

Comtec Solar

Discussion on n-type wafer

to summarize...

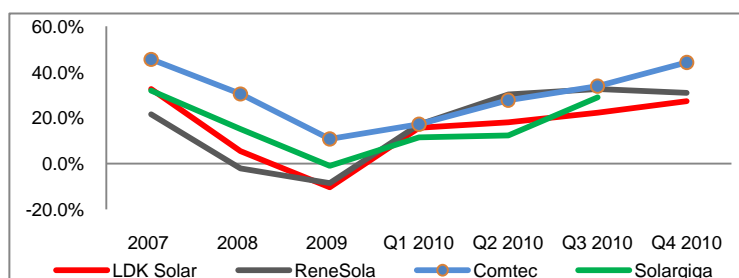
- Recorded RMB311.9m revenue with 44.2% gross margin in Q4 FY12/10A
- Anticipating 30%+ gross margin in Q1 2011
- Continual quality improvement – n-type wafer up to 23% conversion efficiency
- Looking forward to mass-produce n-type wafers to leading cell manufacturer
- Maintain BUY with target price at HK\$3.91, yet to factor in effect of n-type wafer

2010 results summary. Comtec Solar recorded RMB311.9m revenue with 44.2% gross margin in Q4 FY12/10A. The table and figure below show quarterly results in FY12/10A and gross margin comparison among major wafer producers.

Table 1. FY12/10A quarterly results

RMB m	Q1 FY12/10A	Q2 FY12/10A	Q3 FY12/10A	Q4 FY12/10A
Revenue	198.3	230.8	280.4	311.9
Gross profit	34.0	64.0	94.8	137.8
Profit for the period	20.3	48.2	80.8	73.6

Figure 1. Gross profit margin of Comtec Solar is consistently higher



Source: SBI E2-Capital

Updates on Q1 estimates. LDK solar (LDK US) guided a gross margin between 27% and 29% for Q1 FY12/11F earlier this month. Renesola (SOL US) indicated a higher range between 30% and 32%. Since Comtec continues to outperform its peers in gross margin, we are comfortable with our gross margin estimates for Comtec at 30.6% for Q1 FY12/11F. There is potential for a positive surprise.

Table 2. FY12/11F quarterly forecast

RMB m	Q1 FY12/11F	Q2 FY12/11F	Q3 FY12/11F	Q4 FY12/11F
Revenue	426.8	639.7	913.3	1,201.4
Gross profit	130.4	167.7	208.2	258.9
Profit for the period	89.7	113.2	137.4	169.3

Source: SBI E2-Capital

Successfully promotes larger wafers to the market. Comtec has been among the first wafer producers to introduce 156mm x 156mm mono-wafers to the market since 2007. While in 2009 there were 47% sales from 125 mm x 125mm, about 88% revenue was from 156mm x 156mm wafers in 2010. Comtec also obtained pilot orders of 210mm x 210mm wafers last year. These effectively reduce per W material cost to enhance product competitiveness for Comtec Solar brand.

Ticker	0712 HK
Rating	BUY
Price (HK\$)	3.44
Target Price (HK\$)	3.91 (+13.7%)
12m Price Range (HK\$)	1.22-3.65
Market cap. (US\$m)	500.3
Daily t/o (US\$m)	1.9
Free float (%)	35.1

Financial summary

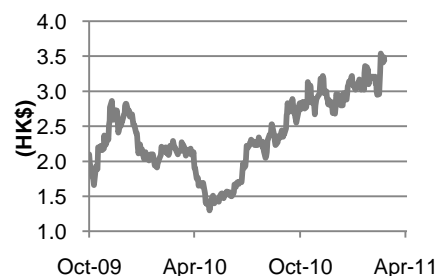
Year to Dec	09A	10A	11F	12F	13F
Turnover (RMBm)	507	1,021	3,181	5,052	6,408
Net Profit (RMBm)	25	223	510	719	981
EPS (RMB)	0.032	0.197	0.450	0.635	0.866
P/E (x)	121.8	13.6	6.0	4.2	3.1
P/B (x)	2.9	2.0	1.5	1.2	0.9
EV/EBITDA (x)	45.7	9.4	4.0	2.8	2.0
Yield (%)	0	0.7	1.7	2.4	3.2
ROE (%)	2.8	17.5	30.7	32.6	33.3
ROCE (%)	2.8	17.5	30.7	32.6	33.3
N. Gear. (%)	Cash	Cash	Cash	Cash	Cash

