

---

## INDUSTRY OVERVIEW

---

**This section contains information and statistics relating to the industry in which we operate. We have derived such information and data from publicly available government official sources and Independent Third Party publications which have not been independently verified by us, [●], [●], [●] or any of their respective affiliates or advisers. These Independent Third Party publications are available to the general public and their backgrounds are provided in the section headed “Definitions” of this document. We have taken reasonable care in the reproduction of such information. The information in such government official sources may not be consistent with the information compiled within or outside of the PRC. We make no representation as to the correctness or accuracy of such information and accordingly such information should not be unduly relied on. We have taken such care as we consider reasonable in the reproduction and extraction of such information.**

**Investors should also note that PHOTON Consulting and Solarbuzz, who prepared certain researches that had been included in this document, are not commissioned by us or our Connected Persons and/or the [●].**

### SOLAR POWER INDUSTRY OVERVIEW

#### Global electricity generation

Global electricity generation is expected to increase from 18.0 trillion kilowatt hours in 2006 to 31.8 trillion kilowatt hours in 2030, according to the EIA. Although the recent economic downturn since mid 2008 affected power demand, the recession will not be long-lasting under EIA’s forecast. Additionally, the EIA indicates that over 66% of the world’s electricity in 2006 was generated from fossil fuels such as coal, natural gas and oil. Despite the significant fall in oil and other fuel prices in late 2008 to early 2009, the economic recovery will provide support to global energy demand and price in the long run. Rising fuel prices, together with supply constraints, some governments’ attempt to relieve dependence on foreign countries for fuel feedstock and environmental concerns, could limit the potential of many conventional sources of electricity to meet the rapidly growing demand of electricity.

#### Advantages of solar power

Amongst all renewable sources of power, solar power has emerged as one of the most rapidly growing renewable sources of electricity and offers several advantages over other forms of electricity generation, including:

- *Abundance of resource.* According to a study commissioned by the Department of Energy of the U.S., on average, 120,000 TW of solar energy strikes the Earth each year, an amount that exceeds current global annual electricity consumption. In other words, more energy from sunlight strikes the Earth every hour (120,000 TWh) than is consumed on the planet in a year (16,379 TWh in 2006).
- *Rising prices of power generated from conventional sources and desire for energy supply security.* Solar power electricity generation does not require fossil fuels, and therefore, enjoys advantages over conventional sources of electricity that face input price volatility, supply constraints, delivery risk and dependence on fossil fuel reserves. The prices of conventional sources of power, including oil, gas and coal, have reached historical high levels in 2008. Solar power is a viable and sustainable source of energy that can address the problem of input price volatility with

---

## INDUSTRY OVERVIEW

---

conventional/fossil fuel energy sources given the limited reserve of fossil fuel and escalating electricity consumption in the long run. Furthermore, governments are trying to reduce their dependence on foreign sources of power to strengthen security of energy supply. In 2006, net import of energy accounted for over 60% of the primary energy supply in Germany, and over 80% of the fuel used for power generation in Italy, Spain, Japan and Korea, was imported, according to the IEA. The ratio was 31% in the U.S. (source: IEA key world energy statistics). Expanding domestic production of power, particularly through renewable resources, is a key part of governments’ energy security agenda.

- *Governments’ incentives for applying renewable sources of energy.* Use of solar power has been growing at a high rate in countries where incentives are offered by their governments to encourage solar power use. Countries such as the PRC, Germany, Spain and the U.S. (source: European Photovoltaic Association (“EPIA”), NDRC’s “可再生能源中長期發展規劃” and the PRC Ministry of Finance’s “關於印發太陽能光電建築應用示範項目申報指南的通知”, and the American Recovery and Reinvestment Act of 2009) have offered or planned to offer substantial incentives in the form of direct subsidies for solar power system installations or rebates for electricity produced from solar power. Increasing government support for solar power use in regions, such as California and southern Europe, which receive many hours of sunlight each year and where solar power is more cost effective, is also driving demand for solar power.
- *Environmental advantages.* Solar power is one of the most environmentally friendly and cleanest sources of power, as it produces no gas or noise emissions and generates no waste. Governments around the world are adopting initiatives aimed at addressing worldwide environmental concerns and climate change risks associated with the use of fossil fuels. The United Nations’ Kyoto Protocol and many national and regional regulations addressing greenhouse gas emissions also provide momentum for the development of solar power industry.
- *Bringing electricity to remote rural areas.* Photovoltaic systems can be set up in rural areas with inconvenient access to power grids but rich in solar power, e.g. Gansu and Qinghai Provinces in the western part of China. This could solve the problem of lack of power supply in the regions.
- *Matching peak time output with peak time demand.* Peak power usage and high electricity costs typically occur mid-day, which also generally corresponds to peak sunlight hours and solar power electricity generation.
- *Modularity and flexibility of installation.* Solar power systems can generate electricity at any landscape with exposure to sunlight. Additionally, solar power systems can produce electricity on or off-grid, making them an effective alternative for remote or greenfield use. Solar power systems can also be manufactured and deployed in various sizes and configurations to meet specific users’ needs.
- *Reliability and durability.* According to EPIA, the estimated lifetime of a photovoltaic module is 30 years. The modules can provide over 80% of the initial power after 25 years. Solar power systems also generally do not require significant ongoing maintenance, making them one of the most reliable forms of electricity generation. According to Solarbuzz, solar modules typically can operate for more than 20 years without requiring major maintenance.

