



GCL-Poly (3800.HK)

Add green to clean

Initiate BUY

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Through the acquisition of sizable polysilicon producer, Jiangsu Zhongneng, GCL-Poly shifts its key business from clean power generation to solar cell raw material production. With the government's supportive stance on both the exploding solar industry and clean-energy power generation, we are optimistic on the long-term outlook of the counter. We expect the low-cost technology will help the solar business maintain profitable under the current low-price environment, with capacity expansion to boost revenue and net profit, in which we expect the Company to achieve 75% and 195% 2008-2011 CAGR respectively, and EPS to grow at 30.5% CAGR in the same period after dilution effect. BUY, target price HK\$4.13.

INVESTMENT HIGHLIGHTS

A mega transformation. GCL-Poly acquired 100% interest in Jiangsu Zhongneng, a sizable polysilicon producer which also trades solar wafers. Through this sizable move, GCL-Poly further consolidates its position as a clean energy play, with the new solar business/original co-generation business to contribute 74%/26% of revenue and 83%/17% of EBIT in 2010, from our estimate.

Expansion with cost leadership to mitigate industry downturn. Jiangsu Zhongneng produces polysilicon with advanced method, allowing it to achieve US\$36/kg production cost currently, comparable with international leaders and much lower than US\$50-70/kg for normal domestic players. Given capacity expansion which leads to economy of scale (fully-ramped capacity reaches 18,000 metric tons as at end 2009, up 6x yoy) and technological improvement, we expect the counter to achieve further cost reduction and strong growth in sales volume, helping it maintain competitive under the current low silicon price environment (at ~US\$60/kg).

Positive outlook on the solar industry. We expect more favourable policies will come out under government's support on the industry, which will trigger strong demand for solar products in the future. This is the key to help industry recovery and mitigate the over-supply concern of raw materials.

Valuation. We value the counter on PB basis, which is more conservative than on PE basis as the new polysilicon business has relatively short earnings history. At HK\$2.92, the counter is trading at 1.13x 2010 PB and we value it at 1.6x using SOTP method by benchmarking to international solar peers (median 1.7x) and HK listed IPPs (1.4x). Target price is set at HK\$4.13, giving a 41.4% upside. BUY.

Valuation Statistics

YE	Turnover	Net profit	Diluted EPS	Diluted EPS	PE	PB	DPS*	Yield
Dec 31	Rmb mn	Rmb mn	Rmb	chg %	x	x	Rmb	%
2007A	1,845	(267)	(0.57)	na	na	1.1	0.00	0.00
2008A	3,693	131	0.14	na	19.0	1.0	0.02	0.79
2009F	7,478	960	0.09	(35.7)	29.6	1.2	0.00	0.00
2010F	15,061	2,241	0.20	133.3	12.7	1.1	0.00	0.00
2011F	19,624	3,359	0.30	48.3	8.6	1.0	0.04	1.67

Source: Company data & ICBCI estimates

* Note: We assume no dividend for 2009 and 2010 before the repayment of the Secured Note

Key Data

Price	HK\$2.92
Target price	HK\$4.13

52W High	HK\$3.17
52W Low	HK\$0.365
Mkt. Cap. (HK\$m)	2,986.2
Mkt. Cap. (US\$m)	385.3
Total Issued Share (mn)	1,022.7
Avg. 3mths t/o (HK\$m)	27.8

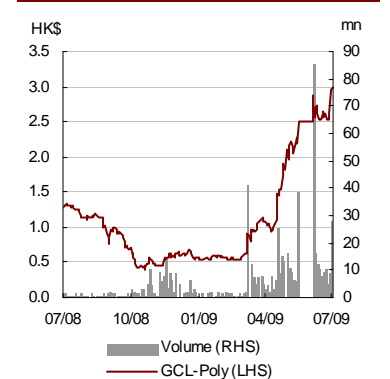
Source: Bloomberg, ICBCI Estimates

Shareholdings Structure

Zhu Gong Shan	34.47%
Morgan Stanley	15.72%
Poly (Hong Kong)	13.18%
Chang Tsong Zung	0.02%
Thornton Asset Management	0.34%
Free Float	36.27%

Source: Company

Price performance



Source: Bloomberg



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A mega transformation

On 23 Jun 2006, GCL-Poly announced the acquisition of 100% interest in Jiangsu Zhongneng, which is engaged in the production of polysilicon and sales of polysilicon and wafers for solar power generation, from the controlling Shareholder (Mr. Zhu Gong Shan) and related parties and other parties.

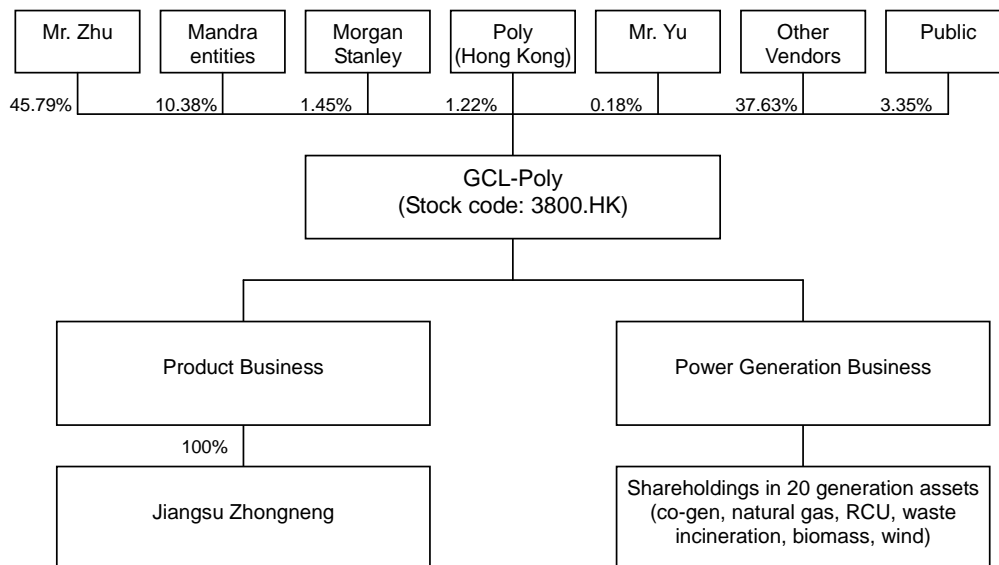
The acquired solar business generated an Rmb1,730.9mn net profit in FY08, which was 13x more than the Rmb131.3mn net profit earned from the counter's original electricity co-generation business. In other words, the counter has shifted its key business from clean power generation to solar cell raw material production.