Source: SBI

	11F	12F	13F
Consensus EPS (RMB)	0.449	0.579	0.835
Previous earnings (RMBm)	502	723	--
Previous EPS (RMB)	0.443	0.638	--

Price performance

Year to Dec	1m	3m	12m
Relative to HSI (%)	4.3	23.7	38.1
Actual price changes (%)	3.9	23.3	50.2



Source: Bloomberg

Kevin Mak

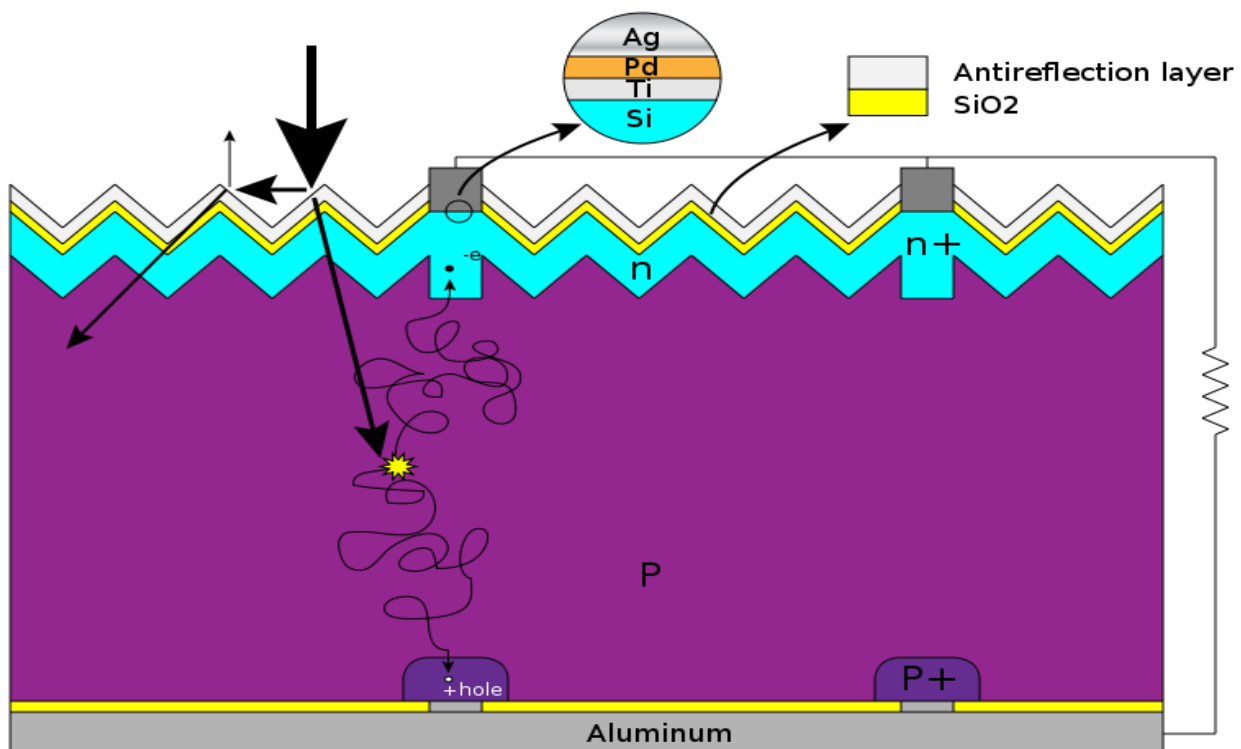
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Continual quality improvement beyond 2011 – n-type wafer up to 23% conversion efficiency. Traditionally, solar cells are made by forming a thin n-type semiconductor layer on a thick p-type wafer, which are called p-type cells. Majority wafer producers, including Comtec Solar, provide p-type wafers where conversion efficiency is currently capped below 20%. A couple of leading companies, such as Sanyo (6764 JP) and SunPower (SPWRA US), produces n-type cells by n-type wafers with conversion efficiency as high as 23%. Comtec Solar indicated that they could now mass produce n-type wafers due to their strong background on semi-conductor wafers. They pointed out that they have passed SunPower's qualification on n-type ingot and expect to pass their qualification on n-type wafer by mid of the year. Since n-type wafers produce 20% to 30% more energy on per piece basis in Comtec's case, ASP per piece is expected to be higher, where poly consumption is the same and assume per W ASP is the same as p-type wafer. We currently do not factor in effect of n-type wafers in our capacity and ASP assumptions.

Discussion on n-type wafer – technical facts. There are a few quick facts about n-type wafers and p-type wafers.