---

## INDUSTRY OVERVIEW

---

### Challenges and limitations

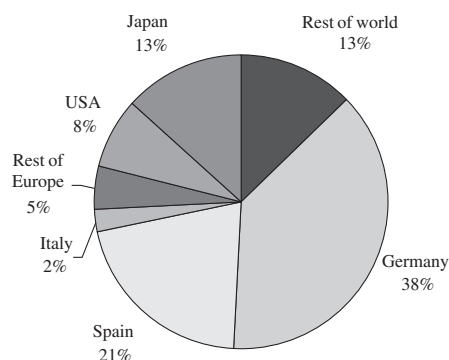
According to the EIA, renewable power, comprising hydroelectric, solar, wind and geothermal, represented approximately 19% of global net electricity generation in 2006. Solar power alone accounted for less than 0.03% of global net electricity generation in 2006. Solar power must overcome several challenges to become a more widely accepted form of power generation, including:

- *Attaining cost competitiveness with conventional energy sources.* According to PHOTON Consulting, *Solar Annual 2007: Big Things in a Small Package*, the solar power systems are currently costlier than the conventional fossil fuel electricity systems. In order to incite demand for solar power usage, manufacturers must reduce costs of solar power systems through innovation and improvement of production methods and yields. When the cost of solar electricity generation becomes comparable to that of traditional sources, high system reliability and low cost of operation will be key factors driving customer demand. By then, with price parity achieved, solar power can be cost-competitive without governmental incentives or subsidies.
- *Technological upgrade.* The continuous improvement of cell technologies, including conversion efficiencies and wafer thickness, is critical to the reduction of raw materials usage and lowering the costs required to manufacture a solar power system with a given output.
- *Intermittent source of power.* Solar power systems require sunlight to generate electricity and are less effective in climates of low sunlight and extreme hot and cold temperatures. As a result, solar power systems generally cannot be used as a sole source of electricity and must be combined with a storage solution (such as a battery) or other source of electricity.

### Growth in use of solar power

The solar power industry has experienced significant growth in the past few years. According to Solarbuzz, total cumulative photovoltaic installed capacity reached 15.7GW in 2008, representing year-on-year increase of 61%. Europe has the largest share of cumulative installed capacity in which Germany, Spain, Italy and rest of Europe contributed 38.1%, 21.0%, 2.4% and 4.7% of cumulative world PV capacity as at end of 2008, respectively.

#### Regional Breakdown of Cumulative World PV Capacity as at end 2008 (%MW)



---

Source: Solarbuzz 2009

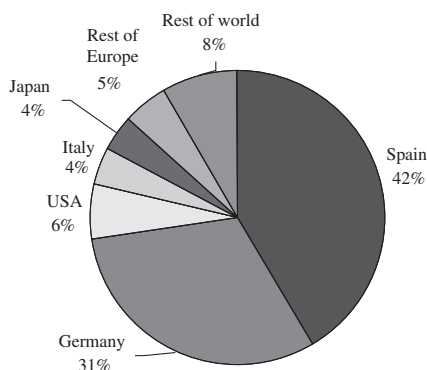
---

## INDUSTRY OVERVIEW

---

According to Solarbuzz, the annual global solar power market, as measured by the volume of solar modules delivered to the installation sites for grid-connected installations or off-grid applications, grew from 345 MW in 2001 to 5,948 MW in 2008, representing a CAGR of 50%. Europe accounted for 82% of world demand in 2008, with Spain and Germany ranked the first two places in the market ranking. Market share of China in 2008 was still small at 0.6%.

### Regional Breakdown of World PV Market in 2008 (%MW)



Source: Solarbuzz 2009

Under Solarbuzz’s forecast, global annual capacity addition in 2013 will increase to 8,311 MW (under Balanced Energy Scenario), 14,792 MW (Green World Scenario) or 21,036 MW (Production Led Scenario), representing 39.7%, 148.7% or 253.7% growth from the 2008 level despite the decrease in PV demand in certain regions like Spain\*. This suggests huge growth potential of the solar power industry.

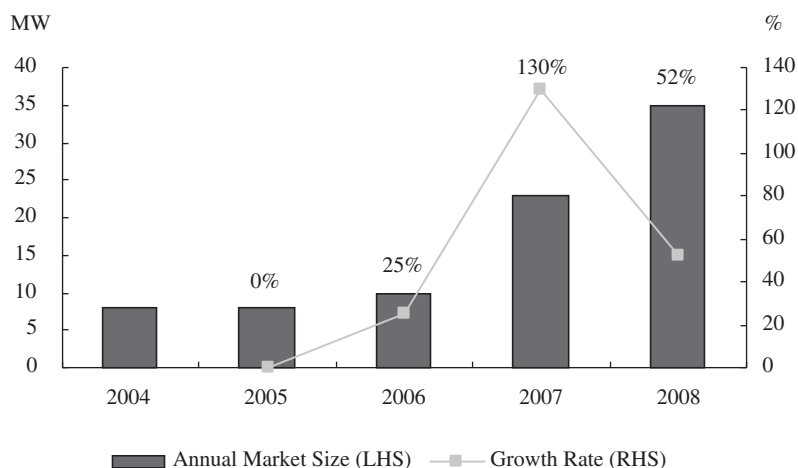
\* According to Spanish government’s policy, PV systems have to be completed and entered into the register of energy producers by 27 September 2008 in order to receive remuneration under the old feed-in tariff system instead of the new, lower feed-in tariff system that follows. Moreover, a cap of 500 MW, 502 MW and 488 MW installation were set for 2009-2011 respectively, compared with 2,463 MW addition in 2008, suggesting fall in PV demand.

