

GOING SOLAR at Wetland Studies and Solutions

By Sarah Smarrelli

As the adage goes, it's not what you say, but the actions you take that really show your commitment and dedication to something. At Wetland Studies and Solutions, Inc. in Gainesville, President and Owner Mike Rolband is "walking the walk" when it comes to his company's focus on being environmentally responsible.

Since his company focuses on nurturing and protecting the environment on a daily basis, Rolband has a natural inclination to do things the "green" way. As an all-inclusive provider of water and natural resources consulting services, WSSI works with clients to guide them through the permitting process, creating innovative solutions to water quality issues affecting the Chesapeake Bay region. Since 1991, WSSI's wetland scientists, engineers, and archaeologists, along with their regulatory, survey, and GIS specialists, have consulted on more than 2,100 sites covering 140,000 acres across Northern Virginia.

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— Mike Rolband, WSSI president and owner

When the time came in 2005 to build a headquarters building for his company, Rolband designed the entire office complex to be as environmentally sustainable as was economically feasible, constructing Virginia's first Leadership in Energy and Environmental Design gold-certified facility. By implementing the LEED standards, the WSSI office building reduced potable water consumption by 50 percent, and energy consumption by 35 percent. The building's interior features low VOC/non-toxic paints, as well as furniture, doors, carpet, and other fixtures made from recycled or renewable resources. Outside, an 8,000-gallon cistern collects rainwater that is used for irrigation.

To manage storm-water runoff, the WSSI corporate campus implemented a low-impact development design that mimics pre-development hydrology. The installation of porous parking surfaces rather than asphalt, along with undisturbed vegetation surrounding the building, helps maintain natural water flow and reduces downstream degradation, preventing harmful runoff into the Chesapeake Bay. Also crucial to the LID effort is the building's 3,600-square-foot green roof with a variety of vegetation that helps capture rainwater

and decrease runoff. In recognition of their environmentally sensitive facility, WSSI received the 2010 Governor's Environmental Excellence Award, which encourages the promotion of green initiatives and conservation in the Commonwealth.

Virginia's Largest Solar System Installed

Rolband's commitment to making his building as "green" as possible didn't end after construction, as he continues to look for retrofits and upgrades to improve the environmental footprint of the facility. In 2008, a 4,000-gallon cistern was installed in the building's warehouse area to collect rainwater from the roof. It now supplies nearly 100 percent of the building's flushable water.

The most significant add-on project so far is the installation of Virginia's largest solar photovoltaic system, which now generates 21 percent of the power needed for daily operations at WSSI.

Through a unique partnership with TPC Solar, L.C. (a subsidiary of The Peterson Companies), WSSI installed a roof-top solar system that has been producing electricity since late January 2011. The 105.82-kilowatt system was provided on a turnkey design-build/lease basis by TPC, and installed by Astrum Solar, Inc. Using a combination of private



A total of 572 solar panels installed on the WSSI roof supply nearly 21 percent of the facility's monthly energy supply.



Solar panels nearly fill the roof of the WSSI office building on Wellington Branch Drive in Gainesville. Also note the green roof space on the left side of the building.

financing, federal tax credits, and a Virginia Department of Mines, Minerals, and Energy grant, allows TPC Solar to lease the system to WSSI at the same cost they would be paying NOVEC for electricity, making it a break-even deal.

"We are very excited to have this additional environmentally beneficial feature at our facility. Solar is something we dreamed of but could not afford in 2005 when we built our office," says Rolband. "The tax credits and grant dollars made the project feasible and thanks to TPC Solar and NOVEC we were able to achieve this goal."

NOVEC Lends Technical Support

When Rolband first got the idea to install a solar system in the summer of 2010, he turned to NOVEC for technical advice on a grant he was applying for to fund the effort. "NOVEC was so eager to help guide me through the steps in applying for a USDA grant," says Rolband. NOVEC's Gil Jaramillo, manager, business development and energy services, accompanied Rolband on a visit to Richmond to help navigate him through the grant application process. Despite being turned down for the USDA grant, the technical legwork done by NOVEC was crucial to the MME grant that was later secured by TPC Solar.

During the original grant preparation, NOVEC Senior Account Representative Renee Barr, who is a professional engineer and certified energy manager, provided review of the project's feasibility study.

Even after installation NOVEC remains involved with the project, since the excess electricity produced by the solar system that is not used internally at WSSI's facility is fed back into the Cooperative's power grid. A special bi-directional meter monitors and records WSSI's electricity production and consumption in 15-minute intervals and provides daily statistics on each variable. This net-metering system produces a monthly bill that reflects the difference between how much power WSSI uses and how much power is sent to the NOVEC

grid. In the first two months of service, the solar system sent approximately 14,000 kilowatt-hours back into NOVEC's system, while the WSSI facility consumed nearly 89,000 kWh.

Environmental Example

As the first of its kind for the state of Virginia, WSSI regularly gets requests for tours of its LEED building. With the addition of solar power capabilities, the facility also serves as an example of innovation and dedication to using technology to benefit the environment. Always thinking of additional green features to add to the building, Rolband commented, "We are excited to see how the system performs. If it proves to be economically feasible, I may install more solar panels."

WSSI Photovoltaic Solar System Facts

System Size: 105.82 kW

Components: 572 Suntech 185 Watt Black Label™ panels;

572 TIGO® Energy Module Maximizer™ panel optimizers;

Aluminum mounting racks and concrete block ballast;

Satcon® PowerGate Plus 135 kW inverter, which converts the power from direct current (DC) to alternating

current (AC), which is used in the building as well as in all homes.

Warranty: 25 years

Expected Life: 30-50 years

Estimated Annual Power Output: 123,627 kWh

Annual Building Demand: 580,000 kWh

Percent Supplied by Solar: 21%

Solar panels: 62.2" x 31.8", 34.1 lbs each (72 5"x5" Solar Cells per Panel)