

Light Up The Night With Solar-Powered Light Poles

Eneref Institute examines how solar-powered outdoor LED lighting fixtures eliminates the need for underground trenching wires at Swan Lake Park in Liberty, NY.

Night time is now a little safer at Swan Lake Park in Liberty, N.Y., with the installation of 14-foot-tall solar-powered light poles. Swan Lake Park is one of the first to take advantage of this new technology- solar-powered light emitting diodes (LED) lights that are powerful enough for practical commercial outdoor-area applications. Recreational park crews now can place outdoor light poles anywhere on the grounds without running long-distance, high-voltage underground lines because the lights are powered by the sun's energy instead of being plugged into an electrical grid.

TESTING THE WATERS

Swan Lake is one of four hamlets in Liberty. Years ago, the town was a trendy tourist spot and home to Grossinger's, the famous resort hotel, and the center of "Borscht Belt" comedy acts. While those days are now part of its rich history, Liberty still boasts several town parks and golf courses, including the award-winning municipally owned Swan lake Park, named for the swans that have inhabited the 3 1/2-mile private lake surrounding the park.

The LED lights that brighten Swan lake Park are part of a solar street - light demonstration project co-funded by the New York State Energy Re-

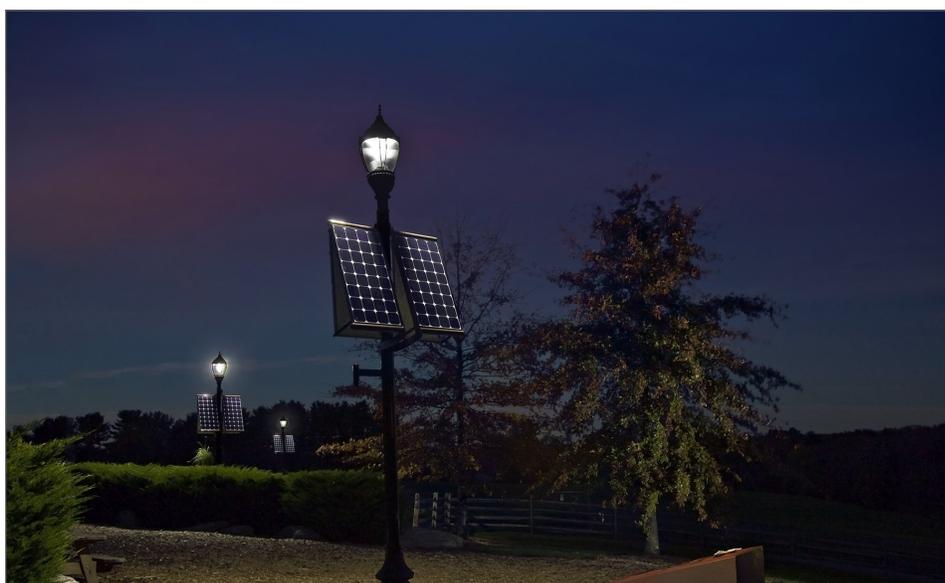
search and Development Authority. The supervising agency of the project is Sullivan Renaissance, a beautification and community development program, principally funded by the Gerry Foundation. "In this rapidly changing world, it is important for municipal government to try out new forms of energy," said Frank DeMayo, Supervisor of the town of Liberty. "Liberty is proud to be included in a solar-lighting test, which we are confident will work to the benefit of our taxpayers, our public and the

environment. This is the way of the future."

HOW IT WORKS

Traditional outdoor lighting commonly employs high-intensity discharge bulbs, such as metal halide, which are bright, but require substantial energy - more energy than small solar panels can generate. The new lighting system- manufactured by SolarOne Solutions of Framingham, Mass - uses solar-powered panels, which are made up of photovoltaic cells that produce electricity from sunlight. New advances in LED, a semiconductor that converts electricity into light, have only recently made the lights viable for many outdoor, general illumination applications.

