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Zoo goes solar in big green test

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Visitors to the Cincinnati Zoo are marveling at the sight: Nearly four acres of solar panels over a vast span of concrete parking lot.

Billed as one of the largest public urban solar displays in the country, the \$11 million solar canopy will do more than help control the zoo's \$700,000 annual electric bill when it's turned on by the middle of next month.

Developers see the project as a model for clean energy use in big public spaces. Already, a dozen zoos from as far away as California and Oregon have called to learn more. Locally, advocates say the project's sheer size and visibility may inspire increased interest in solar.

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Workers install the final sets of solar panels on the Cincinnati Zoo's parking lot solar array. / The Enquirer/Ernest Coleman



Workers install the final panels in the Cincinnati Zoo's new solar array. / The Enquirer/Ernest Coleman

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Developers insist the hype isn't overdone. The technology "will help put Cincinnati on the map as a national leader in the adoption and promotion of clean energy," says developer Steve Melink, Clermont County businessman and renewable energy advocate.

Workers installed the last solar panels on Friday.

"Some people wonder what the heck it is, and those who have heard about it are surprised at how big it is," said Mark Fisher, the zoo's senior director of facilities, planning and sustainability.

The project consists of 6,400 photovoltaic solar collection panels assembled on more than 100 metal arrays, 15 to 18 feet high. They cover 800 of the 1,000 parking spaces at the zoo's main entrance. The solar canopy is designed to produce 1.56 megawatts of electricity, about 20 percent of the zoo's annual need, or enough to power 200 homes a year.

Nobody tracks the size and number of solar canopy projects nationwide, which have been popular for years in warmer climates such as Southern California and Arizona. But last year U.S. photovoltaic installations of all kinds more than doubled to 878 megawatts, according to the Solar Energy Industries Association, a Washington D.C., trade group.

The zoo's project isn't the largest solar project in Ohio. The Wyandot Solar Farm, a utility-sponsored project near Upper Sandusky in north-central Ohio, covers about 80 acres and can produce more than 10 megawatts of electricity.

But because the zoo's parking canopies are so public, officials think it will dramatically spur interest in solar here.

"The education aspect is worth a lot," said Raju Yenamandra, vice president at SolarWorld, a German-based company that produced the zoo's solar panels at its plant in Hillsboro, Ore. He thought so highly of the zoo project that he accelerated delivery so the project would be ready this spring.

"When you think of the number of people who visit the zoo (about 1.3 million each year), particularly younger kids, the educational

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aspect will be fantastic," he said.

Local businesses are benefiting, too.

"We're bidding multiple projects all over the country," said Dana Rudolph, president of Protek Park Solar in St. Bernard, which fabricated and installed the metal structures holding the solar panels.

Protek Park, a sister company of greenhouse constructor Rough Brothers Inc., has been building parking canopies for a decade. Today, solar projects are the fastest-growing part of his business, Rudolph said. The company supplied metal canopies for solar projects at two community colleges in New Jersey and recently completed a canopy for a 3.2 megawatt system at a New Mexico veteran's hospital.

Financing was the biggest hurdle to making the project work. And in the end, it isn't costing the zoo a penny.

Financial details aren't disclosed. But PNC Bank, which has built a national reputation financing green energy projects, agreed to finance the project for Melink with the help of federal renewable energy and low-income economic development tax credits.

Initially, efforts to put the complex financial transaction together using just federal energy credits fell short. That's when Melink and the zoo approached the non-profit Uptown Consortium about contributing some of its federal economic development credits to help finance the project.

"I thought it was great when the zoo and Melink approached us about the project last summer," said Beth Robinson, president of the Uptown Consortium. As part of their agreement, Melink will fund 10 scholarships at Cincinnati State Technical and Community College for Uptown area residents to be trained as solar equipment installers.

The project includes a number of firsts for all the parties. It's the first time Pittsburgh-based PNC combined both federal economic development and energy tax credits on a renewable energy project. It's also the first time the National Development Council has invested in a project here, Robinson said. The council is the nation's oldest non-profit community development organization working to increase jobs and development in under-served urban and rural areas.

Benefits for the zoo include favorable terms for the solar power produced.

Melink will sell electricity generated by its solar panels to the zoo for about 8 cents a kilowatt hour. That's about what the zoo currently pays its electric supplier, Akron-based FirstEnergy Corp.,

but the solar rate cannot increase for seven years.

Fisher expects the project eventually will save hundreds of thousands in electric costs. The deal also gives the zoo an option to buy the system after seven years.

Fisher said the zoo has used multiple strategies to hold down electric costs over the past several years. It has converted its annual Festival of Lights to more energy-efficient LED bulbs. Even after expanding the annual Christmas holiday display to more than 2 million lights, the use of LEDs has actually cut the festival energy bill in half, he said.

Lighting isn't the zoo's biggest electricity user. Pumping and moving water through various fish and animal tanks is. For example, Fisher said it costs \$40,000 a year just to filter water through the 150,000-gallon Manatee tank exhibit.

"This shows that solar is proven and profitable technology right here in Cincinnati," Melink said. "The zoo hopefully will be the first of many larger scale projects in Cincinnati, Ohio, and the rest of the United States."

Fisher agrees: "Hopefully, we won't be the largest project a couple years from now."

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