## INDUSTRY OVERVIEW

### China’s PV Market

China’s newly installed PV capacity has been on the rise in recent years, with growth rate at 25%, 130% and 52% in 2006, 2007 and 2008 respectively. According to Solarbuzz, China’s annual installation reached 35 MW in 2008, bringing cumulative capacity to approximately 150 MW. In 2008, market share of China over the world was still small, at 0.6% only.

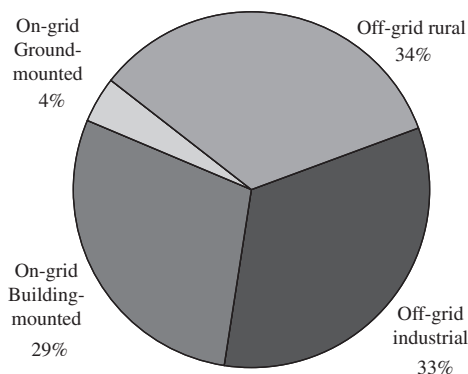
**China’s Annual PV installation addition**



Source: Solarbuzz 2009

According to Solarbuzz, a large portion of the newly installed systems in China are off-grid systems, both for rural electrification and for industrial uses, contributing 34% and 33% of the additions in 2008, respectively. Meanwhile, contribution of on-grid applications are increasing, being 34% of total market share in 2008 compared with 13% in 2007. On the other hand, regions in the western part of China, including Tibet, Qinghai and Xinjiang, contributed the largest market shares of the 2008 addition, led by strong off-grid programs associated with the China Western Development Program. Some Eastern provinces including Jiangsu, Zhejiang and Beijing, on the other hand, started to grow in solar applications.

**Newly installed capacity breakdown in 2008 by application**



Source: Solarbuzz 2009

---

## INDUSTRY OVERVIEW

---

### Solar power technologies

A solar power system generates electricity through its solar cells by capturing and converting sunlight into electricity. Currently, there are three main categories of technologies used in solar cell and module production: monocrystalline silicon, multicrystalline silicon and thin film. The table below briefly highlights these technologies:

Solar Cell/Module Technology	Production Highlights	Key Attributes
Monocrystalline Silicon Solar Cell/Module	<ul style="list-style-type: none"> <li>• Made from monocrystalline wafers</li> <li>• Cut by wire saw from an ingot produced using a single crystal seed pulled from polysilicon feedstock</li> </ul>	<ul style="list-style-type: none"> <li>• Higher efficiency in converting sunlight into electricity compared to the other two technologies below</li> <li>• 15.3% average conversion efficiency ratio of the modules available on market in 2008 according to Solarbuzz</li> <li>• Typically the most expensive to produce as the production process is relatively slow and energy intensive compared with the production processes used for other silicon-based solar materials</li> </ul>
Multicrystalline Silicon Solar Cell/Module	<ul style="list-style-type: none"> <li>• Made from multicrystalline wafers</li> <li>• Cut from an ingot produced through re-melting and re-crystallising silicon into blocks through a casting process</li> </ul>	<ul style="list-style-type: none"> <li>• 13.7% average conversion efficiency ratio of the modules available on market in 2008 according to Solarbuzz</li> <li>• Typically less expensive to produce</li> </ul>
Thin Film	<ul style="list-style-type: none"> <li>• Alternative technology using little or no semiconductor feedstock</li> <li>• deposited on glass, stainless steel or plastic base material</li> </ul>	<ul style="list-style-type: none"> <li>• Lower cost but lower conversion efficiency</li> <li>• 5-10% conversion efficiency ratio according to Solarbuzz</li> <li>• Light weight, flexible and no exposure to crystalline silicon</li> </ul>

## INDUSTRY OVERVIEW

### Module and cell efficiencies

Technology	Thin Film				Crystalline wafer based	
	Amorphous silicon (a-si)	Cadmium telluride (CdTe)	CI(G)S	a-Si/m-Si	Monocrystalline	Multicrystalline
Cell Efficiency at STC* .	5-7%	8-11%	7-11%	8%	16-19%	14-15%
Module Efficiency . . . . .					13-15%	12-14%

Source: EPIA Solar Generation V — 2008

\* Standard Testing Conditions: 25°C, light intensity of 1,000W/m<sup>2</sup>, air mass = 1.5

According to Solarbuzz, crystalline silicon-based technologies, comprising both monocrystalline silicon and multicrystalline silicon technologies, are currently the dominant technologies used within the industry. Approximately 87% of the solar cells were produced by using these technologies in 2008. From 2004 to 2008, monocrystalline cell production grew at a much higher rate than multicrystalline cell production primarily due to rapid expansion of monocrystalline cell capacity in China, which is driven by technological advancement in monocrystalline furnaces. In general, crystalline silicon-based technologies have higher conversion efficiency than thin film technologies, meanwhile thin film has the advantage of lower production costs and is gaining market share in recent years. The table below sets out a breakdown, by the type of technology used in production, of the solar cells produced worldwide from 2004 to 2008.

