solar-ready. "We pre-plumb the house for solar water heating and solar electric, then the home buyer decides whether to install the system," he said.

The company celebrated with a big open house last August. They roasted hot dogs and baked cookies with a solar cooker. Lighting and music were powered by the sun. Patterson was walking on air. "Using all renewable energy is something I've wanted to do for a long time because it's the right thing to do. It's the most gratifying accomplishment of my entire career."

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