

PV Integrated Market Tracker

Can Supply and Demand be Matched?

By Henning Wicht, Senior Director and Stefan de Haan, Senior Analyst

Products Covered

- Polysilicon
- Solar wafers
- Crystalline cells
- Crystalline modules
- Thin film modules

Actuals and Forecast**Frequency, Time Period**

- 5-year annual forecast from 2009 to 2014
- Actual data from Q108 to latest quarter

Measures

- Production capacity (metric tons/MT, mega watts/MW)
- Production (MT, MW)
- Shipments (MT, MW)
- Inventories (US\$)
- Revenues (US\$)
- Installations (MW)
- Prices (US\$ for spot and contract)

Regions, Markets

- Worldwide
- Production Site (city, country)
- Company headquarters location
- Installation country: residential rooftops, commercial rooftops, ground based

Companies Covered

- Companies comprising approximately 85% of the market is refreshed in detail each quarter

Technologies Covered

- Siemens Process
- Fluidized Bed Reactor Process (FBR)
- Upgraded Metallurgical Process
- Monocrystalline wafers
- Multicrystalline wafers
- Crystalline cells
- Crystalline modules
- Thin Film modules: CdTe, aSi/μSi, CIS/CIGS, DSSC, other

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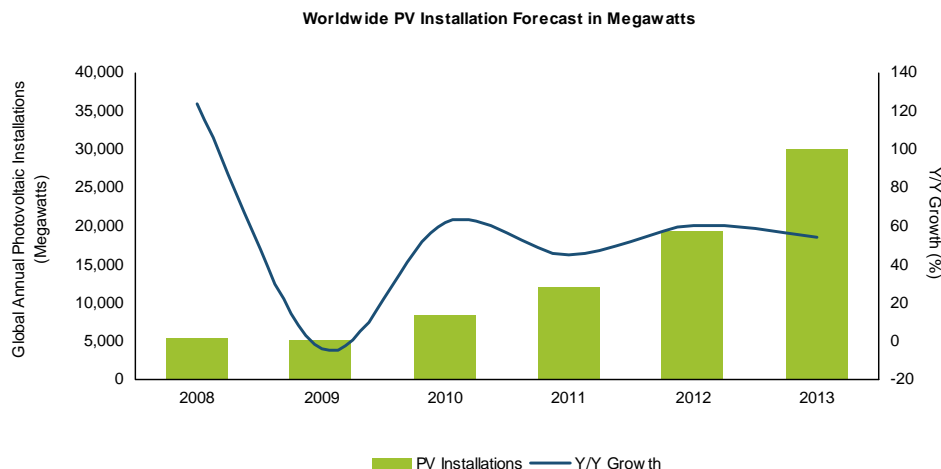
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This tracker focuses on the markets for raw material (polysilicon, solar wafers), PV cells and modules, and PV system demand or installations. It delivers independent analysis, accurate and fresh market data and informed forecasts.

Each quarter, updated market data is captured by company/country and is used to build up a total market picture. The data includes changes to country/segment installations, production capacity, production, shipments, inventories, prices and product revenues, and megawatts installed and revenues. iSuppli also updates its forecast for a 5-year forward window based on this latest quarterly data. Since iSuppli tracks the entire value chain for PV, our forecasts are based on an integrated supply and demand analysis which facilitates a realistic view and scenario planning.

The reports focus on what is driving recent market activity. It emphasizes what has changed since the previous quarter and what the critical forecast assumptions are.

The user of this tracker will be able to address multiple needs including: market sizing, growth potential, production and capacity utilization dynamics, price trends, ROI assessments, and market share and competitive dynamics. Additionally the user can link country level demand between the solar installation segments and the impact of changes in incentives.

