

## **Dan Carazo's Solar Snake Tray Case History 10-4-2010 Final**

*Interviews: Roger Jette of Snake Tray, Charles Hoyler of Charles J. Hoyler Electrical Contractor, Jerry Flaherty of Electrical Inspection Service, Daniel Palmer of CED GreenTech*

### **Leaving the Grid Behind**

#### **Manufacturer of electrical products uses solar energy to power company's production -- and growth**

In 2009, despite the recent economic recession, the U.S. solar industry grew by more than thirty percent, and projections by the Solar Energy Industries Association have called for continued strong expansion for 2010 and beyond.

According to Clinton Porter, government affairs, sales and marketing specialist for KACO, a leading producer of solar inverters, the U.S. solar industry has averaged approximately twenty-five percent annual growth over the past three years.

One of the more recent solar energy projects that has contributed to that growth was the decision by Snake Tray, a designer and manufacturer of electrical and communications cable management and power distribution systems to install a roof-mounted solar system that would in essence remove the plant from the power grid.

Snake Tray's embrace of solar energy is a great example of an industrial company that has long prided itself as a producer of green electrical solutions taking the next step by powering its own facility via a commercial-grade solar array.

Still, it was not an over-night snap decision for Snake Tray to become Long Island's largest commercial solar installation to date. In fact, it took two years for the company's ownership to make the move.

In 2008, faced with ever-increasing business costs, Roger Jette, President and founder of Snake Tray, was nearly convinced to uproot his electrical product manufacturing company from its Bay Shore, Long Island, New York location and move the company to Georgia.

However, instead of heading south in order to reduce his business operating expenses, Jette decided to take a novel step. By investigating how best to power the entire Snake Tray production facility through its own renewable energy system, Jette determined he could save the company a significant amount of money. Enough to keep Snake Tray in New York.

Initially, Jette looked into constructing a wind turbine power generation system on his plant's property. "Approximately a year prior to construction we did a two-phase due diligence process beginning with a look at both solar and then at wind generation," explained Jette.

While Jette acknowledged that erecting a windmill next to the plant would have looked very sexy and hi-tech, Snake Tray's engineering team found it easier for the company to select a solar energy solution.

"In order to maximize the power generated, the windmill would have to have captured more wind and that required a 156-foot high turbine tower," said Bob Renz, Director of Manufacturing for Snake Tray.

Following months of development that included having the local town government revise the code for industrial-zone turbines, Snake Tray's due diligence steered the company toward solar energy. As it turned out, solar provided a better balance between Snake Tray's needs and the local utility's summer load requirements. That shifted attention from the planned wind turbine installation to solar panels, which were ideally suited for installation on the plant's flat roof.

By August, 2010, when Snake Tray's newly installed solar energy system went on line, Jette was convinced the green photovoltaic (PV) installation was the ideal solution. The solar panel system is projected to generate ample power to deliver all of Snake Tray's energy needs while trimming the company's utility bills enough to pay for newly hired employees -- even in the midst of the current economic recession.

"We looked seriously at moving our company to a lower-cost, lower-tax state," said Jette. "But by installing our own roof-mounted solar power system we expect to self-generate one hundred percent of the company's electrical load on sunny days, and even sell energy back to the utility. And by defraying our operational costs this solar installation is helping us to minimize the impact of rising taxes."

An unexpected benefit from the move to solar are the new products Snake Tray designed initially for the company's project. After solving its own needs, Snake Tray decided to market its newly designed ballasted, all-weather solar panel mounting racks, Solar Snake Racks®, and Solar Snake Tray®, a revolutionary weatherproof, hand-bendable cable conveyance quickly installs to support DC circuitry from the solar panels to their terminations.

As a critical consultant on the Snake Tray project, Jerry Flaherty, Chief Electrical Inspector for Electrical Inspection Service, has seen a significant increase in commercial PV systems within the past twelve months. "This year I have inspected eight systems over 50 kilowatts while in past years I might have inspected one per year."

"I advised Snake Tray and the electrical contractor on the type and size of wire that can be used to connect the modules, how the wiring should enter the building, the placement of the equipment, wiring of the equipment and how the PV system can be connected to the building's electrical system," said Flaherty.

Flaherty also emphasized the need for the building owner to seek the advice of a knowledgeable and experienced solar contractor. He pointed out that solar systems are very expensive and can be quite dangerous with voltages frequently approaching 600 volts.

Electrical contractor Charles J. Hoyler was also very involved on the Snake Tray project. Hoyler, a long-time member of the local NECA Chapter and IBEW Local 25 signatory contractor, oversaw installation of AC sub panels, upgraded main breakers to comply with NEC® requirements, and interior DC disconnects along with wiring to the inverters, as well as a 100Amp exterior AC safety switch as required by the local utility.

“Working with an experienced contractor and distributor is very important,” agreed Hoyler. “The technology is changing so fast only those with experience in solar can provide the most current and time-saving solutions.”

“Also poor orientation of the panels can reduce the efficiency of the solar system by as much as fifty percent and code mistakes can cost thousands of dollars,” Flaherty advised.

According to Daniel Palmer, Manager for CED GreenTech Phoenix, the distributor played a significant role in the design of the system for Snake Tray in addition to supplying the photovoltaic modules and inverters.

Palmer explained that the two major considerations a business owner needs to make when considering alternative energy solutions are first, budget allowance, and second, what portion of the utility bill they seek to reduce. Once these two things are known then the size of the system can be determined, where it will make the most sense to be physically installed, and what the payback period will be on the system investment.

“On this project our biggest hurdle was assuring ourselves and Snake Tray that we were properly sizing the system based on the building’s available real estate and the amount of utility consumption we wanted to eliminate,” said Palmer.

One major consideration many commercial solar customers fail to investigate early on is what other energy-efficient measures could they utilize in order to help them reduce the size – and cost -- of their planned solar system installation.

“We will go in and review with the building owner additional ways to reduce energy consumption that in turn may decrease how much solar energy they really need to install,” said Palmer.

For Snake Tray, the two-year odyssey that began with a fact-finding trip to consider moving to Georgia, and then included the planned erection of a 156-foot windmill, has now come full circle. The manufacturer’s roof now bristles with the region’s largest commercial solar energy installation. While Jette isn’t sure how long his company will hold this distinction, he is absolutely convinced he made a very smart decision to go with solar energy.

“We are committed to providing our customers with cost-effective green products for cable management and power distribution, and as a company we want to practice green principles in the way we operate,” explained Jette. “Removing Snake Tray from the grid is the first step towards achieving our goals, which include the elimination of our use of gas, as well as installing energy-efficient lighting upgrades.”