



MEDICAL DEVICES



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CHEMICALS



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Asia-Pacific Market for Green Semiconductors

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F R O S T & S U L L I V A N



Market
Engineering

Asia-Pacific Market for Green Semiconductors

**Japan and Korea will be the major drivers for the market with
China dominating global PV production**

March 2012

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Forecasts and Trends—Solar PV Market

State of the Market: Asia-Pacific

- The Asia-Pacific region in 2010 had a installed capacity of x.xx GW, of which Japan has a major share. Japan's Ministry of Economy, Trade and Industry (METI) action plan has set targets to increase solar installations tenfold by 2020 and by xx times by 2030, which is a major driver.
- The magnitude x.x earthquake in Japan in March 2011 caused major power disruptions, with only xxGW of the established xxGW by the Tokyo Electric Company functioning. All existing nuclear power plants are being reassessed and planned nuclear power plants have been put on hold.
- China and India will be major players by 2016 once the grid infrastructure and political uncertainties regarding support are resolved.
- China and India's growing energy consumption, along with the increasing dependence on coal-fired power, will lead these countries to contribute most of the growth in solar-installed capacity.
- South Korea and Taiwan also will add to the growth. South Korea, for example, has FiT systems and other incentives in place.
- Manufacturing of solar panels and balance of system (BoS) equipment will continue its trend of moving into the Asia-Pacific region from existing bases in Europe and North America.
- With China imposing strict quotas on rare-metal exports, major price increases are likely in segments including CIGS-class (copper indium gallium [di]selenide) solar panels and support electronics. This, in turn, will force companies to move production houses to China and enter partnerships with Chinese players.

Market Engineering Measurements

Market Overview

Solar PV Market: Asia-Pacific, 2010

TREND	Decreasing ▼	Stable ●	Increasing ▲
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MEASUREMENT NAME	MEASUREMENT	TREND
Market Stage	Growth	—
Market Revenue (2010)	\$x.xx B	▲
Market Units/Volume (2010)	x.xx GW	▲
Average Price Per Unit	\$x.xx/kWh	▼
Market Size at End of Forecast Period (2017)	\$xx.xx B	▲
Base Year Market Growth Rate	xx.xx%	▼
Compound Annual Growth Rate (CAGR)	xx.x%	—
Customer Price Sensitivity (scale of 1 to 10, Low to High)	xx	●
Degree of Technical Change (scale of 1 to 10, Low to High)	x	▲
Market Concentration (% of base year market controlled by top three competitors)	xx.x%	▲

Note: All figures are rounded. The base year is 2010.

Market Engineering Measurements (continued)

TREND	Decreasing ▼	Stable ●	Increasing ▲
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Competitor Overview

MEASUREMENT NAME	MEASUREMENT	TREND
Number of Competitors	xxx+	▼

Total Addressable Market

Replacement Rate	xx Years	●
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Industry Advancement

MEASUREMENT NAME	MEASUREMENT	TREND
Average Product Development Cycle	x.x Years	▼
Average R&D Spend by Product	\$xx.x M	▲
Marketing Spend as a Percentage of Revenue	x.x%	●

Note: All figures are rounded. The base year is 2010.

Annual Installed Capacity Forecast

Solar PV Market: Annual Installed Capacity Forecast, Asia-Pacific, 2007-2017

Year	Annual Installed PV Capacity (GW)	Installed Capacity Growth Rate (%)
2007	x.xx	-
2008	x.xx	xx.x
2009	x.xx	xx.x
2010	x.xx	xxx.x
2011	x.xx	xx.x
2012	x.xx	xx.x
2013	x.xx	xx.x
2014	x.xx	xx.x
2015	x.xx	xx.x
2016	xx.xx	xx.x
2017	xx.xx	xx.x
CAGR	xx.x%	

- Japan, South Korea and Australia will fuel short-term growth by implementing policies to support renewable energy.
- Mid-term growth will be slow but will be driven by Japan replacing all lost capacity due to the 2011 earthquake and nuclear disaster.
- In the long term, India and China will begin to contribute to the installed solar capacity, which will accelerate growth beyond the forecast period.

Note: All figures are rounded. The base year is 2010.