### World Solar Cell Production by Technology 2004-2008

	2004		2005		2006		2007		2008		CAGR (04-08)
	MW	% Total	MW	% Total	MW	% Total	MW	% Total	MW	% Total	
Monocrystalline Silicon	391	34.1%	620	37.5%	913	41.4%	1,389	40.4%	2,828	41.3%	64.0%
Multicrystalline Silicon	692	60.3%	937	56.6%	1,110	50.4%	1,647	47.9%	3,133	45.7%	45.9%
Thin Film . . . . .	64	5.6%	98	5.9%	181	8.2%	400	11.6%	893	13.0%	93.3%
Total . . . . .	1,147	100.0%	1,655	100.0%	2,204	100.0%	3,436	100.0%	6,854	100.0%	56.3%

Source: Solarbuzz 2009.

### Solar power system manufacturing value chain

The crystalline silicon-based solar power value chain comprises all steps in manufacturing a solar power system, including the manufacture of polysilicon raw materials, silicon ingots, solar wafers, solar cells, solar modules and ultimately solar power systems. The production of crystalline silicon-based wafer begins with the processing of quartz sands to produce metallurgical-grade silicon. This material is further purified to become virgin polysilicon feedstock, which can then be formed into either monocrystalline or multicrystalline silicon ingots. After purification, the polysilicon feedstock is melted and crystallised in crucibles to form monocrystalline or multicrystalline silicon ingots, depending on the production process

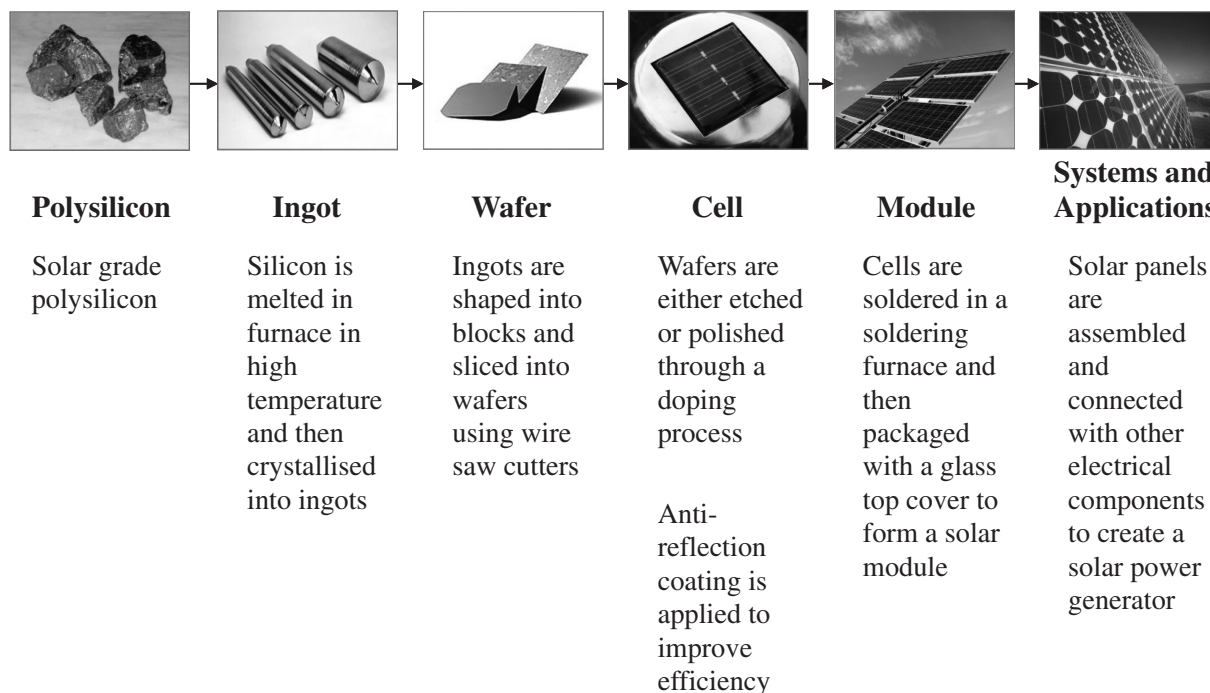
---

## INDUSTRY OVERVIEW

---

used. The ingots are then cut into blocks from which wafers are sliced using sawing techniques. The wafers are then washed and cleaned before packaging for delivery. Wafers are manufactured into solar cells through a multiple-step manufacturing process that entails etching, doping, coating and applying electrical contacts. Solar cells are then interconnected and packaged to form solar modules, which together with system components such as batteries and inverters, are distributed to installers, systems integrators, service providers or directly to end-users, for installation.

The following diagram illustrates the value chain for the production of solar products:



### Global wafer raw material supply and demand

According to Solarbuzz, the raw material used to manufacture solar wafers, silicon feedstock, has historically been in short supply worldwide since 2004. However, as a combined effect of the decrease in PV demand in certain regions like Spain due to the economic downturn and new production capacities of polysilicon started to deliver significant production volumes which ease the supply constraints, the tight supply/demand balance started to ease during the third quarter of 2008, and turned to significant over-supply by the fourth quarter of 2008. The table below outlines historical global polysilicon supply and demand from 2005 to 2008.