Total consideration of the acquisition was HK\$26,350mn, representing 13.4x 08 PE, and consisted of:

- Issuance of 10,039.8mn new shares (882% of existing no. of shares) to vendors at HK\$2.2;
- Cash of US\$200mn (the source of which will be derived from funds made available to the Company from the US\$300mn bank loan facility obtained by subsidiaries of the group); and
- Issuance of Secured Note of US\$350mn.

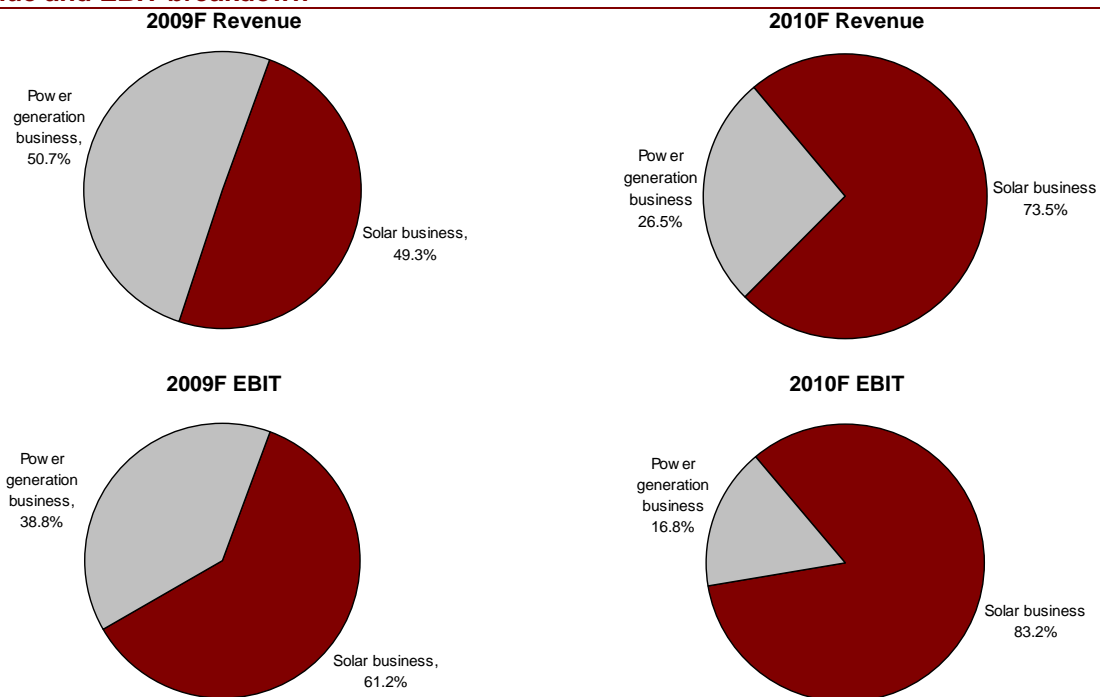
In addition, the counter would consider issuing a maximum of 2,212.5mn shares, which represents 20% of the total number of issued shares after the above acquisition, for repayment of the Secured Notes and US\$300mn of bank borrowings arising from the acquisition.

Shareholder structure after acquisition



Source: Company, ICBCI estimates

Change in business mix. GCL-Poly was originally engaged in the power generation business with cogeneration and incineration plants, having environmentally friendly features. After the acquisition, the counter further strengthens its position as a clean-energy play, with the new solar business to contribute more than 70% of total revenue and over 80% of EBIT since 2010, from our estimate.


Revenue and EBIT breakdown


Source: ICBCI estimates

Bright future for the solar power industry

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We are optimistic on the outlook of the solar industry as one of the major development areas of China's energy resources due to the following reasons.

- We expect more policies to come out, which will stimulate more investments in the industry; especially the industry is at preliminary stage of development.
- China is well positioned for the development of the global solar industry, being one of the major production sites of raw materials in the world with famous brand names (e.g. Suntech, LDK) and low labour cost. Rapid domestic development of solar power, as promoted by the PRC government, also provides growth opportunity for local peers.
- We expect supply surplus for solar related materials, including polysilicon and wafers, to persist with capacity expansion of existing players and more new entrants to enter the market. This will keep product prices at relatively low level, and industry peers can only strive to earn normal, meager profit in the long-run. Policy-driven demand is the key to boost industry growth and the absorption of excess capacity. Large-scale peers with cost leadership will be in advantageous position, in our view.
- Technological upgrade is another key to help reduce costs of solar power electricity production, enhancing the competitiveness of solar power producers. Lowering installation cost and per-unit power generation cost will help increase competitiveness of solar power producers compared with traditional power producers, as well as increasing investment return of solar projects which will support rapid and healthy development of the industry.

GCL-Poly's solar business

Jiangsu Zhongneng engages in the production of polysilicon, which is the primarily raw material for making PV cell (for the value chain of PV cell, please refer to Appendix I: The solar industry overview - The PV Value Chain" on p.11-12).

