Government incentives continue to finance development of solar photovoltaic semiconductor market

Government incentives that encourage investment in renewable energies will continue to drive technological advances in the global semiconductor market, a new report by semiconductor expert GBI Research has found.

The new report* found that government incentives and Feed-In Tariffs (FITs) are providing vital, worldwide support for investors in the solar photovoltaic (PV) systems market, increasing the number of installations in many regions and creating development potential for semiconductors in solar PV systems.

Major markets in Europe, including Germany, Italy, the Czech Republic, France and the UK, have witnessed market growth for PV installations, resulting in an increased demand for semiconductors used in PV systems. FIT programs implemented to attract PV installation investors and develop renewable energy generation have also been successful in several US states, including Hawaii, California, Florida, New Jersey and Washington.

In Asia-Pacific, China’s 973 Scheme supports the development of future solar PV technologies, including thin-film and dye sensitized solar cells, while Japan’s $25.6m-project to improve its PV power generation technology through the application of new materials and solar cell structures has given the semiconductor market the boost it needed during times of financial uncertainty.

Companies are already benefiting from the incentives, with sales revenue of semiconductors in solar PV systems hitting $27.75 billion in 2011 and expected to further rise to $32.06 billion by the end of 2015. JA Solar has announced that it may establish a solar cell production base in the US to capture potential regional markets, while global company Suntech increased its overall production capacity and shipments of solar modules in 2010.

Increased semiconductor revenue has enabled the development of technology that has improved the efficiency of semiconductors and increased the performance of PV systems. The use of silicon carbide (SiC) metal-oxide-semiconductor field-effect transistors (MOSFETs) in PV inverters increases their efficiency by reducing the switching and conduction losses of transistors and diodes. Single crystal and multi-crystalline technologies are also being replaced by ultra-thin silicon and ribbon silicon technologies, and amorphous silicon and CdTe in thin-film cells is being replaced by Copper Indium Gallium (di)Selenide (CIGS).

However, further technological advancements must be made to reduce energy losses and cost–per-watt in order to extend the grid to more remote places. As this research is often supported by the government, their involvement will continue to

play an essential role in making semiconductor development financially viable.

*Semiconductors in Solar PV Power Systems to 2015 - Government Incentives and Feed-in Tariffs to Create Growth Potential for Semiconductor Manufacturers [1]

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