---

## INDUSTRY OVERVIEW

---

### Global polysilicon demand and supply 2005-2008

	Tonnes			
	2005	2006	2007	2008
Solar Polysilicon Demand . . . . .	17,140	20,700	27,673	49,128
Recycled Polysilicon For Solar Applications . . . . .	2,060	2,200	2,284	2,083
Net Solar Polysilicon Demand . . . . .	15,080	18,500	25,389	47,045
Semiconductor Industry Polysilicon Demand . . . . .	21,280	22,100	23,570	22,155
<b>Total Demand . . . . .</b>	<b>36,360</b>	<b>40,600</b>	<b>48,959</b>	<b>69,201</b>
Polysilicon Production/Future Capability . . . . .	29,905	35,250	48,285	71,730
<b>(Shortage)/Excess . . . . .</b>	<b>(6,455)</b>	<b>(5,350)</b>	<b>(674)</b>	<b>2,529</b>

*Source: Solarbuzz 2006-2009.*

According to Solarbuzz’s polysilicon demand estimates, global polysilicon supply will exceed global polysilicon demand at an increasing rate from the end of 2009 to 2013.

Tight market supply in previous years had led to significant increases in the spot market price of polysilicon. Polysilicon sold at spot market price are those that have been produced but have not been committed to customers through long-term contracts. According to Solarbuzz, spot prices had risen from the price range of US\$60-80/kg in 2005 to US\$100-200/kg in 2006 to US\$250-400/kg in 2007. In response to the shortage in supply, manufacturers have sought to enter into long-term supply contracts with suppliers in recent years in order to mitigate the adverse effects of price increases as prices of polysilicon under long-term supply contracts are significantly lower than their spot market prices.

Meanwhile, the recent financial crisis, the fall in market demand and the threat of oversupply of polysilicon lead to tumble in spot market price. Spot market price of polysilicon ranged from US\$230/kg to US\$375/kg for most of 1H08, and peaked at US\$400-450/kg in the middle of 2008, then dropped to around US\$150/kg in the fourth quarter of 2008. By February 2009, spot prices had further fallen to US\$120-140/kg. Due to such drop in market price, solar wafer/cell producers renegotiated with polysilicon suppliers in order to obtain lower long-term contract prices.

### SOLAR WAFER INDUSTRY OVERVIEW

#### Production capacity, pricing and margin

Global year-end wafer manufacturing capacity in 2008 was relatively tight compared to cell manufacturing capacity. According to Solarbuzz, global wafer manufacturing capacity reached 10,736 MW by the end of 2008 while cell manufacturing capacity reached 11,706 MW in the same year. Compared to 10,736 MW in 2008, year end global wafer manufacturing capacity was 5,834 MW in 2007, representing a 84.0% growth rate.

---

## INDUSTRY OVERVIEW

---

In 2008, total crystalline silicon cells production was 5,961 MW, representing 96.3% growth from the 2007 level. Under the three different scenarios set out by Solarbuzz, total crystalline silicon cell production will reach 7,038 MW (under Balanced Energy Scenario), 13,040 MW (Green World Scenario) or 18,789 MW (Production Led Scenario) in 2013, representing 18.1%, 118.8% or 215.2% growth from the 2008 level, respectively and 2008-2013 CAGR will reach 3.4%, 16.9% and 25.8% respectively. The strong growth in crystalline silicon cell production will drive up demand for crystalline silicon wafers.

Primarily driven by product quality and individual contract terms, wafer prices vary significantly. According to Solarbuzz, term-contract wafer prices in 2008 ranged from €1.25/W to €1.50/W, or US\$1.85-2.25/W, for multicrystalline product and from €1.40/W to €1.65/W, or US\$2.10-2.45/W, for monocrystalline product. Price was as low as US\$1.70/W for established loyal customers, and for the top end, new customers paid above US\$2.50/W, with highest prices approaching US\$3.50/W.

When market downturn started to appear in October 2008, large wafer suppliers still maintained prices at US\$2.20-2.30/W, and long-term contract prices from established wafer manufacturers to Chinese cell manufacturers negotiated during the third quarter of 2008, but for delivery in 2009, was still at the range of US\$2.10-2.30/W. Meanwhile, in February 2009, wafer price already fell to US\$1.60-1.80/W.

In general, prices paid by European wafer purchasers to Chinese wafer manufacturers have been slightly lower than the prices paid by their Chinese counterparts as many Chinese manufacturers seek to diversify their geographic client base.

Tight wafer production capacity relative to solar cell contributed to the firm pricing structure. Excluding polysilicon, operating margin in the wafer segment are the highest within the solar value chain. According to PHOTON Consulting, *Solar Annual 2008: Four Peaks*, Page 134 (all data are rough estimates), in 2008, wafer manufacturers were expected to achieve 29% operating margin, compared to 21%, 5% and 13% for cell manufacturers, module producers and installation providers, respectively.

In addition, ingot slicing technology has gained higher significance in solar wafer manufacture. It has become a focus of concern among manufacturers to reduce polysilicon cost and economise feedstock through technology improvements and equipment and process adjustments.

