

**Questionnaire for**

**“Project of the Year” Award**

**Name of Project:** MSU Carport Solar Array

**Location of Project:** MSU Campus, East Lansing, MI

**Name of Business:** Michigan State University

**Your Name and Title:** Amy Butler, Director of Sustainability

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1. **When did the project break ground?** March 2017. The first set of data reported from the Solar Carport project was reported for February 2018.
2. **What can you tell us about the project?** Michigan State University has constructed the largest non-utility Carport Solar Array (Solar Project) in North America. It consists of five commuter parking lots on MSU’s main campus including 5,000 parking spots and 45 acres. The solar arrays were designed to produce a combined total of 13.4 MW DC peak power, 10.5 MW AC peak power and a total estimated 15,000 MWh/year of solar energy. This is equivalent to enough energy to serve 1,800 Michigan Households, and equivalent to approximately one of MSU’s existing on-site generators. It also represents approximately 18 % of MSU Peak power demand and 5 % of MSU’s total annual energy demand.

The decision to integrate renewable energy into the university micro-grid was part of the broader MSU Energy Transition Plan developed and approved through University governance. As such, the size of the renewable energy system needed to bold and meaningful to facilitate the assessment, analysis and learning associated with integrating variable power generation into the overall university energy portfolio.

With the university being a recognized leader in research and technology, there was a natural fit for MSU to lead by example in demonstrating larger scale renewable energy integration into micro-grids.

The Solar Project was financed through a 25-year Power Purchase Agreement with Inovateus, a solar-based company based in Indiana, and Alterra [now a subsidiary of Innergex Renewable Energy Inc.].

1. **How long has your company been in operation?** MSU was established in 1855 as the Agricultural College of the State of Michigan. It was the pioneer land-grant university in the United States and served as a prototype for future land grant institutions under the Morrill Act. MSU was the first institution of higher learning in the United States to teach scientific agriculture. MSU was called upon to address growing areas of concern in the country: education, agriculture, infrastructure and science. Today, MSU’s 5,200-acre campus is still home to leading research, as well as cutting-edge technologies, award-winning programs and thousands of Spartans working to make a difference every day.
2. **What is the location of your company’s headquarters?** Michigan State University, 426 Hannah Building, East Lansing, MI. 48824
3. **What are your company’s locations in Michigan?**

STATE OF MICHIGAN: MSU CAMPUSES: “[The State of MI as Our Campus](http://humanmedicine.msu.edu/About/Footprint.htm)”

MSU International Programs, Office, and Partnerships: [ISP Site](https://www.isp.msu.edu/international-centers-units/msus-international-organization/)

MSU – East Lansing, MI

MSU – Secchia Center ([Site Link](http://mdadmissions.msu.edu/Resources/Campuses/Visit_GR.htm)), 15 Michigan St NE, Grand Rapids, Michigan, 49503

MSU Flint Campus – College of Human Medicine ([Link](http://www.msufame.msu.edu/))

And multiple research centers located throughout the state.

1. **Where was your company founded?**  see above.
2. **What services or products does your company offer?** MSU is one of the top research universities in the world—on one of the biggest, greenest campuses in the nation—and is home to a diverse community of dedicated students and scholars, athletes and artists, scientists and leaders. MSU provides scholarly research education and community engagement. It utilizes the campus as a learning, living laboratory to test, pilot and demonstrate new technologies for both business and educational purposes. MSU also provides extensive outreach and community engagement including energy, sustainability, and complex environmental issues.
3. **How has the project supported and/or expanded the growth of advanced energy in Michigan? What advanced energy technologies or measures does your project showcase?**

The size of the project in concert with the fact that the university remains vertically integrated on energy assets informs a greater understanding of the adoption of renewable energy into micro-grids. As a public research and educational facility, the project serves as a learning and training platform for: other universities; business; students; and the community. This aspect is key to advancing energy technologies in Michigan. MSU conducts numerous outside tours, training opportunities and academic integrations surround the learning process of the systems integration. As the project continues operation and the system is studied; case studies on the systems integration will be prepared and presented, consistent with the terms of the Power Purchase Agreement.

Another aspect of this project that will contribute to the expansion advanced energy solutions is the financing solution employed by the university to realize the project. The innovative financing approach preserved initial capital and allowed MSU to reap overall project savings. These companies will own the carports and provide the maintenance and MSU will purchase 100 % of the electricity generated by the solar array at the guaranteed fixed price over the 25-year period.

The carport solar array will also demonstrate the ability of renewable resources to provide peak shaving capacity. It provides its maximum output just when the power needs of the university due to air conditioning needs in the summer are greatest. It will also demonstrate in northern climates such as Michigan, that green solar power can now be cheaper than power derived from burning fossil fuels.

1. **What else would you like the Awards Committee to know about the project?**

The selection of the Carport locations was strategic for several reasons:

1. The solar application on the land integrated with the existing land use for parking, thereby avoiding land use tradeoffs.
2. The carports are highly visible and well-used, demonstrating to a larger population of students; faculty; and alumni the university commitment to advancing energy technologies.
3. The carport locations draw vehicular traffic away from the highly congested, urban part of campus. The improvements to the Carports, such as covered from snow and the LED lighting contribute to the attractiveness of using these lots for vehicles. As a result, the carports have become a demonstration of “last mile traveled” for commutes. The carports incorporate walking paths; scooters; motorcycles; bicycles; and buses for travelling the short distance to the main campus. These actions also align with the goals of the MSU Mobility Plan.

**Please return completed form to** [**mieibc@mieibc.org**](mailto:mieibc@mieibc.org) **by 5:00 pm on Friday, September 28, 2018.**

**Michigan Energy Innovation Business Council**

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