In an expansion mode. Jiangsu Zhongneng was founded in Mar 2006 for the production and sales of solar-grade polysilicon, with the first phase to commence production in Oct 2007. It targeted to reach full-ramped production capacity of 18,000 metric tons as at end 2009 or 6x a year before, and further to 21,000 metric tons with further technical improvement, meeting the policy-driven demand growth. By then, Jiangsu Zhongneng will become one of top 5 polysilicon producers globally and largest in China, according to management.

To further integrate its solar business, the counter plans to construct its own wafer production line with annual capacity of 1GW in the next 12 months.

Polysilicon production capacity plan

Production facility	Planned annual production capacity (metric tons)	Planning/construction commencement	Commencement of commercial production	Achievement of fully-ramped production capacity
Xuzhou Phase I	1,500	July 2006	October 2007	March 2008
Xuzhou Phase II	1,500	August 2007	July 2008	December 2008
Xuzhou Phase III	15,000	December 2007	December 2008	December 2009

Source: Company

Capacity of selected international polysilicon producers

Polysilicon producers (MT)	Ticker	2008	2009	2010	2011
Jiangsu Zhongneng	3800 HK	3,000	18,000	21,000	21,000
Tokuyama	4043 JP	8,200	8,200	8,200	8,200
Osaka Titanium	5726 JP	1,400	1,400	1,400	1,400
Hemlock	Na	19,000	27,500	36,000	36,000
Renewable Energy Corporation	REC NO	0	6,500	10,500	17,500
LDK Solar	LDK US	0	11,000	16,000	16,000
OCI Company (formerly DC Chemical)	010060 KS	6,500	16,500	26,500	26,500
Wacker Chemie	WCH GR	15,000	15,000	25,500	35,500

Source: Company, ICBCI estimates

Capacity of selected international wafer producers

Wafer producers (MW)	Ticker	2008	2009	2010	2011
Jiangsu Zhongneng	3800 HK	-	-	1,000	1,000
Yingli Green Energy	YGE US	400	1,000	1,000	1,000
Renewable Energy Corporation	REC NO	100	750	1,025	1,765
LDK Solar	LDK US	1,460	1,500	2,000	2,000
Motech	6244.TT	100	170	170	170
Q-Cells	QCE GR	760	1,300	1,300	1,300
Solarworld	SWv GR	600	1,000	1,500	1,750

Source: Company, ICBCI estimates

Cost leadership. Jiangsu Zhongneng adopts an advanced polysilicon production method (called “modified Siemens method”). This involves using chemical methods to recycle STC (silicon tetrachloride), a by-product in the polysilicon production process, into TCS (trichlorosilane), one of the main and most costly production inputs used in the production of polysilicon.

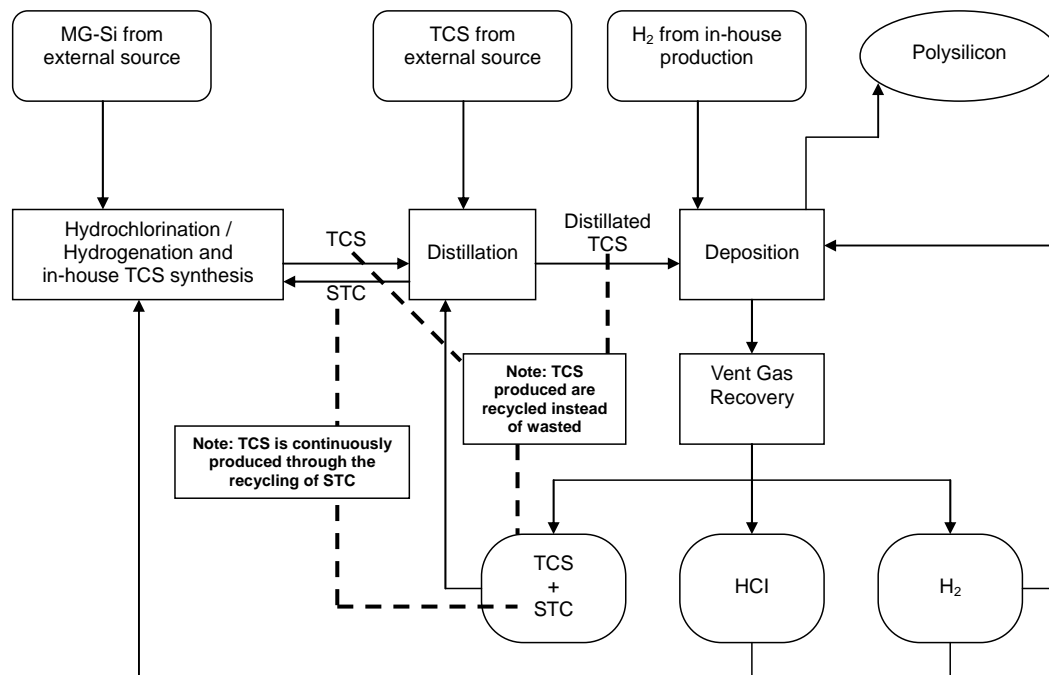
Using this method, the counter is able to significantly reduce externally purchased TCS, bringing polysilicon production costs to US\$36.3/kg currently (with TCS cost to contribute ~26% of production cost currently vs. previously >60%, from our estimate). This is comparable to global industry leaders’ US\$20-35/kg, and much lower than US\$50-70/kg for domestic producers and US\$100/kg for new comers. Under this lower-than-peer production cost, Jiangsu Zhongneng is still capable to register profit under the current low polysilicon price environment (~US\$60/kg), with a unit gross margin of ~38% in 2H09 from our estimate. Further reduction in unit cost could be achieved with higher percentage usage of in-house produced TCS (up to ~90%) and higher capacity to bring economy of scale, in our view.

