

ENERGY: 'Concentrated-Solar' Factory Comes to Poway ***Clean-Energy plant to hire 75 for starters***

By Eric Wolff

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Energy Innovations Inc. builds solar generators that concentrate sunlight 1,200 times, turning a gentle sunbeam into a ray capable of cutting wire. Aimed correctly, the beam will strike a satellite-grade silicon wafer, extracting 29 percent of the sun's power in the form of electricity, almost double that of standard photovoltaic panels.

And these solar generators will be made in Poway.

On Thursday, the company announced the opening of its solar generator factory with visits by Poway Mayor Don Higginson and state Assemblyman Nathan Fletcher, R-San Diego. The company will produce solar panels for commercial and municipal customers looking to reduce their carbon footprint and brace against increases in energy costs by producing some of their own power.

When the factory reaches full capacity, the factory's five production lines will crank out 100 megawatts of its Sunflower solar-concentrating generators, and employ 100 people, 75 of whom will be hired before the end of the year, executives said.

"We produce 30 percent more energy under the same sun than traditional photovoltaic cells," said Joe Budano, the company's chief executive.

Energy Innovations comes to Poway from the Idealab, the Pasadena business incubator that spawned Aptera, the high-efficiency carmaker in Vista; city entertainment site Citysearch.com; and Picasa, Google's photo software.

Since its founding in 2001, Energy Innovations has designed four generations of its concentrated solar generators. Its first "Sunflower" array was a circle of mirrors that focused sunlight on a Stirling engine. The company sold that idea to the German company Infineon Technologies AG, which manufactures the product and recently demonstrated a unit at a San Diego Gas & Electric Co. operations center.

The latest iteration, code-named "Firefly," is ready for its close-up.

The system concentrates energy by focusing sunlight through a thick Fresnel lens, and then focusing it further through "secondary optics," essentially another glass lens whose exact characteristics are the key to Energy Innovations' technology. The beam is focused onto a piece of silicon that converts it into electricity.

"The secondary optics are really our secret sauce," Budano said.

Each production unit holds 30 lens-wafer combinations to generate 270 watts of peak capacity. Ten or more of these units are mounted on a grid structure and hooked up to a computer to track the sun.

Budano wouldn't say how much the system costs, but he said they'd always be equivalent in price to traditional photovoltaic solar panels, yet produce 30 percent more power. He said it would be safe to price the system at less than \$5 per installed watt under some circumstances, which comes to \$13,500 for a 2.7 kilowatt system.

But Budano said he doesn't ever expect to produce a system with so few units ---- the Sunflower is made for commercial operations of 20 kilowatts or more on store roofs or out in the desert.

The company had to leave Idealab when it signed contracts with cities in South Korea and Abu Dhabi, and it needed a real production facility. Poway offered consistent sunlight, well away from the coastal marine layer, and the company got lucky in finding a building whose previous tenant had much the same power requirements. Also, Budano had been telecommuting from his house near Rancho Santa Fe, so now the company is closer to home.

Budano said with contracts in hand, a \$3.5 million low-interest loan from the state of California, and \$5 million in internal investment, the company is in a good place.

"I expect to break even by the middle of next year," Budano said.