### Cost reduction drivers

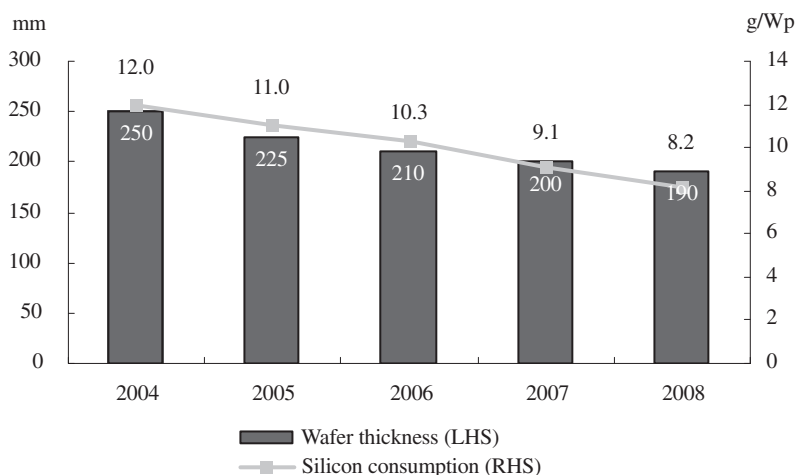
Several improvements are underway to drive down the costs for wafer manufacturers:

- *Larger Ingots.* Ingot manufacturers are improving yields and reducing utility cost by increasing ingot diameters. According to PHOTON Consulting, *Solar Annual 2007: Big Things in a Small Package*, some multicrystalline ingot manufacturers are moving from 310 kg charges to 380-450 kg charges, reducing per-kilogram electricity consumption.
- *Thinner Wafers.* Reductions in wafer thickness results in the use of less silicon per wafer for the same surface area thus a less costly wafer without loss of the light collection area. According to Solarbuzz, the average thickness of wafers has been reduced from 250 um in 2004 to 190 um in 2008, with silicon consumption reduced from 12g/Wp to 8.2g/Wp. According to PHOTON Consulting, *Solar Annual 2008: Four Peaks*, Page 113, it is expected that wafer thickness will be in a decreasing trend in the future, which will decrease average silicon costs of solar cells.

## INDUSTRY OVERVIEW

However, thinner wafers are also more fragile. In order to avoid significant yield losses from breakage, manufacturers require careful handling throughout the manufacturing process from wafers all the way to modules.

**Development of silicon usage and wafer thickness**



Source: Solarbuzz 2006-2009

- Locate manufacturing facilities in low cost areas.* Relatively low cost areas such as the PRC offer competitive cost advantages through lower wages, facility costs and government sponsored tax easements. According to PHOTON Consulting, *Solar Annual 2007: Big Things in a Small Package*, Page 56 (all data are rough estimates), PRC-based manufacturers enjoy 20% - 40% lower cost than manufacturers in Europe.

### Competitive Landscape

Five of the top 8 largest solar wafer manufacturers in the world are based in China. These manufacturers are LDK Solar Co., Ltd. (“LDK”), ReneSola Ltd. (“ReneSola”), Glory Silicon Energy (Zhenjiang) Co., Ltd. (“Glory”), Yingli Green Energy Holding Company Limited (“Yingli”) and Trina Solar (“Trina”). Both pure-play and integrated business models are employed by these solar wafer manufacturers. According to Solarbuzz, global wafer manufacturing capacity reached 10,736 MW by the end of 2008. As at 31 December 2008, our annualised production capacity represents approximately 0.5% of the annualised global wafer manufacturing capacity. LDK was the largest solar wafer manufacturer in terms of production capacity for the year ended 31 December 2008. According to LDK, its annual production capacity was approximately 1,460 MW as at 31 December 2008 and it sold 817.9 MW of wafers for the year ended 31 December 2008. LDK primarily manufactures multicrystalline solar wafers. ReneSola and Glory focus on monocrystalline and multicrystalline solar wafers. As integrated players, Yingli and Trina produce multicrystalline solar wafers for internal use. With the exception of Glory, all PRC solar wafer manufacturers mentioned above are publicly listed.

---

## INDUSTRY OVERVIEW

---

The rest of the top 8 largest manufacturers are based in Europe and Japan. Located in Norway, Renewable Energy Corporation ASA (“REC”) is an integrated player involved in the production of solar-grade polysilicon, manufacture of multicrystalline and monocrystalline silicon wafers, and production of solar cells and modules. Solarworld AG (“Solarworld”) of Germany manufactures products throughout the photovoltaic value chain from polysilicon to solar power plants with production facilities in Germany and U.S.. Combining with other non solar-related offerings, TKX Corporation (“TKX”) is a Japanese-based company that produces solar products.

### Government Policy

To promote the development of solar energy, various governments in the world have issued policies in different aspects, including development targets, subsidies, tax incentives and other supportive measures. Below set forth the major solar power industry policies issued by PRC, U.S., Germany, Taiwan and Thailand.

#### A. PRC

Area	Description
Contribution to energy consumption	Contribution of renewable energy in total energy consumption is targeted to reach 10% by 2010, and 15% by 2020, compared with 7.5% in 2005.
Feed-in Tariff	Based on reasonable cost plus reasonable profits policy. Premium of renewable energy on-grid tariff over traditional coal-fired plants will be funded by additional charge included in the electricity selling tariff.
Power generation	Grid companies are required to purchase electricity generated from grid-connected renewable energy power generation systems, including solar power.
Subsidies	<ul style="list-style-type: none"><li>• Subsidies of Rmb20/Wp would be granted to qualified construction material-based and component based BIPV demonstration projects, and Rmb15/Wp for rooftop-based and wall-based projects.</li><li>• “Golden Sun Project”: Pilot program to subsidize developers of on-grid PV systems with a maximum 50% of the project investment cost, and independent PV power systems at rural areas will receive 70% at max. The policy will support projects of not less than 500 MW capacity in aggregate in the next 2-3 years.</li></ul>
Provincial-level policy	<ul style="list-style-type: none"><li>• Jiangsu: 1) 2009-11 total installed capacity being 80 MW, 150 MW and 170 MW respectively compared with 2.856 MW currently; 2) setting the solar on-grid tariff for 2009-2011 over traditional coal-fired plants, subsidized by a charge on power users; 3) supporting the growth of local large-scale peers and technological development.</li><li>• Qinghai: 13 major projects to launch in 2009-2015, with total revenue reaches Rmb86.0bn as at end 2015.</li></ul>