Polysilicon production cost

	2008	1Q2009	May 2009	June 2009
% usage of in-house produced TCS	20.9%	37.3%	77.2%	80.0%
Unit production cost (Rmb/kg)	458.6	331.0	249.5	246.8
Unit production cost (US\$/kg)	67.4	48.7	36.7	36.3

Source: Company, ICBCI estimates

The polysilicon production method



Source: ICBCI estimates

Moreover, by adding the new wafer production capacity, Jiangsu Zhongneng could potentially reduce wafer production cost by ~14% from our estimate, with non-silicon cost at approximately US\$0.31/W which is comparable to established international peers like LDK and Yingli. Currently, Jiangsu Zhongneng provides polysilicon to third parties for cutting into wafer.

Key operational assumptions

	2008	2009F	2010F	2011F
Polysilicon				
ASP (ex-VAT) (US\$/kg)	282.2	58.1	55.2	53.0
Yoy growth		-79.4%	-5.0%	-4.0%
Sales volume (metric tons)	1,530	7,275	14,400	18,900
Yoy growth		375.5%	97.9%	31.3%
Unit production cost (US\$/kg)	67.4	36.00	32.26	30.93
Yoy growth		-46.6%	-10.4%	-4.1%
Wafer				
ASP (ex-VAT) (US\$/W)	2.21	0.80	0.76	0.72
Yoy growth		-63.9%	-5.0%	-5.0%
Sales volume (MW)	39.2	658.3	1,097.2	1,755.5
Yoy growth		1579.4%	66.7%	60.0%
Unit cost (US\$/W)	0.97	0.63	0.58	0.55
Yoy growth		-35.0%	-7.2%	-6.2%

Source: ICBCI estimates

Increasing silicon and wafer sales. With the enlarged scale, Jiangsu Zhongneng targets to produce 7,500 metric tons of polysilicon in 2009, compared with 1,850 metric tons produced in 2008 (1,530 metric tons sold) and 1,094 metric tons produced in 1Q09. We estimate the counter to sell about 7,275 metric tons/14,400 metric tons in 2009/2010, representing 376%/98% yoy growth, on expectation of improving demand under government's boost on solar power usage.

The counter has a 15.4GW wafer long-term sales contracts on hand, compared with only 39.2MW shipment in 2008. Therefore, we expect a strong growth in wafer sales in the coming years, further facilitated by the launch of the 1GW production capacity by 2010.

ASP will drop gradually. Jiangsu Zhongneng has got a 33,311 metric tons polysilicon and 15.4GW long-term contract sales on hand for delivery from 2008-2015. Due to the tumble in market prices of solar material sine late 2008, the contracts were re-negotiated basing on spot market prices which were lower than the previous contract price. We expect the counter to register gradually falling ASP amid more abundant supply and falling production costs in the industry.

Government support. In addition to the central government's initiative to boost usage of renewable energy, Jiangsu Province also sets out its own development plans in June 09. Main points included 1) 2009-11 total installed capacity being 80MW, 150MW and 170MW respectively compared with 2.856MW currently; 2) setting the solar on-grid tariff for 2009-2011 at high level, subsidized by a charge on power users; 3) supporting the growth of local large-scale peers and technological development. Strong support by local government will boost investments in the field, promoting growth of solar industry and benefiting peers in the region.

Strong earnings growth projected

Earnings to grow 195% 2008-11 CAGR. We expect the sizable acquisition to significantly boost revenue and profit amid gradual improvement of demand for polysilicon and wafers. Power consumption will also rebound under economic recovery, and we hold our positive view on the counter's clean power generation businesses which are more welcomed by government.

Overall, we expect strong growth momentum, with revenue and net profit to grow at 75% and 195% CAGR in 2008-2011, 102%/631% yoy in 2009 and 101%/133% yoy in 2010 respectively. EPS will grow at 30.5% CAGR in the same period after dilution effect.

Power generation business also a niche segment. GCL-Poly operates 20 power plants, including 14 coal-fuelled cogeneration plants and resources comprehensive utilization plants, 2 gas-fuelled cogeneration plants, 2 biomass cogeneration plants, 1 solid waste incineration plant and 1 wind power plant. Total capacity is expected to reach 753.3MW as at end 2009. We are also optimistic on this segment for its plants being government supportive types. Moreover, the fall in average coal cost, from ~Rmb470/ton in 2008 to ~Rmb430/ton currently, will help mitigate the negative effect of decreasing power demand and further drives earnings growth.

Valuation

We value GCL-Poly on PB basis, which is more conservative than on PE basis as the new polysilicon business has relatively short earnings history. At HK\$2.92, the counter is trading at 1.13x 2010 PB. We derive our target price using SOTP valuation by benchmarking to the 2010 median PB values of solar peers (1.7x) and IPPs (1.4x) respectively, in proportion to the 2010 revenue breakdown of the two segments. Our target valuation is thus at 1.6x 2010 PB. We believe GCL-Poly deserves higher valuation than IPPs due to its high exposure to the alternative energy sector; meanwhile the discount to the international solar peers is justified for the relatively short history. We thus set our target price at HK\$4.13, translating to 41.4% upside. Initiate with BUY.

Valuation breakdown

	Solar business	Power business	Total
2010 Revenue (Rmb mn)	11,075.0	3,986.2	15,061.3
As % of total	73.5%	26.5%	100.0%
Benchmark P/B (x)	1.7	1.4	1.6
Current P/B (x)			1.13
Target price (HK\$)			4.13
Upside			41.4%

