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Solar Flexes

L.A.'s alternative energy industry showing some muscle

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Los Angeles has long basked in its sun-kissed reputation as a place where innovation and novelty flourish – but that hasn't translated to one industry that would seem logical: solar power.

While trendy Hollywood celebrities have made headlines by installing solar panels on their roofs, the San Francisco Bay Area with its ties to Silicon Valley has quietly charged into the lead in an industry seen as critical to the nation's energy future.

However, there are signs L.A.'s solar industry is finally taking advantage of the area's natural bounty of sunlight.

Amid a rise in energy prices and increased demand from utilities under pressure to buy more alternative power, solar companies are establishing outposts here. The few local players in the market are seeing business heat up as well.

"The company is doing extraordinarily well," said Randall MacEwen, chief executive of Solar Integrated Technologies Inc., a Cerritos-based developer of solar roofing systems that has seen business double over the past year. "And you're seeing growth rates in the solar sector of 40 to 50 percent."

Los Angeles, with a relatively limited solar manufacturing base, currently does not rank among the country's top solar power markets. But the county is awash with small players, including installers and developers.

Solar Integrated has been one of the higher-profile companies given that one of its founders was former Assembly Speaker Robert Hertzberg. But there are others, such as SolarReserve, a Santa Monica company that eschews the traditional means of capturing solar energy – silicon-based photovoltaic cells – and has developed a technology involving molten salt and turbines.

These companies are seeing increased interest both from individual customers and utilities. With researchers at UCLA, USC and Caltech working on advancing the state of solar technology, the future could see the establishment of startups through the tech-transfer process.

"L.A. really has tremendous potential to lead not just the country but the world when it comes to rooftop solar," said Bernadette Del Chiaro, a clean energy specialist with Environment California, a statewide advocacy group.



*Randall MacEwen
with solar panels at
his company's South
Central facility.*

Amorphous industry

Still, Los Angeles has a long way to go before it reaches a leadership role. It trails far behind its neighbors to the north, where much of the technological innovation takes place.

Nanosolar Inc., a San Jose-based solar cell manufacturer that has raised over \$100 million in financing, and Applied Materials Inc., a Santa Clara-based maker of equipment used to build semiconductors, are among the major players in the Bay Area solar industry.

“The solar industry is not as well developed in Southern California as it is in Northern California,” said Walter Schindler, founder and managing partner of Sail Venture Partners LP, a Costa Mesa-based venture capital firm that is active in the energy sector. “The primary reason is that many of the existing technologies are tightly interwoven with semiconductor technologies.” According to the federal Energy Information Administration, there were 41 photovoltaic manufacturing companies nationwide in 2006, the most recent year for which information is available. That number was a 41 percent jump from the year prior, but the agency does not break out the statistics by region.

What’s more, there are hundreds, perhaps thousands, of small installers that might only have a couple of employees. Most of the industry’s veterans, however, agree that the local market is picking up.

Hertzberg, the former Assembly speaker and L.A. mayoral candidate, has long championed solar. “The business opportunity is staggering in Los Angeles,” he said.

Solar Integrated designs, manufactures and installs roofing systems that use photovoltaic cells to convert the sun’s rays into usable energy. Unlike many photovoltaic panels that are affixed to roofs, the company seamlessly integrates lightweight panels into the roof during construction. The company has already completed nearly 200 installations for high-profile customers including Coca-Cola, the U.S. Navy and British retailer Tesco. Last year, revenues hit \$80 million, more than double the \$38.2 million in sales recorded in 2006. And its 210-person workforce is expected to jump almost 25 percent in the next few months, said Chief Executive MacEwen.

But while Solar Integrated is one of the bigger solar companies in Los Angeles, only lately has the company begun to do much work locally. Indeed, Hertzberg left the company to become involved in several solar startups in the United Kingdom, where he said business opportunities were more attractive.

The popularity of rooftop photovoltaic panels is still hampered by their exceedingly high cost, which has made the industry’s customers largely the domain of celebrities and the wealthy. A typical residential installation averages \$40,000 to \$60,000, and local incentives and federal credits only cover about half of that cost. Commercial installations can vary widely, but cost considerably more.

However, the industry is not wholly dependent on the federal government. The state has pushed for increased solar use, with the Legislature passing the California Solar Initiative in 2006, which was intended to increase the rebates available to homeowners installing rooftop panels. But the program was nearly derailed early on when the installations ended up costing homeowners more than anticipated, forcing lawmakers to scramble to fix its shortcomings.

Then there is the demand for solar power from utilities. Local utilities generated or bought almost no solar power in 2000, but today about 10 megawatts of energy from the Los Angeles Department of Water & Power is generated from solar sources.

That output still accounts for less than 1 percent of the total energy used in Los Angeles, but the department recently unveiled an initiative that will boost the output to 280 megawatts. That program, part of a larger job-creating initiative announced by Mayor Antonio Villaraigosa, will cost \$270 million over the next 10 years.

In order to generate the energy, the utility expects that it will buy power from small solar power generators, and has been receiving about four new applications a day, said DWP spokeswoman Kim Hughes. “We certainly feel like it is an important part of our energy mix.”

In addition, the City Council is expected to adopt a substantial green building program unveiled last month that would require all large developments to include sustainable elements, including solar panels.

The nascent solar market is also a hotbed for innovation. UCLA researchers last month announced the creation of a technique that will help in the fabrication of low-cost plastic solar cells. The process uses a glue-based lamination process for organic polymer cell fabrication, which could eliminate the need for expensive vacuums that are currently used.

University research – whether at UCLA, USC, Caltech or elsewhere – can provide technology-transfer opportunities for local businesses.

Cashing in

In the meantime, a number of companies are taking advantage of a largely untapped market. Akeena Solar Inc., a photovoltaic panel installer based in Los Gatos, last month opened a branch in Thousand Oaks. Executives cited the area as an attractive location for solar business because the commercial market is already strong and the residential market holds tremendous potential. “There’s a great solar resource in the entire L.A. metropolitan area,” said Bill Scott, executive vice president of sales operations for the company.

Akeena announced 2007 revenue of \$32.2 million – more than 140 percent higher than the previous year.

Santa Monica-based SolarReserve, meanwhile, is taking a different approach to solar power. Unlike traditional photovoltaic panels, which must be in direct sunlight to produce power,

SolarReserve uses an unusual technique to harness the thermal energy of the sun and store it for later use.

The process uses mirrors to focus the sun's energy on a central receiver, which creates heat that is stored in salt. The molten salt, which can be kept for days or weeks in giant containers, is then fed through a device called a heat exchange. That creates steam, which drives a turbine, creating energy.

“We're able to take all of the morning sun and store it and not put it on the grid until there is a requirement for it,” said Terry Murphy, chief executive of the two-month-old company. “For the utilities, that is a big deal.”

The company has a technology licensing agreement with Pratt & Whitney Rocketdyne, owned by Hartford, Conn.-based United Technologies Corp., and SolarReserve expects to have contracts in place in another couple of months.

But the major hurdle – as is often the case with solar technology – is the cost.

The technology must be deployed on a large scale, and a typical energy plant could be a square mile in size or larger, costing upwards of \$500 million, Murphy said. But the application would be to replace entire coal or nuclear plants – not just power an individual home.

“We're talking hundreds of megawatts,” he said. “This is a nuclear plant; we're just using the offsite nuclear fusion plant called the sun.”