---

## INDUSTRY OVERVIEW

---

Sources: *Medium-to-Long-Term Development Plan of Renewable Energy* (“可再生能源中長期發展規劃”), *Renewable Energy Law* (“中華人民共和國可再生能源法”), *Tentative Measures for Pricing and Management of Pooling of Expenses for Renewable Energy Electricity Generation* (“可再生能源發電價格和費用分攤管理試行辦法”), *Application guidelines for BIPV Demonstration Project* (《太陽能光電建築應用示範專案申報指南》), *Notice concerning Implementation of Golden Sun Demonstration Project* (《關於實施金太陽示範工程的通知》), *Opinion on Jiangsu Province Photovoltaic Electricity Generation Progress* (《江蘇省光伏發電推進意見》), *2009-2015 Qinghai Province Solar Power Industry Development and Application Promotion Plan* (《青海省太陽能產業發展及推廣應用規劃 (2009年-2015年)》), NDRC, PRC Ministry of Finance

### B. U.S.

Area	Description
Direct spending	Provides US\$16.8 billion in direct spending for renewable energy and energy efficiency programs over the next ten years under the American Recovery and Reinvestment Act of 2009.
Taxation	<p>Project investment:</p> <ul style="list-style-type: none"> <li>• 30% federal solar investment tax credits (ITC) granted until 2016</li> <li>• Businesses, utilities and individuals will be qualified to receive the full amount of the ITC</li> </ul> <p>Equipment manufacturing:</p> <p>Provides US\$2 billion worth of energy related manufacturing investment credits at a 30% rate under the American Recovery and Reinvestment Act of 2009. These credits apply to projects creating or retooling manufacturing facilities to make components used to generate renewable energy, storage systems for use in electric or hybrid-electric cars, power grid components supporting addition of renewable sources, and equipment for carbon capture and storage (CCS).</p> <p>General:</p> <p>Five Year Carry-Back Provision for Operating Losses of Small Businesses under the American Recovery and Reinvestment Act of 2009</p>
Bond and credit facilities	<ul style="list-style-type: none"> <li>• US\$2.4 billion limit of clean energy renewable bonds to finance renewable energy projects</li> <li>• Provides US\$6 billion for a temporary loan guarantee program for renewable energy power generation and transmission projects that begin construction by September 30, 2011.</li> <li>• Creates a Clean Energy Finance Authority which will provide loan guarantees and other financial support to help ease credit constraints for renewable energy investors and catalyze new private sector investment.</li> </ul>

---

Source: U.S. Government, American Council on Renewable Energy, website of the Clean Renewable Energy Bonds

---

## INDUSTRY OVERVIEW

---

### C. Germany

Area	Description
Target	Annual growth target: 1,000-1,500 MW in 2009 1,100-1,700 MW in 2010 1,200-1,900 MW in 2011
Feed-in tariff (FIT)	Ranges from EUR0.3300-0.4301/kWh for rooftop projects and EUR0.3194/kWh for ground-mounted installations, with degression each year. FIT are granted for 20 years.
Power generation	Power companies are required to purchase electricity generated from PV systems connected to the grids. Costs of implementing the policy were shared among all customers in Germany.
Credit facilities	Loan financed programs offered by German Development Bank (KfW): <ul style="list-style-type: none"><li>• “Solarstrom Erzeugen” (No. 140) for private investors: Up to 100% investment of max EUR50,000 per installation</li><li>• “ERP-Umwelt- und Energiesparprogramm” for commercial investors: 50% for SMEs, other companies up to 35% of maximum EUR500,000 investment (in old federal states) or EUR1 million investment (in new federal states)</li><li>• “KfW Umweltprogramm” for commercial investors: 75% of investment of maximum EUR10 million per installation</li></ul> Other German banks also offer soft loans for PV systems.
Tax credits	<ul style="list-style-type: none"><li>• Investment costs for commercial systems (including planning and installation) can be depreciated over a 20 year period and other costs can be considered as operation cost</li><li>• Commercial systems are VAT exempted</li></ul>

---

Sources: Solarbuzz, EPIA

---

## INDUSTRY OVERVIEW

---

### D. *Taiwan*

Area	Description
Target	Set target of contribution of renewable energy in total energy consumption at 10% by 2010  Installed solar capacity reaches 30 MW by 2010, 320 MW by 2015 and 4,500 MW by 2020
Subsidy	“Program for Coping with Economic Slowdown and Bolstering the Economy” in place, providing subsidies including NT\$1 billion to purchasers of solar systems, including residential customers and power companies, and 13% tax credit for investments in energy conservation equipment, 2-year accelerated depreciation and low interest rate loans.