Source: Bloomberg, ICBCI estimates

Peer comparison

Name	Code	Mkt cap (US\$mn)	Price (Loc \$)	Last rpt FY end	PE (x)		EPS growth (%)		Yield (%) 12mth	PB (x)	
					Cur. Y	Next Y	Cur. Y	Next Y		Cur. Y	Next Y
GCL ENERGY HLDGS	3800 HK	385	2.92	12/2008	29.6	12.7	(35.7)	133.3	0.00	1.24	1.13
IPP peers											
CHINA RES POWER	836 HK	10,817	17.96	12/2008	19.2	15.4	130.3	24.8	0.71	2.34	2.11
HUANENG POWER-H	902 HK	13,119	5.44	12/2008	17.4	14.4	n/a	21.0	2.09	1.44	1.35
DATANG INTL PO-H	991 HK	13,193	4.8	12/2008	18.8	15.1	275.0	24.9	2.60	1.67	1.53
HUADIAN POWER-H	1071 HK	4,252	2.65	12/2008	11.5	10.0	n/a	15.3	0.00	1.02	0.96
CHINA POWER INTE	2380 HK	1,182	2.54	12/2008	11.3	9.1	n/a	23.7	0.00	0.88	0.82
Average					15.6	12.8				1.5	1.4
Median					17.4	14.4				1.4	1.4
International solar peers											
Polysilicon											
					Exposure						
LESHAN ELEC POWE	600644 CH	558	11.67	12/2008	33.3	20.5	33.7	62.3	0.69	n/a	n/a
BAODING TIANWEI	600550 CH	6,597	38.58	12/2008	40.3	32.0	18.3	26.0	0.52	9.41	7.22
SHANG AERO-A	600151 CH	1,531	13.97	12/2008	214.9	107.5	65.0	100.0	0.18	n/a	n/a
WUHAN LINUO SOLA	600885 CH	256	11.39	12/2008	n/a	n/a	n/a	n/a	0.00	n/a	n/a
CSG HOLDING CO-A	000012 CH	2,541	18.56	12/2008	36.8	28.5	44.3	28.9	0.54	4.31	3.68
SICHUAN CHUAN-A	600674 CH	1,905	20.38	12/2008	25.1	25.8	44.6	-2.7	0.34	4.17	3.30
TONGWEI CO-A	600438 CH	1,072	10.65	12/2008	35.0	30.5	97.9	14.8	0.00	5.85	4.47
TOKUYAMA CORP	4043 JP	1,870	641	03/2009	18.0	n/a	n/a	n/a	0.94	0.91	0.86
MITSUBISHI CHEMI	4188 JP	6,088	382	03/2009	-ve E	n/a	n/a	n/a	2.09	0.83	0.83
OSAKA TITANIUM	5726 JP	1,215	3120	03/2009	n/a	209.4	n/a	n/a	0.48	n/a	n/a
MEMC ELEC MATER	WFR US	4,193	18.76	12/2008	59.7	15.4	-81.6	286.9	0.00	2.00	1.83
RENEWABLE ENERGY	REC NO	4,858	46.3	12/2008	22.2	10.5	-61.3	111.2	0.00	1.41	1.25
LDK SOLAR CO-ADR	LDK US	1,043	9.22	12/2008	-ve E	14.9	n/a	n/a	0.00	1.38	1.25
OCI CO LTD	010060 KS	377,733	225000	12/2008	9.9	8.2	45.0	21.1	0.67	2.46	1.63
WACKER CHEMIE AG	WCH GR	6,493	87.49	12/2008	24.9	12.7	-60.3	96.8	2.06	2.04	1.79
Average					47.3	43.0				3.2	2.6
Median					33.3	23.2				2.0	1.8
Wafer peers											
					Exposure						
SOLARGIGA ENERGY	757 HK	594	2.71	12/2008	50.8	26.0	-8.2	95.7	0.63	3.09	2.65
SHENZHEN TOPRA-A	002218 CH	1,377	32.67	12/2008	90.8	66.7	38.5	36.1	0.05	16.63	11.11
YINGLI GREEN-ADR	YGE US	1,673	11.73	12/2008	27.9	12.1	-45.5	131.4	0.00	1.78	1.56
TRINA SOLAR-ADR	TSL US	740	25	12/2008	21.3	11.1	-52.0	92.0	0.00	1.47	1.26
MOTECH INDUSTRIE	6244 TT	944	124	12/2008	30.4	16.1	-55.8	89.3	2.42	2.11	1.92
Q-CELLS SE	QCE GR	1,786	11.06	12/2008	-ve E	12.3	n/a	n/a	0.00	0.83	0.79
SOLARWORLD AG	SWv GR	2,583	16.25	12/2008	14.1	11.5	-13.3	22.5	0.92	1.87	1.65
KYOCERA CORP	6971 JP	13,825	6830	03/2009	54.0	n/a	-19.6	n/a	0.00	0.93	0.92
Average					41.3	22.2				3.6	2.7
Median					30.4	12.3				1.8	1.6
Overall solar											
Average					45.0	35.3				3.3	2.6
Median					31.9	16.1				2.0	1.7

Source: Bloomberg, ICBCI estimates

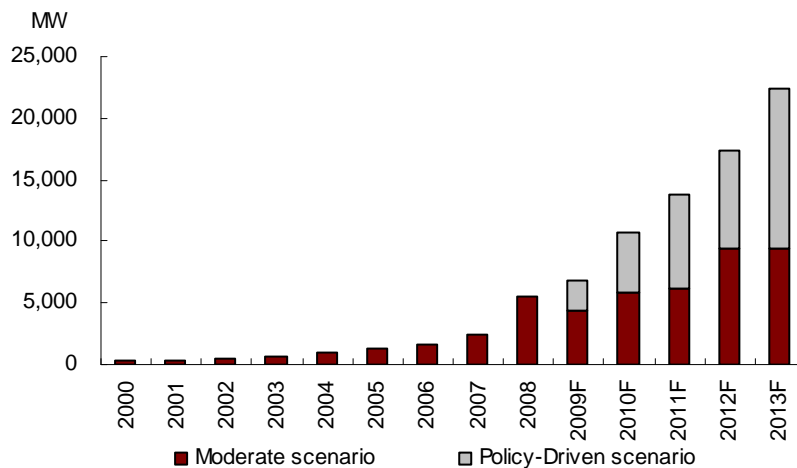
Key risks:

1. More significant slowdown in global and domestic regional economy will affect investment sentiment on solar power plants and thus affect demand.
2. More aggressive increase in product capacity may result in worsening over-supply status and lead to further plunge in product price.
3. After completion of the acquisition, GCL-Poly will register a huge goodwill, amounted to Rmb20.8bn (on top of the original Rmb116mn) from our estimate. This goodwill will be subject to annual review, and impairment loss could arise from any unfavourable factors, such as those stated in the first 2 points above, affecting the outlook of the solar business.
4. Change in government's intention to support the renewable energy sector.
5. Rapid change in technology such that the counter is not able to catch up.
6. Significant surge of coal price.
7. More stringent environmental protection policies could increase operating costs for the counter's power business.

