

Pennsylvania Energy Development Authority

2014 Project Summaries

Background:

- 184 applications for clean and alternative energy projects were submitted to PEDDA on August 15, 2014 to be considered for financial assistance awards
- 28 projects were selected, totaling nearly \$12.5 million in financial assistance
- Awarded projects:
 - 19 Advanced Energy Projects
 - 5 Clean Alternative Energy Projects
 - 3 Advanced Energy Projects to be deployed in the Duquesne Light service territory
 - 1 Community Environmental Initiative project

Results:

- 21 projects were successfully deployed
 - 20 projects have been completed and are operating
 - 1 project is still under construction
- 7 projects were mutually determined to be unable to move to completion as proposed
- 19 projects have submitted their one-year follow-up annual report
 - Awaiting three one-year follow-up annual reports
 - Total annual energy savings for the 19 projects are:
 - Electricity savings: 12,221 MWh/yr.
 - Alternative energy generation: 11,710 MWh/yr.
 - Natural Gas savings: Actual: 35,372 Mcf/yr.
 - Total actualCO₂ savings ~ 13,500 tons/yr

Advanced Energy Projects:

City of Harrisburg (Dauphin County): The project replaced 6,161 Metal Halide/Mercury Vapor and High-Pressure Sodium Roadway Luminaires with energy efficient LED Roadway Luminaires.

- Project Status: Project has been completed, annual reports have been received.
- Energy Savings: 3,741,417 kWh/yr., cost savings \$525,000/yr. & emission savings 1,562 tons of CO₂/yr.

Dairy Farmers of America (Tioga County): The project replaced the mechanical burner linkage at the Middlebury facility with an electronic controlled combustion head and diffuser plate, as well as the addition of a variable frequency drive on the blower motor.

- Project Status: Project has been completed, annual reports have been received.
- Energy Savings: 1,303,097 kWh/yr., 13,490 Mcf/yr., cost savings \$172,544/yr., & emission savings 3,388 tons of CO₂/yr.

Estes Express Line (Mercer County): The project installed a 687.9kW solar PV system in West Middlesex, Pennsylvania on the roof of Estes' terminal.

- Project Status: Project has been completed, annual reports have been received.
- Energy Generated: 787,000 kWh/yr., cost savings \$66,418/yr., & emission savings 553 tons of CO₂/yr.

Green Building Alliance (Allegheny County): The project installed energy efficiency upgrades focusing on replacing light fixtures with LED and dynamic lighting controls at six free standing parking garages in Pittsburgh, PA.

- Project Status: Project has been completed, annual reports have been received.
- Energy Savings: 2,122,606 kWh/yr., cost savings \$181,950/yr., & emission savings 1,369 tons of CO₂/yr.

Shamokin Area School District (Northumberland County): The project installed a state-of-the art building automation controls, upgrading the HVAC system at the High School, including a new chiller and rooftop units, and installing new campus wide exterior lighting.

- Project Status: Project has been completed, annual reports have been received.
- Energy Savings: 433,774 kWh/yr., 1,805 Mcf/yr., cost savings \$70,253/yr., & emission savings 406 tons of CO₂/yr.

West Branch Area School District (Clearfield County): The project installed a biomass boiler system to provide up to 80% of its heating needs, replacing heating oil.

- Project Status: Project has been completed, annual reports have been received.
- Energy Savings: 55,175 Gal/yr. fuel oil, & cost savings \$121,135/yr. through fuel displacement and increased system efficiency emissions savings 1,462 tons of CO₂/yr.

Robert Packer Hospital (Bradford County): The project deployed broad range of demand side efficiency improvements including: chiller plant retro-commissioning, replacement of inefficient energy recovery ventilation near end-of-life, and conversion of constant volume to variable volume air handlers.

- Project Status: Project has been completed, annual reports have been received.
- Energy Savings: 4,535,254 kWh/yr., 11,910 Mcf/yr, cost savings \$395,703/yr & emission savings 3,187 tons of CO₂/yr

Westtown School (Chester County): The project upgraded Westtown School's central steam plant to a high efficiency hot water condensing boiler system and converted ten campus buildings (317,000 sq. ft.) from natural gas to electric heating. Additionally, lighting upgrades in Westtown's Lower and Middle Schools, and the Athletic Center was undertaken.

- Project Status: Project has been completed, annual reports have been received.
- Energy Savings: 84,844 kWh/yr., cost savings \$30,740/yr & emission savings 54.72 tons of CO₂/yr

Aria Health System (Philadelphia County): The project installed a new 1.1 MW combined heat and power system at the Torresdale Campus, the largest hospital in the Aria Health Systems group of three hospitals.

