

A stunning array

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It's the perfect example of real world learning: client has problem, client seeks help with problem, student helps resolve problem and saves client money.

In the case of the Mount Laurel Municipal Utilities Authority and graduate engineering student Ulrich Schwabe, the problem was hardly academic.

The M.U.A., faced with ever-rising electricity costs, sought a reliable, renewable energy source to power some facilities and they needed to move on the project fast. Federal stimulus funds were available for "green" power projects, funds that could cover as much as half the cost of a project, but the deadline to apply for them was fast approaching.



So officials from the M.U.A. turned to Rowan for help. Schwabe, a second year graduate student in the College of Engineering, helped produce a preliminary design and feasibility assessment for a photovoltaic field that enabled the authority to qualify for grants and loans and, ultimately, build a solar-powered energy source. From start to finish, the project was conceived, designed, funded, built, and online within a year.

"It's a pretty innovative system," said Schwabe of the .5-megawatt solar field, powerful enough to run 130 homes that went online in July.

The system, built on property already owned by the M.U.A., powers one of the authority's 39 pumping stations and a freshwater well. Energy to run those facilities last year cost about \$150,000, which the new solar field will now cover, and it makes additional juice that the M.U.A. has already begun selling back to electric suppliers.



Schwabe discusses solar array with M.U.A. officials.

"We don't always use the maximum amount of energy it's producing and, when we don't, it goes back out to the grid," said M.U.A. operations engineer Robert Adler.

Executive director Pam Carolan said the solar array could continue to produce electricity for 30 years or more, helping to offset the cost of running the pumping stations, a drinking water treatment plant and a sanitary sewer plant that serves some 44,000 residential and business customers.

“This is a long-term investment but we expect it to return on that investment for a long time to come,” Carolan said.

Schwabe, who has finished his coursework in the graduate program and will soon present his thesis, said his work with the M.U.A. was an affirmation of sorts. He recently took a position with ALENCON Systems, a Plymouth Meeting, Pa., company that makes and sells multi-megawatt inverter systems for huge commercial solar arrays. The company was founded with seed money from Henry Rowan, the university's benefactor who, in 1992, gave \$100 million to then-Glassboro State College in what was then the largest private grant ever to a public college or university.



“For engineers this type of work is very satisfying,” Schwabe said. “There’s a sense of accomplishment, of knowing you built something of use to the world. That’s what engineering is all about.”