**Critical Questions Answered**

- What are the supply, demand and inventory dynamics?
- Where are prices heading? What's driving this? How long will the trend last?
- Which companies are performing better or worse and why?
- Which differentiation strategies are working?
- Which technologies are winning or losing?
- How are incentive regimes in the various countries affecting demand?
- Where will the next demand bubble occur?
- Should I invest in local production and logistics facilities?
- What role will utility-scale projects play in the various countries?

Who Should Read This?

- Executives, strategists, marketing, sales management, planners, supply chain, procurement
- Solar polysilicon, wafer and other material suppliers
- Photovoltaic cell and module manufacturers
- Inverter and balance of system manufacturers
- Installers, distributors, developers, LLCs, Energy Service Providers and Utilities
- Government policy makers
- Financial community: funds, venture capital, private equity and commercial banks

Lead Analysts

Henning Wicht, PhD, Senior Director

Henning is a well-respected market expert in the PV field. He is iSuppli's lead PV analyst and manager of our PV service. He has been an advisor to the PV industry and its investors for over 5 years. Previously he was the founder and president of WTC - Wicht Technologie Consulting, acquired by iSuppli in April 2008.

Henning has been working in marketing of microsystem technology and electronics since 1993 when he joined CEA-LETI in Grenoble. In 1996, he tasked with establishing CEA Germany. WTC - Wicht Technologie Consulting was created in 2000, specializing in services for companies with high-tech products specialized in the commercialization of high-tech products in the field of microelectronics, nanotechnologies or photovoltaics.

Henning received his diploma in Industrial Engineering at the Technical University in Darmstadt. His doctorate thesis – Microsystems? Innovation and Industrial Evolution – was published in 1999. He speaks German, English and French.

Stefan de Haan, Senior Analyst

Stefan de Haan is senior analyst for photovoltaics and is the author of several PV related consulting and market research studies. Complementing his knowledge in photovoltaics, he has in-depth experience in nanotechnology, semiconductor physics, and clean room technology.

In his prior post at WTC - Wicht Technologie Consulting, acquired by iSuppli in April 2008, he was senior analyst for photovoltaics and nanotechnology. Leading the nanotechnology research team at WTC, he was the project manager of European Commission-funded nanotechnology road mapping activities and headed a variety of market studies in nanoelectronics, nanomaterials, sensor technology, and quantum information technology. Before joining WTC, Stefan de Haan worked as a senior researcher in the semiconductor and nanophysics group of the Ludwigs-Maximilians-University of Munich developing quantum mechanical nanoelectronic devices implemented in low dimensional semiconductor systems. During his studies he worked at Siemens, VLSI Technology, and at the German National Research Center for Environment and Health.

Stefan de Haan graduated with distinction from Munich University with a degree in Physics. He speaks German, English, and Spanish and has a basic knowledge of French.

Research and Forecast Methodologies

Our PV team relies on a variety of primary and secondary data gathering techniques for obtaining capacity, production levels, shipments, installations, inventories, price and revenue information. For each data point we endeavor to have as many sources as possible. Data sources include interviews, surveys and various public sources of data.

When we create our forecasts we do so by considering activity at every node in the supply and demand chains. We start by relying on historical data from the most recent months as a base. Then a variety of modeling and scoring techniques are used to create a forecast. Combinations of supply and demand scenarios are created and a most likely outcome is chosen. For demand we start with projecting installations of PV systems by country, technology and segment. Government policy impacts on incentives and project ROI outcomes are considered as well.

For capital spending and production forecasts we augment what companies claim with a series of credibility factors. Inventory levels between nodes in the supply chain are measured and considered as well. For pricing we assess competitive dynamics along with various supply and demand scenarios at each node.

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Leading Polysilicon Producers

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Leading Solar Wafer Producers, 2008

Leading Solar Wafer Producers

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Leading Thin Film Producers

Leading Crystalline Cell Producers

Leading Thin Film Module Producers

Global PV Module Supply and Demand (Installations); Expected Production

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Major Crystalline Cell Producers

Major Thin Film Producers

Installations in Germany

Total U.S. Market

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