- P-type wafer is made by doping a group III element such as Boron to high purity silicon, while n-type wafer is made by doping a group IV element such as Phosphorus to high purity silicon. The figure below shows a p-type wafer in p-type solar cell.
- N-type wafers are more tolerant to chemical and crystallographic defects, and as such, they have exceptional potential as a wafer for high-efficiency solar cell. Noted that mono-wafers have a better crystallographic structure than multi-wafers, therefore it is believed that market can go for mono n-type wafers for efficiency and multi p-type wafers for lower price.
- Production equipments for p-type wafers and n-type wafers are largely the same, while operational cost of producing n-type wafer is slightly higher.
- There is obstacle to produce n-type wafers. For p-type wafer, Boron used has a low segregation coefficient and thus it is easier to make uniform and lightly-doped p-type wafers. For n-type wafers, high segregation of phosphorus leads to difficulties in doping during crystal growth.
- There is also obstacle to produce n-type cells. For instance, according to Fraunhofer ISE, sealing layer materials such as silicon oxide (SiO_2) and silicon nitride (SiN_x) do not work well on p-type layer. Therefore, many kinds of crystalline silicon solar cells have been developed by forming an n-type layer on a p-type wafer and topping it with a SiO_2 or SiN_x layer.
- The current highest conversion efficiency of crystalline silicon solar cell is 25% by Martin Green, professor at the University of New South Wales in Australia. Noted that, however, this solar cell is currently difficult to be mass-produced.

Figure 2. Demonstration of a p-type wafer in p-type solar cell



Source: distribute under GNU Free Documentation License

Why does the market currently adopt p-type wafers? As far as we understand, a main reason for popular use of p-type wafers is that silicon solar cells were targeted for space applications 40 years ago. Early irradiation studies showed that p-type solar cells were more robust than n-type cells. Therefore the space industry adopted p-type wafers, and the terrestrial market followed the specifications. However, as solar cells made for terrestrial use does not experience such high-energy radiation, studies and discussions on n-type material are increasingly common in recent years.

Slight revision to assumptions on operational performance. Comtec eventually completed its ramp-up to 600MW and we expect capacity would be gradually released since Q1. While we believe delay in ramp-up is largely due to building new facilities in Haian, execution risk for ramp-up in Shanghai or Haian in the future should be reduced as stated in our previous report. Our hypothesis on capacity plan, sales volume and profit margin for Comtec is shown in table below. For FY12/11F, we expect capacity would go up to 1,200MW with lowered effective utilization rate at 52% with 24.1% gross margin; while for FY12/12F, capacity would go up to 1,700MW with 66.5% effective utilization rate with 21.9% gross margin. We optimistically assume 20% to 25% gross margin for Comtec Solar in the coming years, higher than 15% to 20% for peers over longer-term.

Table 3. Selected key operational data

	FY12/09A	FY12/10A	FY12/11F	FY12/12F	FY12/13F
Ingot and Wafer Capacity at year end (MW)	200	600	1,200	1,700	2,400
Sales volume (MW)	82	165	623	1,130	1,588
Overall ASP (RMB per W)	6.18	6.17	5.11	4.47	4.04
Gross Margin (%)	10.9	32.4	24.1	21.9	23.4

Source: SBI E2-Capital

Profit and loss forecasts. For FY12/10A results, noted that there is a non-cash one-off share-based compensation of RMB38m for vesting of the restricted shares included in "administrative expenses". Our profit forecast largely remains the same as our last report. The following tables show our estimates net profit forecast are RMB202.9m and RMB306.7m for 1H FY12/11F and 2H FY12/11F respectively. On a full-year basis, net profits are estimated at RMB509.5m, RMB719.4m and RMB981.4m for FY12/11F, FY12/12F and FY12/13F respectively.

Table 4. Profit and loss forecast (Full-year)

RMB m	FY12/09A	FY12/10A	FY12/11F	FY12/12F	FY12/13F
Revenue	506.9	1,021.4	3,181.3	5,051.8	6,408.1
Cost of sales	(451.8)	(690.8)	(2,416.2)	(3,946.5)	(4,909.3)
Gross profit / loss	55.1	330.6	765.1	1,105.3	1,498.8
Other income	6.7	26.6	0.0	0.0	0.0
Other expenses	(3.4)	(9.1)	(0.0)	(0.0)	(0.0)
Selling and distribution expenses	(2.2)	(1.8)	(8.0)	(12.6)	(16.0)
Administrative expenses	(18.2)	(75.8)	(111.3)	(176.8)	(224.3)
EBIT	38.0	270.5	645.8	915.8	1,258.5
Finance Costs	(6.7)	(7.4)	(8.9)	(16.6)	(31.8)
EBT	31.3	263.1	636.9	899.2	1,226.7
Income tax expenses	(6.4)	(40.2)	(127.4)	(179.8)	(245.3)
Profit for the year	24.9	222.9	509.5	719.4	981.4

