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St. John's future solar farm to be largest in Minnesota

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COLLEGEVILLE — In a quest to make St. John's University more Earth friendly, university and abbey leaders are turning to the sun.

St. John's soon could become home to the largest solar farm in Minnesota and possibly in the Upper Midwest, providing as much as 20 percent of the campus's electricity on a cloudless day.

St. John's and the Order of St. Benedict are partnering with Westwood Renewables, an Eden Prairie-based company that received a \$2 million grant from Xcel Energy for a renewable energy project.

They hope to install about 1,800 solar photovoltaic panels just northwest of the St. John's campus in Avon Township. The panels would produce up to 400 kilowatts an hour or about 575,000 kilowatt hours annually, roughly the same amount of energy that 65 homes consume in a year.

The project is part of St. John's goal to end its contribution to global warming. In 2007, it joined more than 300 colleges and universities nationwide signing a pledge to become "carbon neutral."

"It's a nice step forward," said Brother Benedict Leuthner, treasurer for OSB, which is spearheading the project. "It's surely not going to solve all our energy needs."

When nights and cloudy days are factored in, the solar farm would supply about 4 percent of St. John's electricity needs annually, Leuthner said.

The project's backers hope it will raise awareness of Minnesota's potential to produce electricity from the sun, one of the cleanest sources of renewable energy. The St. John's site would serve as a research and education tool for students and visitors who want to learn more about solar power.

"We wanted to find a partner that would both showcase the capacity of solar in Minnesota and provide an educational setting to do so," said Nathan Franzen, Westwood's general manager.

When people think of solar energy, they generally think of California and Arizona, Leuthner said.

However, Minnesota is at the same latitude as Germany, the world's leading producer of solar electricity. The long spring and fall days make up for the shorter days of winter, and the solar panels actually work more efficiently in cooler temperatures.

"We're a great candidate for it," said Doug Shoemaker, vice chairman of the Minnesota Renewable Energy Society. "We have the same potential here as Houston, Texas, and Jacksonville, Florida."

Fall construction

At 400 kilowatts, the St. John's project would easily surpass the largest solar farm in Minnesota, a 100-kilowatt system in northern Minneapolis.

The St. John's panels would be about 5 feet high and would move to track the sun across the sky, Franzen said. All of the power lines would be buried underground.

The project still needs local government approval. Stearns County agreed to rezone the property and to change its land-use zoning ordinance to allow a solar farm in the ecclesiastical/educational district. Avon Township would need to approve a conditional-use permit, Leuthner said.

If the project is approved, construction would begin in mid-September and would be completed in about six weeks.

St. John's plans to sign a 20-year lease agreement with Westwood for 4 acres for the solar panels and to buy electricity produced by them. Westwood also would agree to share data from the project and host workshops on solar energy.

Students are often enamored of solar because it's an "enticing technology" — renewable, quiet and clean, said Derek Larson, environmental studies professor at St. John's and the College of St. Benedict.

They don't always understand the limitations, including cost and the space needed for the panels, Larson said. The solar farm will provide data so students can do their own research and calculate what it would take to make it viable.

"From an educational standpoint, it's fabulous," he said.

A part of the project's mission will be demonstrating that a large-scale solar farm in Minnesota can succeed technically and economically.

"If we can put this in and make it work, other people will look at the numbers and say, 'OK, we can do this too,'" Larson said.

Changing attitudes

Solar hasn't caught on widely in Minnesota largely because it costs more to produce than other types of renewable energy such as wind.

Electricity in Minnesota comes mainly from coal-fired power plants and is inexpensive compared with other parts of the country, Larson said. In California, customers pay a higher rate for any electricity they consume above a base level. The state also offers incentives for homeowners who install solar panels.

"It becomes really economically smart," Larson said.

New federal tax credits and rebates from the state and utility companies should make solar energy more appealing for Minnesota homeowners, Shoemaker said.

"The cost of the system can be reduced significantly, which makes it a lot easier for people to try," he said.

Solar modules have evolved considerably since the unsightly contraptions of the 1970s. Today's sleeker rooftop panels are hardly noticeable, Larson said. There are even photovoltaic roof shingles available.

"You're not going to see these panels unless you're right there," he said. "It's not an intrusion like a wind turbine might be."

Additional Facts

About the panels

Photovoltaic solar modules consist of thin wafers made of silicon or other conductive material. When sunlight hits the wafers, a chemical reaction occurs, resulting in the release of electricity. Solar resources are available everywhere, although some areas receive less sunlight than others. The greatest solar resources are located in the Southwest, where sufficient solar energy falls on an area of 100 miles by 100 miles to provide all of the nation's electricity requirements.

— U.S. Environmental Protection Agency.
