



When it came to Solar, Nexus Properties chose Premier Power

Background

Nexus Properties, a leading property development and management company based in Lawrenceville, NJ, owns and operates two 3,000 space parking facilities in Trenton, NJ. The six story parking decks are located on each side of the new multi-million dollar Trenton Transit Center which straddles the New Jersey Transit and Amtrak Northeast Corridor Lines. The parking decks are used by commuters and government workers, including the New Jersey Board of Public Utilities, employed in the state capital office buildings.

Challenge

These high volume parking facilities are often filled to maximum capacity requiring many customers to park on the top decks, which are exposed to the elements. The extra volume of clients has also increased the facility's power consumption by adding elevator traffic, more frequent use of the service facilities, security gates and attendant booths. Along with increased power consumption, the utility rates continued to rise.

Project Overview

Project location Lawrenceville, NJ
System Completion October, 2008
Solar System Type Customized Solar Canopy
Total System Size 402kW-DC

System Configuration

Total number of PV modules used 1,324
Inverters SMA
Hybrid / EV Charging Stations 6
Solar System Tilt 10°
Solar System Orientation 170° South

Performance *

Estimated annual production 467,500 kWh
Total kWh Usage reduced 70% of 2007 usage

Sources:

* PV Watts Solar Energy Calculator

<http://www.pvwatts.org>



Solution

Drawing on their experience of successfully developing clean energy infrastructure projects, Premier Power conducted a comprehensive analysis of the facility’s structural design, parking patterns, electrical systems, and power consumption. Premier Power then assembled their highly regarded multi-disciplinary team of electrical and structural engineers, designers and project managers to offer a well-defined scope of work detailing the design and installation of a solar canopy covering most of the top decks. In addition to providing shelter from the elements, the solar canopies direct rain and snow run-off, reduce the need for salt and ice melting chemicals and make the existing deck lighting more effective. Premier Power’s forward thinking design team then recommended a series of charging stations to accommodate plug-in hybrid and electric vehicles. This enhancement effectively allows environmentally sensitive customers the opportunity to charge their vehicles while they commute, work or shop in the city.

Time Constraints

Recognizing that the project needed to be installed and commissioned within six months from the date of the executed contracts in order to retain a rebate, Premier Power worked closely with the client’s structural engineer to finalize the design and commence work. Special consideration was given to choosing highly efficient PV modules to maximize output per square foot, which in turn reduced costs associated with erecting the steel structure. The work schedule was timed to minimize any closing of the decks to parking customers in order to maintain the facilities’ revenue during construction.

End Result

Today the parking decks’ Solar Canopies are recognized in the City of Trenton and throughout New Jersey as icons of sustainable architecture and clean power generation. The Solar Canopies are estimated to produce 467,500 kWhs per year providing virtually all of the power needed by the facilities - with power left over to charge clean technology vehicles. The project was delivered on budget and commissioned ahead of schedule.

Environmental benefits, annually

Greenhouse gases reduction (CO ₂)	733,409 lbs
Cars not driven60.9 cars
Gasoline not consumed37,760 gallons
Barrels of oil not consumed774 barrels
Railcars of coal not burned1.7 railcars
Offset CO ₂ emissions from electricity use from homes.44.1 homes
Offset CO ₂ emissions from the energy use from homes.29.4 homes
Forest preserved from deforestation.2.3 acres
Avoid greenhouse gases by recycling waste instead of sending it to landfill.115 tons
Offset CO ₂ emissions from propane cylinders used for home barbeque13,861 cylinders

*U.S. Environmental Protection Agency
(<http://www.epa.gov/cleanenergy/energy-resources/calculator.html>)*

