

ARTESIA PUBLIC SCHOOL DISTRICT

www.energyctrl.com

RENEWABLE ENERGY SOLUTIONS

Energy Control Inc. (ECI) created a detailed study of the Natatorium to determine the feasibility of a solar project. This included the review of the facilities energy consumption, projected project cost, existing and new equipment useful life, and the return on prospective electric generation.

The project uses a solar thermal system on the Natatoriums' roof to provide heat for the swimming pool and an additional photovoltaic array alongside the building to lower the necessity to purchase electricity. Along with energy efficient equipment and system integration, the District now sees reduction in the Natatoriums energy consumption and a substantial reduction in energy bills. The solar thermal heating system alone has cut the Natatoriums' gas consumption by 20%.

ECI represented the district in communication with the Public Regulatory Commission (PRC) for details on the electric generation buyback program. Since this project the PRC has increased the threshold for buyback of power to 80 megawatts of electricity. This further enhances the benefits to the school district in using this renewable source of energy. A built-in meter allows monitoring of solar output by the owner and ensures accurate billing.

ECI designed a state-of-the-art system combining two different types of solar power; photovoltaic and thermal. The thermal solar system uses heat exchangers to heat domestic hot water as well as the swimming pools' water. As make-up water tends to be between 65° to 70° Fahrenheit, it is an all year around project to provide hot water to the pool to maintain an approximate 80° Fahrenheit. The photovoltaic solar system is designed to track the movement of the sun, maximizing solar exposure to produce 10KW of electricity. The combination of both a solar photovoltaic system working in concert with a thermal solar heating system allows the district to realize substantial energy savings.

A Delta Control Direct Digital Control (DDC) System was in place to control the existing mechanical equipment. ECI expanded on the system by engineering additional points and installing sub metering to monitor the electric generation of the solar array. This design/build solar project takes into account maintenance and service; though the system greatly minimizes mechanical equipment maintenance — if the APS staff is not comfortable with the system operation, the savings potential is substantially lessened. Correctly sizing both the solar PV array and the thermal solar heating system was essential for a number of reasons; first of all, ECI needed to be sensitive to the Districts needs as well as budget. Special consideration was given to the roof in regards to utilizing space without compromising longevity.

ECI also installed networked systems; IT convergence, Surveillance and Fire Detection. These Internet Protocol (IP) systems allow for interoperability and access through the Districts' Ethernet. ECI provided the means to easily record video and audio for board meetings and the ability to retrieve it by simple key commands. Surveillance cameras were installed at multiple sites with the added advantage to the staff of monitoring and controlling from anywhere in the District. Additional Fire Detection now allows the 6 stand-alone alarm systems at the High School campus to act as one, uniform system; providing alarms throughout the campus instead of only individual buildings.



A DIVISION OF OPTERRA ENERGY 

Corporate Offices 505 890 2888

2600 American Rd, SE #360
Rio Rancho, NM 87124

Las Cruces 575 521 3104

1401 Don Roser Dr, #E-1
Las Cruces, NM 88011

Using technology to improve the use of energy and create a better environment