Appendix I: The solar industry overview

More use of the sun. With increasing focus on the development of renewable energy, the solar power business experienced strong growth in previous years. According to European Photovoltaic Industry Association (“EPIA”), total global solar PV installed capacity was 14.7GW as at end 2008, up 5,559MW or 60.8% yoy, and registered a 31.4% CAGR in 1998-2008. It made forecast that total capacity will add 4,620MW to 12,250MW from 2009-2013 under moderate scenario, or 6,802-22,325MW under a more aggressive policy-driven scenario.

Annual PV capacity addition



Source: European Photovoltaic Industry Association

In China, total PV power installed as at end 2008 was 145MW, up 45% yoy and has only a small contribution to the world’s total. EPIA forecasted that it will reach 2,225MW as at end 2013E (representing a 15.3x growth from current level) under moderate scenario, or to 4,195MW (28.9x growth) under a more aggressive policy-driven scenario. In fact, the NDRC and National Energy Administration (“国家能源局”) are formulating new development plans for the new energy sector. According to market source, total PV installed capacity target for 2020 was revised up significantly, from 1.8GW to 20GW, signaling huge growth potential and higher demand for PV products.

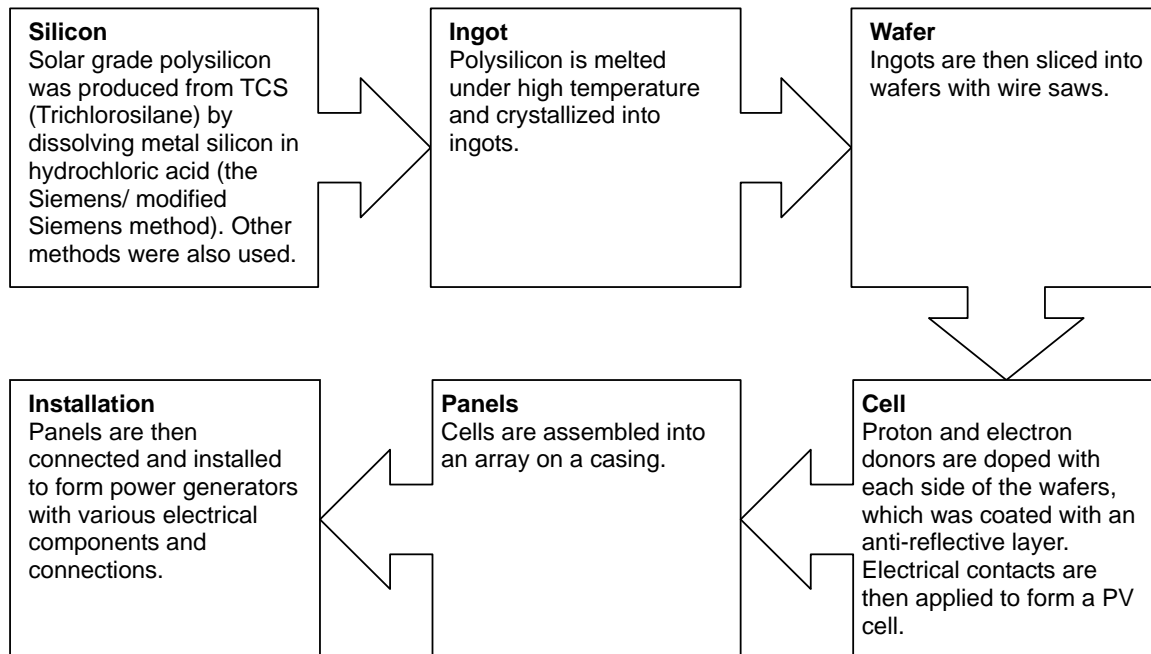
The PV value chain

There are two main types of solar cell technologies:

- Crystalline silicon solar cells (accounting for 87.0% of the world’s total solar cells production in 2008); and
- Thin film solar cells (13.0%).

Crystalline silicon cells have higher conversion efficiency ratios than the thin-film types, being 12-18% and 5-12% respectively. Meanwhile, crystalline silicon cells have higher conversion costs. The typical value chain for crystalline silicon cells is shown below:

Crystalline silicon cells value chain



Source: ICBCI Estimates

A) Polysilicon

Polysilicon is the key raw materials for making wafers. It is previously used for making semiconductors for the electronics industry and is now mainly used for the solar industry (about 60% of total usage, from our estimate).

Tight supply previously. As a result of rapid expansion of the solar industry, polysilicon was in under-supply condition in previous years. In 2007, total polysilicon production was 45,000 metric tons compared with 52,000 metric tons of demand for the year, translating to a shortage of 7,000 metric tons. Spot price of polysilicon also increased from ~US\$60/kg in 2005 to the ~US\$450/kg peak in mid 2008, much higher than the contract prices of around US\$60-110/kg in the period.

PRC Polysilicon price


Source: China Electronics News Agency

Reversal since 2008. Due to supply shortage and the exceptional profits generated from the high prices, many new comers entered the market, and existing producers also increased their production capacity. According to SOLARBUZZ, polysilicon supply to the solar industry grew by 127% in megawatt terms in 2008, sufficient to substantially ease supply limitations.

