Land and Energy
DEVELOPMENT CONSULTANTS

Westwood

Minneapolis Convention Center Solar Project

They kind of just sit there, but they are actually pretty busy.

The Minneapolis Convention Center Solar Project, silently producing power on the building's rooftop since November 2010, has recently passed its first milestone in energy production - 100,000 kilowatt-hours of electricity produced—all in the dead of winter.

Evolution of the Project and Team

With a peak capacity of 600 kilowatts, the solar photovoltaic project is currently the largest of its kind in Minnesota and among the largest in the Midwest. The project originally came to life through a partnership between project developer, Best Power Int'l, LLC, which in 2009 installed a 400kW solar array at St. John's University, and the City of Minneapolis. The city was awarded a grant to develop the project from Xcel Energy's Renewable Development Fund, and in turn, Minneapolis awarded the project to Best Power Int'l early in 2010. Through this partnership, Minneapolis hosts the system at the convention center and Best Power owns the system and sells power to the city. To complete the project, Best Power Int'l partnered with Westwood Professional Services for design and project management, as well as Ryan Companies and Hunt Electric for construction of the array. Construction began in July 2010 and was completed in November.

Rooftop System Anatomy

The system is installed over much of the Minneapolis Convention Center's complex rooftop and spans over two and one-half football fields in size. It is made up of three main components: solar modules, inverters and rack. Over 2,600 Siliken Renewable Energy solar modules make up the most visible part of the array. These photovoltaic modules absorb sunlight and convert it to electricity. The Solectria inverters take electricity from the modules and feed it directly to the convention center where it is used to power the building during the daytime. The UniRac rack is the support structure for the modules. The rack secures the modules in wind and snow and keeps them properly tilted toward the sun for optimum energy collection.

The rooftop is broken up into many elevations and required a level of design not normally present in a typical solar installation that might be done in California or the Southwest. Minnesota's unique climate necessitated custom design features such as a raised, open structure to reduce snow drifting, a 30-degree tilt angle to reduce snow accumulation on the modules and dams to block prevailing winds from the north.

Solar Project Benefits

The solar project's immediate effect can be seen in its benefits for energy and the environment. The project will produce an estimated 750,000 kilowatt-hours (kWh) of energy annually, supplying clean electricity to the Minneapolis Convention Center year-round. The solar array will produce approximately five to eight percent of the convention center's annual energy needs (the equivalent of 85 homes). The array produces its energy during daylight hours when energy consumption is at its peak. Peak power is the most expensive power to produce, making solar power more valuable. Moreover, the clean energy produced by the array will offset 539 metric tons of carbon dioxide annually, the equivalent of the CO_2 emissions from 60,587 gallons of gasoline or 1,253 barrels of oil.

The solar array holds numerous benefits the City of Minneapolis and the Minneapolis Convention Center. For Minneapolis, the solar array is a key development in the city's sustainability initiative and a

demonstration of the city's commitment to improving the environment and expanding the local renewable energy economy.

For the convention center, the solar array expands the facility's green infrastructure, which also includes energy efficiency, waste reduction and carbon footprint reduction initiatives. The project opens new marketing opportunities for the Convention Center as they work with meeting planners looking for facilities with sustainable practices.

The Minneapolis Convention Center Solar Project is symbolic of the emerging solar market in the region. As the industry expands, a project like this helps familiarize and educate the state of Minnesota on solar energy. This large, highly-visible array (the solar panels are not visible from street-level, however) located in the state's largest city helps reinforce solar energy's viability in the region and move it to the mainstream.