



Client: Pennsylvania State University

Location: State College, Pennsylvania

System Description: 2MW Ground-Mounted Solar PV

Business Structure: Power Purchase Agreement (PPA)

Sustainability: PSU is committed to sustainability across their portfolio of Campuses, and is purchasing 100% of the energy and REC's generated from the project.

Client Financial Benefits:

- \$0 out of pocket capital for PSU
- Public Private Partnership to monetize tax incentives (ITC and depreciation)
- "Living Lab" integrating energy generation for PSU Office of Physical Plant, and research and development with University R&D/Faculty/Staff
- Green electricity and Renewable Energy Credits for 25+ years

UNIVERSITY PARK, Pa. — A new project will provide 2,500 megawatt-hours of clean, reliable and affordable solar-generated energy annually to the University as part of its diversified energy portfolio. The Penn State Office of Physical Plant and Alternative Energy Development Group (AEDG) announced Sept. 19 the development of a 2 megawatt Advanced Utility-Scale Solar photovoltaic system.

“The Office of Physical Plant is thrilled to be part of yet another project that will provide clean, reliable and sustainable energy to the University,” said Steve Maruszewski, assistant vice president of the Office of Physical Plant and the lead Penn State project sponsor. “This installation provides the University with the ability to research and optimize multiple power generation sources on our micro-grid. It is a true living lab project that combines operations directly with teaching, research and outreach.”

Providing education and research — and electricity

The solar project will provide 1 percent of University Park’s campus electricity needs. Included in the project will be an educational kiosk supporting academic instruction and research, sharing real-time performance data of the array. In addition, the array also will offer Penn State opportunities to test future technological developments in the field.

“We see the new solar farm as an incredible opportunity to understand the impacts of solar development on landscapes and ecosystems, as well as for power production,” said Jeffrey Brownson, associate professor of Energy and Mineral Engineering in the Department of Energy and Mineral Engineering. “We have already begun involving student research and classes in the framework for this systems-based solar integration, called **‘solar ecology’**. Students are also excited to integrate our open-source sunlight monitoring techniques using Penn State 3D printing.”

Guiding the solar project’s development are specific goals and objectives, including:

- Establishing a significant and visible onsite solar photovoltaic project site.
- Balancing economics, social benefits and environmental impact of solar energy projects.
- Advancing research and grant development opportunities.
- Creating a large-scale, micro-grid, living lab opportunity.

Partnering to produce reliable and sustainable energy

The array was developed by AEDG, a Pennsylvania-based renewable energy developer, and will be financed, owned, maintained and operated by AEDG and MVE Capital, Inc., an affiliate of the MVE Group, Inc., in Ephrata, Pennsylvania. The University has entered into a 25-year, solar-power purchase agreement to purchase 100 percent of the electricity and PA Alternative Energy Credits generated by the solar system for the term of the agreement.

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— David Gray, senior vice president of Finance and Business

The solar project is an example of a public-private partnership, including the following parties:

- Penn State, the project sponsor and beneficiary of the clean/renewable power provided by the solar system; and educational participation in the feasibility, design, implementation and optimization of the system.
- Alternative Energy Development Group, a Berwyn, Pennsylvania, firm, is the project's lead developer and co-financial owner and operator.
- MVE Capital, Inc. is the project's co-financial owner and operator, along with Meadow Valley Electric, Inc., the project's general construction and electrical contracting provider.
- West Penn Power as Penn State's utility and solar interconnection counterparty.
- West Penn Power Sustainable Energy Fund as a lender to the project.

"I'm excited to support this project, which is aimed at providing the University with a reliable and sustainable energy source so close to campus," said David Gray, senior vice president of Finance and Business at Penn State. "This is an opportunity to further our pursuit of our energy savings goals, provide our students and researchers with a living lab opportunity close to their classrooms and laboratories, and continue exploring ways to lessen our impact on the environment."

"We want to thank and recognize the cross-functional team from Penn State, West Penn Power, West Penn Power Sustainable Energy Fund, and all the Pennsylvania-based professional services firms who came together from a diverse range of stakeholder perspectives to make this project a reality," said Chris D. Fraga, founder and CEO of AEDG. "Throughout the development process, we focused on Penn State's stakeholder needs, while ensuring a design that would yield safety, performance and value from the state-of-the-art, utility-scale solar project. Integrating Penn State's faculty, staff and students in the process was both enriching for all and builds upon Penn State's energy strategy and we are honored to be part of this exciting Pennsylvania project."

Expanding Penn State's solar footprint

This is not the first solar project the University has supported or sponsored. OPP, with the help of students and a \$75,000 grant from the Sustainability Institute's Reinvention Fund, installed a **solar array** outside its main facility to provide power to charge its 100 percent electric vehicles. The MorningStar Solar Home, located in the Sustainability Experience Center, was built in 2007 and is a 100 percent renewable energy powered home. It is used by teachers and faculty as an immersive learning destination. In addition, the Penn State **Class of 2015's gift** was a solar panel array powering a bus stop near Beaver Stadium.