Meanwhile, the global economic slowdown somehow reduced new investments in solar power, and slowed down growth in PV capacity installation in 2008-2009. The enormous growth of polysilicon capacity and technology upgrade (which reduced use of polysilicon per watt of cell production) exacerbated the over-supply situation. We estimate effective production capacity to reach approximately 61,000 metric tons in 2008, and grow at 56% yoy to 90,250 metric tons in 2009.

Assuming global addition of PV capacity by 4,620MW in 2009 (EPIA's Moderate Scenario Forecast), we estimate the demand of solar-grade polysilicon to reach about 35,703 metric tons, and total demand would be about 63,721k metric tons with a surplus supply of 26,529 metric tons. The over-supply threat also resulted in significant plunge of spot polysilicon price, from the ~US\$450/kg peak in mid 2008 to the ~US\$55/kg low in May 09.

More boost on capacity required. We expect solar power will become major driving force of polysilicon demand, contributing to over 70% of total polysilicon demand since 2010. Large-scale promotion of PV capacity installation by governments, which will cause demand recovery since 2010, and slowdown in new capacity commencement by producers are keys to absorb the new polysilicon capacities and improve the over-supply situation, in our view (as indicated under EPIA's Policy-driven Scenario).

Polysilicon demand and supply forecast

		2008A	2009F	2010F	2011F
Effective polysilicon production	Metric tons	61,000	90,250	117,750	147,750
Moderate Scenario (EPIA) ⁽ⁱ⁾					
Annual PV addition	MW	5,559	4,620	6,000	7,540
Polysilicon demand *	Metric tons	77,826	63,721	73,468	83,477
- Solar	Metric tons	46,696	35,703	44,050	52,588
- Electronic	Metric tons	31,130	28,017	29,418	30,889
Over-supply	Metric tons	(16,826)	26,529	44,282	64,273
Policy-driven Scenario (EPIA) ⁽ⁱⁱ⁾					
Annual PV addition	MW	5,559	6,802	10,790	13,810
Polysilicon demand *	Metric tons	77,826	80,583	108,634	127,207
- Solar	Metric tons	46,696	52,566	79,216	96,318
- Electronic	Metric tons	31,130	28,017	29,418	30,889
Over-supply	Metric tons	(16,826)	9,667	9,116	20,543

Source: EPIA, ICBCI Estimates

Note:

(i) The Moderate scenario is based on the assumption of a 'business as usual' scenario which does not assume any major enforcement of existing support mechanisms.

(ii) The Policy-Driven scenario is based on the assumption of the follow-up and introduction of support mechanisms in a large number of countries.

* Include both solar and electronic demand

Price shows sign of rebound recently, stabilization in the long-run. We see spot price for polysilicon to show ~10% rebound, from US\$55/kg in May to US\$60/kg currently. Meanwhile, in the long-run, we expect convergence of spot and contract product prices as increase in capacity will still overhang product prices, but we think policy-driven demand could limit downside risk. Price tumble is not likely, in our view. Technology upgrade will help improve profitability under lower price environment.

B) Wafers

The economic slowdown also adversely affected the demand and product prices of wafers. We estimate the current price of wafers is approximately US\$1/W, down from over US\$2/W last year.

As for polysilicon, we believe the strong growth of PV installed capacity, driven by government promotions, will provide support to the demand and price of wafers, balancing the D&S status. We expect wafer price to gradually decline with reduced production cost and technological upgrade.

Moreover, decreased polysilicon price, which contributed over 50% of total production costs of wafers previously and now at approximately 37%, will help improve profitability of wafer producers. Technological upgrade, e.g. using thinner wafers (170µm on average in 2008 and is estimated to reach 150µm by EPIA), will help further reduce unit non-silicon production costs.



Wafer demand and supply forecast

		2008	2009	2010	2011
Year-end wafer capacity	MW	8,300	10,800	14,000	16,500
Moderate Scenario (EPIA) ⁽ⁱ⁾					
Annual PV addition	MW	5,559	4,620	6,000	7,540
Over-supply	MW	2,741	6,180	8,000	8,960
Moderate Scenario (EPIA) ⁽ⁱⁱ⁾					
Annual PV addition	MW	5,559	6,802	10,790	13,810
Over-supply	MW	2,741	3,998	3,210	2,690

Source: EPIA, ICBCI Estimates

Note:

(i) The Moderate scenario is based on the assumption of a 'business as usual' scenario which does not assume any major enforcement of existing support mechanisms.

(ii) The Policy-Driven scenario is based on the assumption of the follow-up and introduction of support mechanisms in a large number of countries.

Appendix II: PV related policies in China

Area	Description
Targets	2020 target of total PV installed capacity at 20GW, up from the original target of 1.8GW
Subsidies	Ministry of Finance and Ministry of Housing and Urban-Rural Development ("MOHURD") highlighted that 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. Set a preferential tariff rate for a solar power project at Dunhuang, Gansu, at Rmb1.09 per kWh, compared to Rmb0.3 per kWh by coal-fired electricity.
Provincial-level policy	<ul style="list-style-type: none"> ■ Jiangsu: 1) 2009-11 total installed capacity being 80MW, 150MW and 170MW respectively compared with 2.856MW currently; 2) setting the solar on-grid tariff for 2009-2011 at high level, subsidized by a charge on power users; 3) supporting the growth of local large-scale peers and technological development. ■ Qinghai: 13 major projects to launch in 2009-2015, with total revenue being targeted to reach Rmb86.0bn as at end 2015.

