

Sunday, October 1, 2006

Maker's panels harness sun to generate power

By Craig Wolf

Poughkeepsie Journal

Atlantis Energy Systems in the Town of LaGrange may be one of the most unusual suppliers of building materials in the nation. They make "glazing," an architect's term for glass, but what's unique is that their stuff generates electricity, too. Atlantis makes custom pieces that have been installed in buildings around the nation and world where the owners want to harvest some electricity from the sun. Atlantis' bent for innovation is one of the key reasons why it won this year's Business Excellence Award in manufacturing from the Dutchess County Economic Development Corp. "Building-integrated photovoltaic" systems are what Atlantis makes. This is different from the usual solar stuff, which consists of panels mounted to catch the sun.

In the integrated approach, the solar-power cells are built right into the glass, laminated like a sandwich. The finished piece becomes part of the building, serving a second function, such as roofing, shading, window glass or whatever an architect can devise. "We make what the architect wants," said Carl Sitler, plant manager. The company, whose president is an ex-IBMer, Frank Pao, set up shop here in early 2004 and employs about 14 people. Extra help is brought in when production peaks, Sitler said. Gordon Rutherford, who works for the economic development agency and helped bring in Atlantis, nominated the company for the award. Atlantis, he said in his nomination form, "is an innovator in the manufacture of building materials that generates pollution-free energy from the sun, and it is committed to strengthening Dutchess County's work force and community." What's coming up next should help grow the company here. Sitler said "solar slates," trademarked as Sunslates, will be made in the local facility. They're presently made in another factory. A new design that is being developed and tested will go into production here, Sitler said. More equipment is needed and planned for that. The product is based on a cement composite tile that looks much like a large roofing slate. Mounted on this tile is an array of solar cells, covered in heat-strengthened glass. The tiles overlap to create a watertight roof covering while the wiring links up to feed an inverter that sends power into the building's electrical system. Panels customized Atlantis has a few standard products, too, but Sitler said the emphasis is not on those, but on the custom panels that are made to each customer's specifications. For example, Atlantis is making a series of glass window panels, each of which has only a few solar cells carefully placed into a pattern.

This project, bound for Kankakee Community College in Illinois, shows how the product can be used as a decorative accent. Other arrays have lots of cells and some clear glass, serving as shading while producing a higher level of power. Such panels begin with a design, followed by stringing together cells in the required pattern. The cells are laid out on a sheet of glass, covered with a clear bonding sheet and then another layer of glass. This goes into a huge laminator that presses the solar sandwich together and applies heat to seal it. The laminator allows plates as large as 6.5 by 11.5 feet to be fused into a single,

massive unit. Plant Manager Martin Nugent said it's believed to be the largest such unit in the nation. Finished units go to a testing station where an array of bright lights simulates full sunlight to be sure the electricity is working. Sitler said the industry's rapid expansion is stressing the supply of the basic component, silicon-based photovoltaic cells, and that the company is working on expanding its options for supply.

"Cells in general are very hard to get," he said. "The growth of the industry is just going out of sight."

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Atlantis Energy Announces Purchase of New PV Laminator

Atlantis Energy's new laminator will be the largest in the world. Photon Magazine, that tracks the solar industry, describe the new system as "the champion" It is .36 meters square larger than the next largest. The new system has a horizontal bed allowing modules up to 3600mm x 2050mm. Uniquely, the system has temperature variations of less than 2° Centigrade. The new laminator will allow fabricating large custom PV glazing panels , cutting costs while allowing architects more digression.

While a world-class laminator, it is more. It is an entire lamination line consisting of four-parts as PV industry magazine Photon Magazine describes it in their August 2003 market survey of laminators,

" In the first step of the process, laminates are placed manually or automatically on the take-up table. After take-up, everything is fully automated...the module then enter the laminator, whose cover moves up and down on a four-point lifting system, a time-saving and increasingly popular design that is much superior to laminators with fixed hinge covers. Small robots are used to automatically load, transport and unload the laminates, which finally enter a cooling tunnel and then reach the unloading table. The units diaphragm presses the laminate during the cooling process."



Atlantis Energy Systems had the system custom made by its European partner Swiss Sustainable Systems. The laminator and its production system will be housed in a new plant in Poughkeepsie, NY. The system will be installed in January 2004. The new production facility will more than quadruple production of the pilot plant located at Exmore, Virginia giving the company a 10 Megawatt capacity.

Atlantis Energy produces the SUNSLATES roofing system. The company also custom

fabricates photovoltaic glazing panels. Current projects include the Cal Trans Building in Los Angeles, California, Como Park center in Saint Paul, Minnesota and most recently the White Hall Ferry Building facade in New York City.