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Poultry Processor Chooses Clean Solar Thermal Power

By Jennifer Hill, Staff Writer, Novogradac & Company

Under a tight deadline to begin construction last year on a solar thermal system for a poultry processing plant, North Carolina-based FLS Energy received construction funds at the end of September, strove to find American-made steel pipe and solar panels to start construction in October, and activated the project's first two phases in December. The construction timeline put the Prestage Foods project safely within the qualification parameters for a Section 1603 cash grant in lieu of renewable energy investment tax credits (ITCs).

But the solar developer wasn't hurrying to meet the Section 1603 program's construction deadline. On the contrary, FLS already had an investor lined up to monetize the project's ITCs. The company's main concern was staying ahead of competing energy sources, including natural gas. "As we were developing the project there was talk of a natural gas line running to the plant," said Joanna Baker, FLS's marketing manager.

"They couldn't have the lag time waiting for the grant; they needed capital immediately," said Jim Howard, CEO of Dudley Ventures (DV), which syndicated the project's federal ITCs through one of its renewable energy tax credit equity funds.

Solar thermal and natural gas were both attractive energy options for Prestage Foods' St. Pauls, N.C.-based turkey processing plant,

which uses 150,000 gallons of hot water per day for sanitation. Prestage's prior and sole source of energy for heating the water was liquid propane (LP), one of the most expensive heating fuels on the market. With volatile LP prices and rising feed costs, the company looked for ways to reduce its energy costs. "When weighing their options, we were able to give them an extremely competitive price on their energy. That's an indicator of how economical solar thermal is," said Dale Freudenberger, president of FLS Energy.



Photo: Courtesy of FLS Energy

FLS Energy's solar thermal system converts solar energy into heat energy, which is then used to heat water in 10 on-site insulated storage tanks with a combined 225,000-gallon capacity.

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Photo: Courtesy of FLS Energy

Prestage Foods estimates that the solar thermal system, which became fully operational in March, will reduce by 250,000 gallons the liquid propane it consumes to heat water for sanitation.

With the March completion of the project's third and final phase, Prestage's 2,100-panel solar thermal system heats 100,000 gallons of water per day and offsets roughly half of the plant's LP use per year. "We use propane in a boiler that may only be 82 percent efficient," said Michael Pope, Prestage's controller. "But the way we operate now with FLS, we're getting 100 percent efficiency. Every degree we can get from their system into our water is one degree we don't have to use LP gas for."

Each night, every piece of equipment and the floors of the plant are high-pressure washed with water that must be at least 140 degrees Fahrenheit. Ten insulated water storage tanks with a combined 225,000-gallon capacity ensure that the heat generated by the solar panels during the day doesn't escape after the sun goes down. The system is the largest mid-temperature large-scale solar thermal project in the country, according to FLS.

The developer absorbed the upfront project costs, which were in excess of \$10 million, and sells the energy to Prestage under a 10-year power purchase agreement. FLS used a portion of \$12 million in operating funds it received from New Energy Capital to finance the project, along with equity generated from federal and state ITCs. DV found the project economics, accelerated depreciation and the federal ITC a perfect fit for one of the renewable energy funds it manages. Stonehenge Capital invested in the project's state credits. "We have a history of using tax credits on our projects and not 1603," Freudenberger said, noting that applying for the grant and finding a bridge lender can be a lengthy process. The faster FLS can find equity, the further it can stretch its construction funds to undertake more projects.

Although FLS's decision to forego the Section 1603 grant may seem like an anomaly in today's market, Howard said the Prestage project foreshadows a tremendous demand for ITC equity.

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"As soon as the Section 1603 grant activity subsides there will be a huge development demand for monetization of investment tax credits – more than the investor base for that capital will be able to meet," Howard said. "We expect it to be an investor's market, at least at the outset." ❖

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