Sources: PRC Ministry of Finance, 'Jiangsu Provincial Government Photovoltaic Power Generation Promotion Opinion' (《江苏省光伏发电推进意见》), 2009-2015 Qinghai Provincial Government Solar Power Industry Development and Application Promotion Plan (《青海省太阳能产业发展及推广应用规划(2009年-2015年)》), ICBCI estimates



Financial projection

Income Statement

YE Dec 31 (Rmb mn)	2007A	2008A	2009F	2010F	2011F
Revenue	1,845	3,693	7,478	15,061	19,624
Cost of sales	(1,482)	(3,196)	(5,758)	(10,792)	(13,947)
Gross profit	362	497	1,720	4,270	5,678
Other income	109	168	229	269	323
Distribution and selling expenses	0	(7)	(14)	(29)	(38)
Administrative expenses	(143)	(213)	(432)	(870)	(1,134)
Other expenses and losses	(67)	(24)	(49)	(99)	(129)
Finance costs	(162)	(259)	(443)	(967)	(831)
Share of results of associates	20	45	44	46	48
Change in fair value of convertible notes	(340)	0	0	0	0
Discount on acquisition of a subsidiary	3	0	0	0	0
Profit (loss) before tax	(216)	207	1,054	2,619	3,917
Income tax (expense) credit	4	(27)	(44)	(326)	(504)
Profit (loss) for the period	(212)	180	1,010	2,293	3,414
Minority interests	(55)	(48)	(50)	(52)	(55)
Net profit	(267)	131	960	2,241	3,359

Source: Company data, ICBCI estimates

Balance Sheet

YE Dec 31 (Rmb mn)	2007A	2008A	2009F	2010F	2011F
NON-CURRENT ASSETS					
Property, plant and equipment	4,658	4,948	10,202	9,970	9,725
Prepaid lease payments	234	228	399	387	375
Interests in associates	73	245	289	335	384
Goodwill	117	116	20,918	20,918	20,918
Other non-current assets	38	125	1,326	1,326	1,326
Non-Current Assets	5,119	5,662	33,135	32,937	32,727
CURRENT ASSETS					
Inventories	126	259	338	680	886
Trade and other receivables	380	366	591	1,191	1,552
Other current assets	195	138	335	335	335
Pledged bank deposits	242	231	508	508	508
Bank balances and cash	804	414	3,457	5,954	11,571
Current Assets	1,748	1,407	5,229	8,668	14,852
Total assets	6,867	7,070	38,364	41,605	47,580
CURRENT LIABILITIES					
Trade and other payables	139	110	1,747	3,519	4,586
Other current liabilities	526	780	182	297	370
Borrowings – due within one year	1,492	1,652	2,745	3,019	5,974
Other borrowings	0	0	0	0	0
Convertible loan notes	0	0	0	0	128
Secured note - due within one year	0	0	1,587	793	0
Current Liabilities	2,157	2,542	6,261	7,629	11,058
NON-CURRENT LIABILITIES					
Advances from customers	0	0	1,752	1,752	1,752
Other non-current liabilities	85	107	320	314	308
Borrowings – due after one year	1,988	1,597	5,832	6,211	5,435
Secured note - due after one year	0	0	793	0	0
Convertible loan notes	0	0	85	85	0
Non-Current Liabilities	2,073	1,704	8,782	8,362	7,495
MINORITY INTERESTS	364	408	458	510	565
CAPITAL AND RESERVES					
Share capital	93	93	981	981	981
Reserves	2,180	2,323	21,882	24,123	27,481
Shareholders' funds	2,273	2,416	22,863	25,103	28,462
Total equities & liabilities	6,867	7,070	38,364	41,605	47,580

Source: Company data, ICBCI estimates



Cash Flow Statement

YE Dec 31 (Rmb mn)	2007A	2008A	2009F	2010F	2011F
Operating cash flows before movements in working capital	408	683	1,797	3,998	5,121
Change in working capital	(191)	(23)	2,425	830	499
Cash generated from operations	217	661	4,222	4,827	5,621
Income taxes paid	(3)	(17)	27	(211)	(431)
Operating cash flow	214	644	4,249	4,617	5,190
Investing cash flow	(124)	(490)	(28,042)	(220)	(170)
Financing cash flow	538	(532)	26,836	(1,900)	597
Change in cash	628	(378)	3,043	2,497	5,617
Beginning cash	188	804	414	3,457	5,954
Effect of foreign exchange rate changes	(12)	(13)	0	0	0
Ending cash	804	414	3,457	5,954	11,571

Source: Company data, ICBCI estimates

Ratio analysis

YE Dec 31	2007A	2008A	2009F	2010F	2011F
Gross margin (%)	19.6	13.5	23.0	28.3	28.9
Pre-tax margin (%)	(11.7)	5.6	14.1	17.4	20.0
After-tax margin (%)	(11.5)	4.9	13.5	15.2	17.4
Net margin (%)	(14.5)	3.6	12.8	14.9	17.1
Core profit margin (%)	2.6	3.6	12.8	14.9	17.1
EBITDA (%)	21.1	17.6	23.9	26.5	26.1
EBIT (%)	12.5	10.9	18.5	23.0	23.3
Asset turnover (x)	0.3	0.5	0.2	0.4	0.4
Total assets/total liabilities (x)	1.6	1.7	2.6	2.6	2.6
Net debt to equity (%)	107.1	105.5	30.7	14.3	(2.1)
Current ratio (x)	0.8	0.6	0.8	1.1	1.3
Quick ratio (x)	0.8	0.5	0.8	1.0	1.3
ROAE (%)	(20.6)	5.6	7.6	9.3	12.5
ROCE (%)	(4.6)	2.3	2.8	6.4	8.4
ROA (%)	(3.9)	1.9	2.5	5.4	7.1
Revenue growth (%)	97.6	100.2	102.5	101.4	30.3
Gross profit growth (%)	77.3	37.2	245.9	148.2	33.0
Net profit growth (%)	(546.1)	na	631.4	133.3	49.9
PE (X)	na	19.0	29.6	12.7	8.6
PEG (X)	na	na	(0.8)	0.1	0.2
P/BV (x)	1.1	1.0	1.2	1.1	1.0
EV/EBTDA (x)	12.7	7.8	19.8	8.0	5.5
Yield (%)	0.0	0.8	0.0	0.0	1.7

Source: Company data, ICBCI estimates

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