- Project Status: Project has been completed, annual reports have been received.

- Energy Generated: 7,559,475 kWh/yr.

Elizabethtown College (Lancaster County): The project installed a 2 MW ground-mounted solar photovoltaic (PV) array on campus owned property.

- Project Status: 95% completed.
 - The solar construction was completed in 2016; however, due to a heavy snow load, some portions of the solar racking was damaged. The solar project is functioning (generating electricity), but because of the damaged racking, the grantee (Community Energy, LLC. DBA Elizabethtown Solar, LLC) has not made a final payment to its contractor. In turn, DEP has been unable to make a final payment to the Grantee.
 - The grantee is working on a schedule for repairs to reinforce and replace the damaged racking. This activity should take place over the fall of 2019, with final payment and closeout before winter 2019-20.
- Energy Generated: 3,268,408 kWh/yr. & emission savings 1,439 tons of CO₂/yr

Knouse Foods Co Op (Adams County): The project was provided grant funding to install a 1,200 kW Combined Heat and Power (CHP) system at its Peach Glen facility to utilize the biologically derived methane biogas to generate electricity, steam, and hot water to support Knouse Foods' on-going operations.

- Project Status: Project was completed, and awaiting receipt of the one-year follow up annual report
- Anticipated Energy Generated: 9,498,016 kWh/yr. and 23,086 Mcf/yr. Estimated reduction of >1,600 tons CO₂/yr.

Hydro Green Energy (Allegheny County): The project will result in the design and the deployment of a 5.2 MW low environmental impact hydropower facility at the U.S. Army Corps of Engineers Braddock Locks and Dam on the Monongahela River.

- Project Status: 30% completed. Geotechnical drilling and analysis are complete and made significant progress on PPA. The project is behind the original period of performance schedule due to hydropower licensing time frames. An extension has been granted and the new project completion date is March 31, 2022.
- Anticipated Energy Generation: 32,263,000 kWh/yr. & emissions savings 13,163 tons of CO₂/yr.

Constellation New Energy (Montgomery County): The project installed a locally-manufactured UltraBattery®; a hybrid lead acid battery device containing an ultra-capacitor to be placed in Aqua's Upper Merion Water Treatment Plant and act as a reference project to provide increased grid stabilization and power resiliency at the water treatment plant.

- Project Status: Project has been completed, annual reports have been received.
- The Project Goal was to demonstrate the installation of a battery and ultra-capacitor which could provide frequency regulation, via storage and dispatch of electricity while increasing resiliency. The results of the project were successful.

Clean Alternative Energy Projects:

Alcoa Inc. (Westmoreland County): The project successfully built and tested an innovative system to recycle deactivated electrolyte from the Alcoa Al-air battery system.

- Project Status: Project has been completed, annual reports have been received
- The project goal was to increase the commercial viability of the use of the Al-Air battery in extending the range of electric vehicles, and to reduce gasoline/diesel use. Following successful commissioning of the system, a series of trials were conducted. The results of these trials demonstrated that the energy requirements for large-scale deployment outweighed the environmental benefits; consequently, the project was concluded in June 2017.

Interstate Building Materials Inc. (Luzerne County): The project included the acquisition of equipment, as well as job training to increase production capacity to support new production lines for development and production of window and door products with insulation values more than two times as efficient as current commercial products.

- Project Status: Project has been completed, annual reports have been received
- The project goal was to increase energy efficiency in building and reduce heating and cooling loads through the deployment of highly insulated building products. The grantee successfully expanded their energy-efficient window system manufacturing capabilities and continues to manufacture best of breed energy-efficient composite window systems.

J.V. Manufacturing Company (Allegheny County): The project resulted in the construction of dies, which are used to create the component parts in the manufacturing process for fuel cells. The project output increased production of fuel cells by over 30%.

- Project Status: Project has been completed, annual reports have been received.
- As of April 2017, 282,733 fuel cell anodes and cathodes had been manufactured.
- Manufacturing of parts to contribute to a 20 MW increase in fuel cell deployments.

Summit Steel & Manufacturing, Inc. (Berks County): The project developed a solar photovoltaic panel mounting system called Solstice High Profile, which will reduce overall installation time and costs which are not possible with conventional mounting systems.

- Project Status: Project was completed in October 2017, annual reports have been received
- The project goal was to fill the need in the marketplace for a low-profile ballasted mounting system which could be installed in areas such as landfills or brownfields.

