Global and China Solar (PV) Cell and Polysilicon Industry Report, 2009-2010

Surviving the recession in 2009, PV cell industry is heading for a boom in 2010, which is attributable to two reasons: firstly, the price dive of polysilicon has led to a slump in the price of PV cell, reduced the cost of the entire system and further stimulated the market demand in a large scale; secondly, as industrial subsidy policies worldwide are likely to be adjusted in the second half of 2010, enterprises are trying to take full advantage of such policies before they are changed.

In particular, Manufacturers in Chinese Mainland and Taiwan experienced the strongest growth, with their revenues in 2010 H1 ever higher than that of 2009 throughout. Since polysilicon holds the highest proportion in PV cell cost, the gross margins of PV cell manufacturers in 2010 H1 increased by multiple times. Despite the sluggish economy and bleak market in 2009, Mainland Chinese and Taiwanese enterprises still managed to expand capacities. By contrast, enterprises in Japan, US and Europe missed the opportunities in the first half 2010 because of their cautiousness.

Revenue of 16 PV Cell/Module Manufacturers Worldwide, 2009 H1 vs. 2010 H1 (USD mln)

	Revenue in 2009 H1	Revenue in 2010 H1
First Solar	944	1,156
SHARP	808	1,296
Suntech	637	1,213
Q—Cells	456	718
Kyocera	448	450
Tianwei Yingli New Energy Resources	366	757
SANYO	358	360
SunPower	298	732
Trina Solar Limited (TSL)	282	708
Motech Industries	232	446
Solarfun	225	475
JA Solar	123	610
Gintech	187	461
Canadian Solar Inc (CSI)	165	666
E-Ton Solar Tech	150	260
China Sunergy	107	224

Among the world's top 8 wafer manufacturers, SolarWorld is a Germany enterprise, PV CRYSTALOX is a Germany-UK joint venture, GET and Sino-American Silicon Products are both Taiwan-based, REC originates from Norway, while the rest three are Mainland Chinese enterprises. In the first half of 2010, European enterprises delivered average performance, while their Chinese counterparts achieved outstanding performance. European enterprises were so obsessed with complete industry chains, both cell and module manufacturers endeavored to manufacture wafers by themselves, and increasingly reduced their purchase of wafers. Chinese enterprises, on the contrary, had never hesitated to purchase wafers, especially when the production capacity was insufficient, which led to excellent achievements.

Revenue of Top 8 Wafer Manufacturers Worldwide (USD mln)

	Revenue in 2009	Revenue in 2010 H1
SolarWorld	1,413	807
LDK Solar	908	788
REC	933	597
Green Energy Technology (GET)	279	218
Sino-American Silicon Products	252	265
PV CRYSTALOX	331	149
Comtec Solar Systems	74	63
Solargiga Energy	68	77

Between 2008 and 2009, considerable amounts of solar polysilicon capacities were released, resulting in the oversupply which made the spot price plummet from USD500 to USD50. The price dive of polysilicon spurred the capacity expansion of downstream solar cell industry, which, in turn, stimulated the explosive demand for polysilicon. Meanwhile, the low price of polysilicon propelled polysilicon manufacturers to control capacity expansion and reduce output.

According to customs statistics, China’s import volume of polysilicon reached 3,731 tons in August, up 78.8% year on year and 1.33% month on month. The accumulative import volume hit 26,745 tons from January to August, up 109% over the same period of 2009. The export volume of polysilicon touched 190 tons in August, and the accumulative export volume was 1,536 tons from January to August.

In 2010, polysilicon has been in short supply again, and the spot price has been soaring, to almost USD100 in recent days. However, with governments’ reduction in solar subsidies and polysilicon manufacturers’ capacity expansion, further polysilicon price hikes are unlikely to occur, and the prices are expected to fluctuate between USD70 and USD150.

Polysilicon industry features lower threshold technically and financially, and it is the cost control ability that dominates. The cost of small-sized enterprises approximates USD50/kg, while that of large-sized enterprises or ones with unique technologies can be reduced to USD25 or below. Large-sized polysilicon manufacturers generally own unique technologies or supply chain cost advantages, and their EBITDA would touch 40% or more even when the spot price is set USD50/kg. While for small-sized manufacturers in China, the spot price of USD50/kg may indicate loss.

Hemlock, the world's No.1 polysilicon manufacturer, is a joint venture of US-based Dow Corning (63.25%), Japan-based ShinEtsu (24.5%) and Mitsubishi Materials (12.25%). ShinEtsu is the world's largest electronic-grade polysilicon manufacturer, and Mitsubishi Materials is also a large polysilicon enterprise. Corning is the world's largest TFT-LCD glass substrate manufacturer with rich experience in silicon chemical industry. The Germany-based Wacker is the world's second largest organic silicon producer with the annual revenue close to EUR4 billion. The Norway-based REC runs its business throughout the whole solar industry chain. REC developed its polysilicon business through the acquisitions of Komatsu Electronics' SGS and ASiMI, whose production bases are both located in the US.

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