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Phoenix Business Journal - April 5, 2010

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# PHOENIX Business Journal

Friday, April 2, 2010

## Solar module failure rates down, but still 'not acceptable'

Phoenix Business Journal - by [Patrick O'Grady](#)

Solar modules are becoming more reliable after a two-year spike in problems stemming from an influx of new products.

Arizona's solar industry could benefit if that trend continues. However, industry officials caution that reliability standards must be established to counter the failure rate, which still is too high.

**TUV Rheinland Photovoltaic Testing Laboratory** LLC, a public-private partnership between Cologne, Germany-based TUC Rheinland and Arizona State University, reports that failure rates for both silicon-based and thin-film modules dropped to more historic norms between 2007 and 2009.

The failures ranged from manufacturing issues to problems with freezing as a result of humidity for silicon-based panels and damp heat with thin films. The number of incidents increased alarmingly between 2005 and 2007 as a number of manufacturers entered the market, said Govindasamy Tamizh-Mani, president of the lab.

"Now it is coming down, but still there are a large number of modules that are failing, and that is not acceptable," he said.

From 1997, when the PTL started tracking the data, until 2005, 50 manufacturers worldwide sent modules to the lab's Tempe facility. Between 2005 and 2007, the number of panel manufacturers jumped to between 250 and 300, Tamizh-Mani said.

That led to failure rates for thin-film modules in some instances of 20 percent out of the box and 70 percent in the field.

Reliability of products that homes and businesses will have on their roofs for 25 years or longer is a must for broad adoption of the technology, local industry officials said.

"You do need good quality control, and you need a manufacturer who's willing to stand behind their product," said Lane Garrett, CEO of **ETA Engineering** and **Dependable Solar Products Inc.** in Mesa.



John Balfour

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Garrett said most panels made today can be used for 30 years or longer. Some manufacturers offer warranties of 15 to 25 years, but that could increase as quality improves, Garrett said

**First Solar Inc.** — which uses modules primarily for utility-scale projects, with a small number flowing to the residential sector — offers a five-year material and workmanship warranty for its thin-film modules, and it guarantees their power level for the first 25 years, said spokesman Alan Bernheimer.

John Balfour, president of **PerfectPower Inc.**, a solar installation company in Phoenix, said the reliability issue remains worrisome with the number of new manufacturers focusing on low-cost modules.

“The trend in the industry is for subprime solar,” he said, adding cheaper products seem to prevail. “When you combine bad modules with bad installations, bad things happen.”

Part of the reliability question is that the U.S. has not set standards for solar module reliability. As manufacturers get a better handle on their products, defects should become less frequent, Tamizh-Mani said.

“It will smooth out, providing there is a monitoring mechanism. Unfortunately in the U.S., there is not monitoring aspect,” he said, adding the U.S. Department of Energy is looking at developing a standard for solar modules.

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