---

Sources: *Solarbuzz*

### E. *Thailand*

Area	Description
Target	Share of renewable energy in primary energy supply to reach 8% by 2011. Solar and wind energy will account for 1% of total shares, translating to 45 MW for solar (5% for new power facilities).
Subsidy	Feed-in-tariff scheme with tariff for renewable energy being maximum 4-5 times higher than that for conventional biomass power generation.
Financial incentives	Eight-year tax incentives, soft-loans up to 50 million THB with interest rates below 4%

---

Sources: *Solarbuzz*

---

## INDUSTRY OVERVIEW

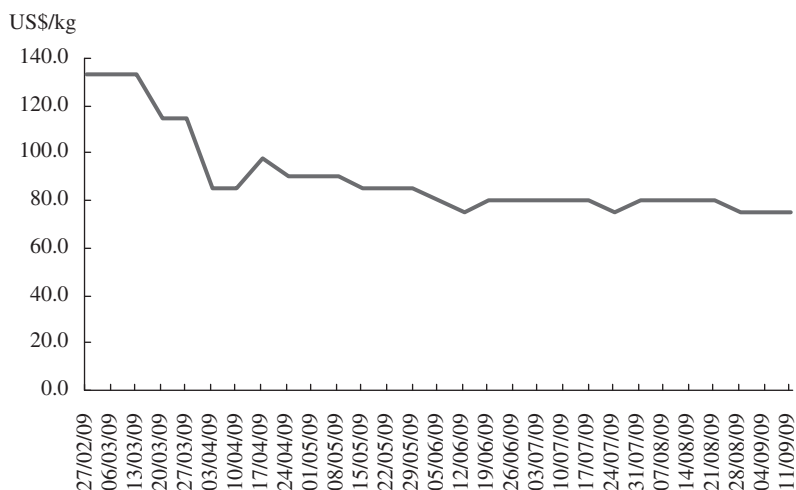
---

### Recent Industry Development

The recent financial crisis and deteriorated worldwide economic conditions have adversely impacted the solar power industry, and the market volatility has increased significantly. The practical cessation of the Spanish market in the fourth quarter of 2008 and growth in product supply both added to the collapse in prices through the whole PV value chain.

According to Solarbuzz, spot market price of polysilicon ranged from US\$230/kg to US\$375/kg for most of 1H08, and peaked at US\$400-450/kg in the middle of 2008, then dropped to around US\$150/kg in the fourth quarter of 2008. By February 2009, spot prices had further fallen to US\$120-140/kg. According to PHOTON Consulting, Solar Updates 31/7/2009 (all data are rough estimates) spot prices of polysilicon dropped from US\$133/kg as at late February 2009 to about US\$75/kg as at late July 2009.

**Polysilicon spot price movement**



Source: PHOTON Consulting, Solar Updates 11/9/2009 (all data are rough estimates)



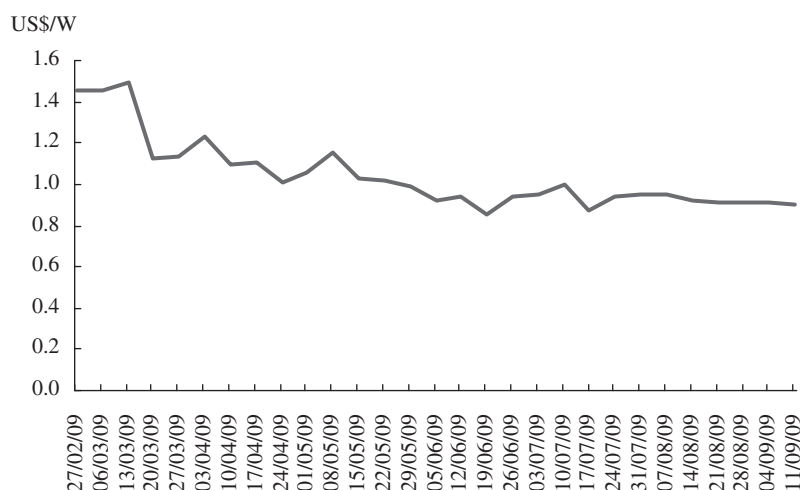
---

## INDUSTRY OVERVIEW

---

For wafers, according to Solarbuzz, the price was US\$2.20-2.30/W in October 2008, and long-term contract prices from established wafer manufacturers to Chinese cell manufacturers negotiated during the third quarter of 2008, but for delivery in 2009, was still in the range of US\$2.10-2.30/W. Meanwhile, in February 2009, wafer price already fell to US\$1.60-1.80/W. According to PHOTON Consulting, *Solar Updates 2/10/2009* (all data are rough estimates) market price dropped from US\$1.45/W in late February 2009 to the lowest of US\$0.85/W in June 2009. The market price then consolidated at this level and recently rebounded to US\$0.94/W as at late July 2009.

**Wafer spot price movement\***



Source: PHOTON Consulting, *Solar Updates 11/9/2009* (all data are rough estimates)

\* Wafer data points included prices of 156x156 monocrystalline silicon wafer, 156x156 multicrystalline silicon wafer, 125x125 monocrystalline silicon wafer and 125x125 multicrystalline silicon wafer prices, and majority of the data was 156x156 multicrystalline silicon wafer price.

According to Solarbuzz, the level of market activity and project pipeline are picking up again around the world, stimulated by a mix of government policies and growing end customer demand. These factors will help support the solar material prices.

### INFORMATION RELATING TO SOLARBUZZ LLC AND PHOTON CONSULTING

#### Solarbuzz LLC

Solarbuzz LLC is a leading international solar energy research and consulting company. It provides industry reports, commissioned studies and research and consultancy services in relation to the solar photovoltaic market and industry.

#### PHOTON Consulting

PHOTON Consulting is a leading international provider of in-depth research, management and strategic consulting services specific to the solar energy industry. PHOTON Consulting provides a range of services including business strategy and planning services, market and demand forecasting services and policy analysis services.