SolarEdge uses chip to boost solar panel output

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By Martin LaMonica

Israeli start-up SolarEdge has developed electronics to squeeze enough inefficiencies out of solar panels' wiring to make an array up to 25 percent more productive.

SolarEdge's products include a junction box for solar panels, inverter, and Web-based monitoring software. (Credit: SolarEdge)

The company plans to disclose the details of its technology on Wednesday at the Intersolar 2009 conference in Munich, as well as to announce that German solar installer Gehrlicher will offer SolarEdge's products.

SolarEdge is seeking to address a number of performance problems common to solar power, such as lost electricity production from partial shading or converting direct current to household alternating current in an inverter. The company has raised about $35 million since it was founded in 2006.

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Altogether, electricity loss problems associated with wiring and placement of panels can cut a solar array's output by 20 percent to 30 percent, according to SolarEdge founder and CEO Guy Sella.

The company developed a junction box to be fitted on solar panels with an integrated circuit that fixes the voltage coming off panels. Having a steady voltage eliminates

problems associated with degradations that happen when different panels' performance varies, Sella said.

The junction box is designed to work with SolarEdge's inverter to optimize the conversion of direct current to alternating current. The inverter also gathers data on temperature and output of each panel.

As part of its offering, SolarEdge has a Web-based program for monitoring performance of panels. "We have software that gives you access to all the data so you can analyze your installation and compare panels to their neighbors. It can give you an understanding of any degradation," Sella said.

The company has signed on a few solar companies to test its system, which can be used for both large-scale and home solar panel systems. It is seeking deals with manufacturers so the junction boxes can be fitted onto panels during production rather than afterward, Sella said.

The company's first product is optimized for 3-kilowatt installations, a size suitable for a single home. In the first half of next year it plans to have a version suitable for large solar parks, where a slight improvement in efficiency can have a big financial impact, Sella said. The company expects to sell 25 megawatts' worth of equipment by the end of this year, and Sella expects sales to grow rapidly next year.

There are a few companies, including Enphase Energy and SolarBridge Technologies, which are tackling the lost electricity from panels using micro-inverters. Instead of having one inverter to serve several panels, microinverters are designed to increase efficiency and monitor performance by attaching an inverter to each panel. Sella said SolarEdge's system addresses the same issue but at a lower cost.