

Warwick Central School District

Solar Power System Energy Savings Performance Contract (ESPC)



Implementing a district-wide sustainability program can be a daunting challenge when balancing educational and operational requirements and the preservation of the district's capital budget. In an effort to achieve all three, the Warwick Central School District chose to pursue an Energy Savings Performance Contract (ESPC) with the energy experts at RWE Clean Energy.

RWE Clean Energy developed an innovative, long-term sustainability solution by designing and installing a 2.4 MWdc/1.8 MWac ground-mounted solar generating facility. The RWE Clean Energy team delivered a project that provided sustainability and educational benefits without any capital outlay.

The solar generating facility was installed in an open field south of Sanfordville Elementary School, and the kilowatt-hours (kWh) that are generated reduce electricity costs, through Virtual Net Metering (VNM) for the rest of the sites in the School District.



PROJECT DATA

LOCATION

Warwick, NY

SIZE

One 2.4 MWdc/1.8 MWac
Ground-mounted solar power system
Multiple school district sites benefit with virtual net metering

CONSTRUCTION DATES

July 2017 to November 2017

CAPITAL COSTS

\$5,044,034

NET ANNUAL SAVINGS

\$444,321 in energy costs

ENVIRONMENTAL BENEFITS

2,919,000 kWh of annual energy savings or 1,720 tons of harmful greenhouse gas (GHG) emissions reduced annually

- Removing 329 cars from the roads each year
- 13 acres of forest preserved from deforestation
- Preserving 193,505 gallons of gasoline

*Equivalencies based upon U.S. Environmental Protection Agency (USEPA) data.

In New York State, VNM (also known as remote net metering) enables an owner or lessee of a solar generating facility to assign the monetary value of the net metering credits produced by the solar generating facility to other qualified electric utility accounts that: 1) are located on properties that are owned or leased by the owner, 2) served by the same local utility company, and 3) are co-located in the same load zone as the solar generating facility.

The monetary value of the qualified net metering credits are applied to the district's utility accounts, with any excess credit carried forward to future billing cycles. This meant that the school solar generating facility needed to be "right-sized" to offset the cost of the district's electrical accounts, not just the energy usage (kWh) at the host site.

Sanfordville Elementary School became the host site of the district's sustainability program, which also includes a high school, middle school, and other elementary schools. The faculty and students from all of the district's schools enjoy the benefits of the sustainability program through the daily solar energy output from the district's solar generating facility, along with learning experiences provided by the district's sustainability curriculum.

The monetary value of remote net metering credits depends on the local distribution company's tariff assigned to the solar generating facility. In the case of Warwick, a rate of \$0.1627/kWh for the first year of performance (FY2018) was established---with a 2% escalator thereafter for 18 years.

The solar generating facility includes a mounting system, wiring, conduit, inverters, data acquisition system (DAS), and a weather station for M&V purposes. It also includes an equipment pad with switchgear and a utility-required disconnect switch. The PV module is a 72-cell monocrystalline module with a power output range of 330-355W at an 18.3% efficiency level and 0-5W power tolerance. The inverter configuration is a string inverter type with a total quantity of 72 units.

Based on an amortization schedule, the district will have a total cumulative cash flow of more than \$5.52 million over the life of the solar generating facility, conservatively estimated at 18 year, with a first year net annual energy cost savings of approximately \$444,300.