Table 5. Profit and loss forecast (Half-year)

RMB m	1H FY12/10A	2H FY12/10A	1H FY12/11F	2H FY12/11F
Revenue	429.1	592.3	1,066.6	2,114.8
Cost of sales	(331.1)	(359.7)	(768.5)	(1,647.7)
Gross profit / loss	98.0	232.6	298.1	467.1
Other income	7.9	18.7	0.0	0.0
Other expenses	(1.7)	(7.4)	0.0	0.0
Selling and distribution expenses	(0.8)	(1.0)	(2.7)	(5.3)
Administrative expenses	(18.8)	(57.0)	(37.3)	(74.0)
EBIT	84.6	185.9	258.1	387.8
Finance Costs	(3.8)	(3.6)	(4.5)	(4.5)
EBT	80.8	182.3	253.6	383.3
Income tax expenses	(12.2)	(27.9)	(50.7)	(76.7)
Profit for the year	68.6	154.4	202.9	306.7

Source: SBI E2-Capital

Valuation. We continued to use discount cash flow model with 15% discount rate to value Comtec Solar. TP was HK\$3.91 considering improved sector sentiment and reducing execution risk as we enter 2011. Table 6 shows our target price of HK\$3.91 applying 15.0% discount rate. Based on our target price of HK\$3.90 per share and estimated net profit of RMB509m and RMB719.4m for FY12/11F and FY12/12F, forward P/E represents 7.3x and 5.2x for FY12/11F and FY12/12F. With respective estimated net equity, P/B for the said target price would be 1.9x and 1.4x for FY12/11F and FY12/12F. Reiterate BUY.

Table 6. Our target price

Discount Rate	12.5%	15.0%	17.5%
Market cap (RMB)	4,922m	3,736m	2,962m
CNY / HKD	1.1859	1.1859	1.1859
Market cap (HK\$)	5,837m	4,431m	3,512m
number of shares	1,133.3m	1,133.3m	1,133.3m
Target price	HK\$5.05	HK\$3.91	HK\$3.16

Table 7. Implied multiples of our target price HK\$3.91

	FY12/11F	FY12/12F	FY12/13F
Implied P/B (x)	1.9	1.4	1.1
Implied P/E (x)	7.3	5.2	3.8
Implied EV/EBITDA (x)	5.0	3.4	2.5

Source: SBI E2-Capital

Peers comparison. Since our initial report, stock price of Comtec Solar had risen 139% from HK\$1.44 to HK\$3.44. Compared to its peers, Comtec is trading at a below average P/B at 2.2x and below average P/E at 6.4x and 5.0x for FY12/11F and FY12/12F among those has announced FY12/10A results based on market consensus.

Table 8. Peers comparison based on market consensus

Company	Ticker	Fiscal Year End	Mkt Cap (US\$m)	P/E (x)		1-year fwd	2-year fwd
				P/B (x)	ROE (%)		
GCL-POLY ENERGY	3800 HK	12/2010	8,796.4	4.2	29.0	10.7	8.5
LDK SOLAR	LDK US	12/2010	1,630.8	1.5	27.8	4.8	5.2
RENESOLA LTD	SOL US	12/2010	762.7	1.3	34.4	4.1	4.1
COMTEC SOLAR	712 HK	12/2010	500.3	2.2	17.3	6.4	5.0
			Average	2.3	27.1	6.5	5.7
GREEN ENERGY	3519 TT	12/2009	1,076.0	2.5	16.5	19.7	10.9
SINO-AMERICAN	5483 TT	12/2009	1,640.0	2.6	25.2	13.0	10.4
WAFER WORKS CORP	6182 TT	12/2009	514.5	2.1	(3.6)	22.8	14.6
SOLARGIGA ENERGY	757 HK	12/2009	419.6	1.9	(7.4)	12.6	8.8
PV CRYSTALOX	PVCS LN	12/2009	395.8	1.0	11.7	12.7	10.1
			Average	2.0	--	16.2	11.0

Source: Bloomberg

Disclosure of interests: SBI E2-Capital Securities Limited was acted as sub placing agent for Comtec Solar Systems Group Limited (stock code: 712) in September 2010.

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