Duquesne Light Settlement Funding:

AIM Ventures, LLC: The project installed a 30.21 kW ballasted PV system on a privately-owned building in the Larimer neighborhood of Pittsburgh.

- Project Status: Project has been completed, annual reports have been received.
- Energy generated 34,632 kWh/yr. & emissions savings 14 tons of CO₂/yr.

Allegheny County (Allegheny County): The project was to insulate high volume steam traps and monitor performance of the steam system in four County buildings using a Carnegie-Mellon University developed technology, Smart Jackets.

- Project Status: Project has been completed, annual reports have been received.
- Energy savings 7,405 Mcf/yr. & emissions savings 450 tons of CO₂/yr.

Borough of Monaca (Beaver County): The project installed a 55.80 kW ground mounted solar array.

- Project Status: Project has been completed, annual reports have been received.
- Energy generated 60,166 kWh/yr.& emissions savings 25 tons of CO₂/yr.

Community Environmental Initiative (CEI) Project (Northumberland County):

Northumberland County: The project installed a boiler upgrade for the Careerlink Building, home to several state and local agencies which directly service low to moderate income persons in Shamokin, resulting in 30% greater fuel use efficiency.

- Project Status: Project has been completed, annual reports have been received.
- Energy savings 762 Mcf/yr. & emissions savings 46 tons of CO₂/yr.

Terminated Projects:

Three projects were withdrawn prior to grant contracting:

Juniata Solar Partners – Juniata Solar Partners, LP proposed to install a 2.3 MW solar PV located array located on the main campus of Harrisburg Area Community College (HACC), and at HACC's Midtown Campus. The project was to consist of various solar mounting systems including; attached and ballasted roof mounts, ground mount and solar parking canopies. The project was withdrawn in August 2015 due to Juniata Solar Partners and HACC being unable to reach an agreement to complete the project as proposed.

Advanced Technologies & Land Services – The proposed project was to result in the installation of a 1 MW photovoltaic array on a sustainable tree farm. The project was to be grid tied using a power purchase agreement with the farm, community, and Armstrong School District. The project was withdrawn in the 1st quarter of 2015 due to a number of obstacles and availability of school district resources to purchase the power.

Solar Secured Solutions LLC – The proposed project was to result in the development and production of a cost effective solar-hybrid mobile high intensity LED illumination system for use in emergency relief, mining, construction, oil, gas or other industrial applications. The proposed units could be sold without the lights as back-up power for emergency relief including communications, traffic applications, pumping and other vital infrastructure requirements, replacing traditional diesel power. The project was withdrawn in May 2015 due to the inability to commit to the project within the contracting period.

Four were terminated after contract execution without expenditure of funds:

Nicholas Meat, LLC – Nicholas Meat proposed to install an anaerobic digester system to more effectively manage the wastewater flow, control odors and produce biogas to offset propane purchases for hot water heating and steam production (278 gallons daily; 101,470 gal per year). This digester system was intended to anaerobically treat a total of 36,500,000 gal per year of waste water from the meat processing facility and as much as 7,600 tons of food wastes. This grant was terminated by DEP in September 2016 due to the grantee's inability to complete the project within the period of performance, as well as ongoing environmental compliance issues.

Blue Mountain Resort Management LLC – Blue Mountain Resort proposed build a 2MWe CHP project to expand operations including the development of an outdoor water park and hotel. The economic viability of this project was dependent on a new pipeline and using natural gas both directly and to power a 2 MWe CHP system to generate low cost electricity. The grantee requested termination of the grant in June 2016 due to the pipeline construction, upon which the project depended, being postponed.

Community Energy Solar LLC dba Marywood Solar LLC – The proposed project was to develop a 1 MW-AC solar energy generating facility located on the Marywood University campus in Scranton, PA. The project was to be constructed on land owned by Marywood University and interconnect into Marywood's campus power system. Energy from the project was to be sold to Marywood through a long-term power purchase agreement and supply up to 50% of campus demand. The grantee requested termination of the grant in December 2015 due to further financial analysis as well as technical and commercial risks associated with the project.

PA Solar Park II, LLC - PA Solar Park II was a proposed 10 MW AC solar PV facility to be located in Nesquehoning Borough in Carbon County, Pennsylvania. The project would have generated over 14,000 MWh of emissions-free and renewable electricity per year. The project was expected to be able to generate enough electricity to power 1,20 US homes for a year and avoid about 9,700 tons of CO2 emissions. The grant was terminated by DEP in November 2017 due to the grantee's inability to commit the additional fund necessary to complete the project within the period of performance.