EnergyTrust of Oregon, Inc.

Solar Electric: Brewery Blocks Demonstration Project

Dennis Wilde of Gerding/Edlen Development knows that solar power isn't just a blue sky idea for high-profile commercial buildings. Solar panels blend seamlessly into the building behind him.

Solar Can Be Beautiful – and Nearly Invisible

Pedestrians passing Brewery Blocks Building 4 on a hot summer day probably won't know that it's generating enough electricity to power four new energy efficient homes. Odds are they won't even notice the 1,536 square feet of solar panels that are designed into the south face of the 10-story, mixed-use building. And they certainly won't see the additional 139 square feet of panels on the roof.

The solar electric (photovoltaic) system, which began operating in January 2003, was funded with help from the Energy Trust's Renewable Energy program as a way to demonstrate how solar can be integrated into the design of a high-profile building. Gerding/Edlen Development Company, which is developing the five-block Brewery Blocks project in Portland's Pearl District, approached the Energy Trust with the bright idea of going solar.

PROJECT OVERVIEW

Sponsors: *Gerding/Edlen Development Company, LLC, Energy Trust of Oregon, Inc., and Bonneville Environmental Foundation*

What: *Solar electric system integrated into a new 10-story, mixed-use building:*
- *Face-mounted panels: BP Solar, amorphous thin film*
- *Roof-mounted panels: BP Solar, polycrystalline*

When: *Began operating January 2003*

Where: *Brewery Blocks development in Portland's Pearl District, 1125 NW Couch*

Generation Capacity: *22.4 kilowatts*

Benefits:
- *Generates clean, renewable power*
- *Integrates solar panels into the design of a new, high-profile building*
- *Reduces the environmental impacts of CO2 created by power generated from fossil fuels*

"We had looked at a solar hot water system on our condo project and we also talked about doing a photovoltaic array on Block 4 at the same time," says Dennis Wilde, Gerding/Edlen senior project manager. "So we ran through an analysis of what it would do, what it would provide, the costs, and how it could be incorporated architecturally into the design of the building, which was already through schematic design. On the basis of that, we went to the Energy Trust with a proposal to share the cost of the photovoltaics and do it as a demonstration project. We also got Bonneville Environmental Foundation involved as a third-party supplier."

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"The project was a great way to make inroads with the design community," notes Peter West, Energy Trust renewable program director. "The aesthetics of solar are often a roadblock for architects, and we've learned that the way we look at solar isn't the same way that architects look at it."

Polycrystalline roof-mounted solar panels are part of the 22.4-kilowatt system installed on Brewery Blocks Building 4.

BEAUTY CAN STILL BE POWERFUL

The design team, led by GBD Architects, chose BP Solar amorphous thin film panels that are integrated into wall louvers on the building, as well as higher-producing polycrystalline roof-mounted panels. The 22.4-kilowatt system, one of the largest commercial installations in Oregon, feeds power directly into the building to meet the base building electrical requirements. Any residual electricity backfeeds right onto the grid and literally makes the meter run backward.

"The more attractive face-mounted panels chosen don't produce as much as others we might have used," says West, "but we didn't lose as much energy as we thought. A University of Oregon Monitoring Lab study has shown that we have a lot more leeway to take aesthetics into account than we'd assumed."

The design team was so successful at integrating photovoltaics into the building that Gerding/Edlen wants to draw attention to it. "We're very happy with the results architecturally," Wilde says. "Surprisingly, we think it's a better solution than when we first included it. People only notice it if we point it out. Now we want to have a virtual time, touch-screen display in the lobby of the building so we can start to build awareness about the system."

According to Wilde, the system is an important investment in a more sustainable future, a mission Gerding/Edlen is committed to in its projects. "I'm a firm believer that we have to get to the point where buildings produce more energy than they consume and consume more waste than they produce," he says. "But we're a long way from that. This system meets only about seven percent of the shell and core building needs electrically and significantly less than that once you take in all the tenant build out electrical requirements."

How can we help YOU?
The Energy Trust can help cover the costs of installing solar electric systems.

To find out more, call 1-866-ENTRUST (368-7878) or visit www.energytrust.org.

Wilde points out that Gerding/Edlen did not choose to do the project for economic reasons. "Even with the subsidy from the Energy Trust, the payback period was way out there," he says. "But as efficiencies of equipment increase and as prices per watt decrease, you'll start to see more and more applications. We did it as a market transformation project to demonstrate that photovoltaics can be integrated into the architecture of buildings, and that you can do it in an aesthetic way." ■

The Energy Trust of Oregon, Inc., is an independent nonprofit organization dedicated to energy efficiency and renewable energy development. Our mission is to change how Oregonians produce and use energy by investing in efficient technologies and renewable resources that develop new sources of clean energy, help Oregonians lower their electricity bills, stimulate the economy, and protect the environment. The Energy Trust serves Oregon customers of Pacific Power, Portland General Electric and NW Natural.

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