Australian solar cell technology breaks the 20% barrier

Aussie researchers team with Suntech to develop Pluto Technology

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World-class Australian solar research has produced new photovoltaic solar cells that recently broke the 20% barrier for conversion efficiency in capturing the sun's energy, the highest ever efficiency for a low-cost, commercial silicon solar cell.

Suntech's Pluto solar cell production capacity reached 0.5 gigawatts last year. That is enough to power 300,000 average homes that typically have eight solar panels on them for at least 25 years.

Pluto technology, as it is patented, was developed by Professors Martin Green and Stuart Wenham at the ARC Photovoltaics Centre for Excellence in close collaboration with the world's largest solar cell manufacturer, Suntech.

"We recently broke through the 20 per cent conversion efficiency target for solar cells using solar-grade silicon, which many experts thought was impossible, and we've significantly lowered the costs compared to other technologies," says Professor Green from the University of New South Wales.

Professor Green believes this success was earned through deep collaboration with US-listed company Suntech: "We brought our photovoltaic knowhow together with their manufacturing expertise and developed new tools and processes to produce solar cells ten times the size of our lab-scale devices."

Suntech's expertise was particularly important in lowering the production cost of the solar cells. For example, Suntech developed cheaper processing methods that allowed the substitution of expensive silver and titanium materials used in the production of conventional crystalline-silicon solar cells.

"Without this collaboration and its funding through the Australian Solar Institute, Pluto would have remained a lab prototype rather than a commercial reality," says Professor Wenham. "As we continue to refine the Pluto technology and push up the conversion efficiency, we have no doubt that it will capture an increasing share of the global solar market."

International studies predict that the present $100 billion/year photovoltaic industry will grow to well in excess of a $trillion/year as it becomes the major supplier of the world's electrical energy needs.

"While many photovoltaic researchers around the world are focused on the holy grail of higher and higher efficiencies, we believe Pluto technology has struck the ideal balance between conversion efficiency and manufacturing costs to create a truly viable alternative for electricity production," says Professor Green.

The Pluto Technology won a 2012 Collaborative Innovation Award tonight at the Cooperative Research Centres Association conference in Adelaide.

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About Suntech

Suntech Power Holdings Co., Ltd. (NYSE: STP) produces industry-leading solar products for residential, commercial, industrial, and utility applications. With regional headquarters in China, Switzerland, and the United States, and gigawatt-scale manufacturing worldwide, Suntech has delivered more than 25,000,000 photovoltaic panels to over a thousand customers in more than 80 countries. Suntech's pioneering R&D creates customer-centric innovations that are driving solar to grid parity against fossil fuels. Suntech's mission is to provide everyone with reliable access to nature's cleanest and most abundant energy source.

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