DeMayo said he noticed the bright white color in a test run of the fixtures to light up Swan lake. "We liked them in terms of the color. We liked the white light- more halogen looking - it's



Energy Stars: SolarOne Solutions offers LED lighting powered by photovoltaic cells instead of electricity. And unlike conventional lights, solar-powered unit installation requires no trenching.

very effective.”

Another unique feature of the fixtures is the SO-Bright Technology, which ensures the lights are always on, regardless of cloudy, sunless days or long winter nights. How is that done, particularly in the northern latitudes where winter can pose a challenge for solar-powered lighting? SO-Bright Technology actually captures more energy from the solar panel in winter months, while providing additional runtime through sunless periods. The

like fluorescent bulb, LEDs are fully dimmable and have no ballast, requiring maintenance.

Additional economic benefits of installing an outdoor solar-powered lighting system are tremendous. For instance, labor and material costs associated with underground wiring are eliminated. After the initial cost, the energy from the sun is free. Various tax credits are available from local, state and federal government agencies. Solar-powered lights eliminate electrici-

On the greener side, LED lamps contain no mercury, glass or filaments, and produce no infrared or ultraviolet radiation. They have low-energy consumption and a long service life. Unlike fluorescent bulb, LEDs are fully dimmable and have no ballast, requiring maintenance.

system is required to work through extended night hours, and has fewer daytime hours to collect and store energy.

THE PERKS

SolarOne Solutions recently won the award for best new product design during the Light fair tradeshow in New York, the largest lighting show in the country. The product was recognized for its small solar panel size, its unique style and its overall reliability.

For parks and recreation administrators, one of the most obvious design features is its versatility- the lighting systems can serve a range of outdoor applications, including pathways, sidewalks, parking lots and bus shelters. In addition to parks and recreation areas, the lights are also installed on college campuses, in government laboratories and in municipalities.

On the greener side, LED lamps contain no mercury, glass or filaments, and produce no infrared or ultraviolet radiation. They have low-energy consumption and a long service life. Un-

ty bills, are highly durable, and are virtually maintenance-free. In 2006, the U.S. solar energy industry saw record growth as a result of rising energy prices as well as increased federal funding for local, safe and clean alternatives.

And unlike traditional electrical generation, solar power is clean because it burns no fossil fuels. Power plants that burn fossil fuels are responsible for two thirds of the sulfur dioxide, a quarter of the nitrogen oxide and almost half of the human-produced carbon dioxide emissions that result in smog, acid rain and global warming.

AN EXPERIMENTAL VICTORY

At Swan Lake Park, six solar-powered street lights will be installed. The community wanted fixtures that would enhance the beauty of the park, provide safety, and be dark-sky compliant. The fixtures employ round strings of small LEDs, providing an attractive, uniform light. The LEDs themselves are housed inside a Hadco Lighting fixture that recalls the classic beauty of street lighting from the early 20th century. The fix-

tures are capable of handling extreme weather conditions. The solar panels add a decorative touch where banners are often placed on the pole, and offer the clearest possible message that Swan Lake Park is going green.

Beyond the environmental advantages of the solar-powered lighting system, the community is enjoying the obvious benefits as well as the obscure ones. For example, illuminated pathways attract pedestrians to designated walkways, which make it easier to patrol areas at night and reduce accidents. And without underground cabling restraints, lamps can be positioned with great flexibility, creating more usable outdoor space. LED light levels are infinitely adjustable, and the white light provides greater visibility without over-lighting or the light's trespassing into the night sky. DeMayo particularly liked that the stars were not washed out by the lights, "The lights are very directional. There is no light pollution."

For DeMayo, installing solar-powered outdoor lighting is as much about the green benefit as it is about enhancing safety in Swan Lake Park. Still, the most exciting benefit the light poles offer may be that this is the nighttime answer many recreational areas have been seeking- lighting areas of the grounds far away from the electrical grid. Now, light placement is limited only by a park's imagination. ●



This article is an excerpt of the future Enerref report which assesses the impediments to building zero-energy urban communities in the US. A companion film documentary, The Enerref Project, will seek to demonstrate to key decision-makers how zero-energy communities can be commercially viable.