

## Taiwan: Energy: Alternative Energy

### Macro concerns, solar module prices feel the heat; initiate on 2 cos

#### Revise earnings forecasts to reflect a more cautious ASP outlook

We revise our 2008E-2010E fully diluted earnings forecasts for Taiwan solar stocks under our coverage by -32% to 12% to reflect our revised 12%-16% yoy ASP decline estimates (from 8%-12% decline). This is based on the tightening global credit environment and a more conservative view on the current global solar subsidy outlook, which we believe is likely to exert further downward pressure on module prices. Consequently, we lower our 12-month PEG-based TPs for solar stocks under our coverage by 40%-59%.

#### Initiate on Gintech with Sell and Green Energy with Neutral

We initiate on **Gintech Energy (3514.TW)** with a Sell rating and 12-month PEG-based target price of NT\$88 (implying 27% potential downside) as we believe: 1) it is vulnerable to a sharp ASP decline as the room for cost reduction is limited due to its heavy reliance on long-term contracts, especially from MEMC, 2) it is over-exposed to small and mid-sized customers, 3) its balance sheet is stretched due to significant capex commitments and long-term contract downpayment future obligations.

We initiate on **Green Energy (3519.TW)** with a Neutral rating and 12-month PEG-based target price of NT\$109 as: 1) we believe the earnings growth momentum for its solar wafer business is limited as there is less visibility on capacity expansion, heavy dependence on OEM, and gross margins are trending down, 2) we are positive on its thin film solar business as it offers good cost reduction potential compared with competing turnkey solutions. However, the risk of production yield ramp-up delay is high as it is difficult to attain uniformity on large glass substrates used in the thin-film process.

#### Downgrade E-Ton to Neutral, maintain Neutral on Motech, SAS

We lower E-Ton (3452.TWO) to Neutral from Buy as its high leverage has become a cause for concern in the current credit environment. However, we still like the company as it continues to differentiate itself by producing high-efficiency cells. In our view, Motech's (6244.TWO) gross margins have bottomed in 3Q as the percentage of cheaper long-term contracts increases. We expect margin expansion to continue in 2009E, but will be limited by the maximum percentage of long-term contracts, which we estimate at 50%.

#### Risks

Downside risks: worse-than-expected ASP decline and margin erosion; upside risk: stronger-than-expected solar module demand.

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#### GS SUSTAIN

#### Alternative energy

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Please refer to the GS SUSTAIN Research team website at <https://360.gs.com/gs/portal/research/teams/sustain/> where you can find external links and a complete overview of published research.

#### 12-month target price and rating summary

Company	Ticker	Rating	12-m TP	Potential
			NT\$	upside/downside
Motech	6244.TWO	Neutral	104	0%
E-Ton	3452.TWO	Neutral	142	6%
SAS	5483.TWO	Neutral	78	7%
Gintech	3514.TW	Sell	88	-27%
GET	3519.TW	Neutral	109	-7%

Source: Goldman Sachs Research estimates.

#### Related research

China: Energy: Alternative Energy: Solar Power: Macro headwinds; U/G YGE to Buy and TSL to Neutral – October 20, 2008

Americas: Energy: Alternative Energy: Too few subsidies, too much supply; we are now cautious on solar – October 7, 2008

The wait continues: U/G E-Ton, D/G Motech – August 5, 2008

GS SUSTAIN: Expanding and enhancing the focus list; June 30, 2008

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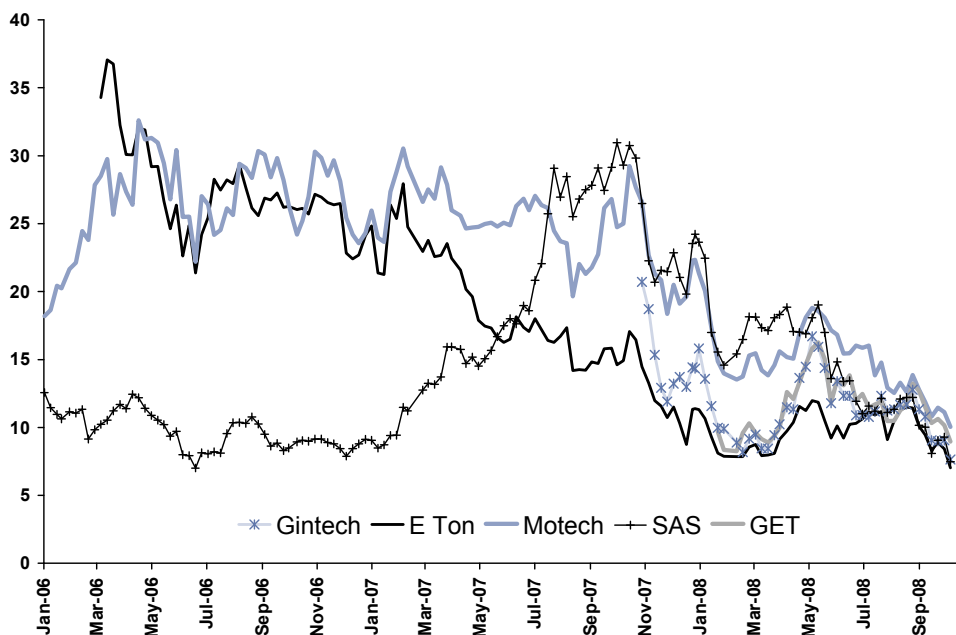
The prices in the body of this report are based on the market close of October 27, 2008.

## Exhibit 1: Summary of 12-month target price and earnings forecasts in NT\$

Company Name	Ticker	Rating	12-m TP NT\$	Cur. Price NT\$	Potential upside/downside	EPS (NT\$)			TP Implied P/E (X)	
						2008E	2009E	2010E	2009E	2010E
Motech Industries	6244.TWO	Neutral	104	104.0	0%	10.66	14.15	16.38	7.3	6.4
E-Ton Solar Technology	3452.TWO	Neutral	142	133.5	6%	18.02	28.33	29.26	5.0	4.9
Sino-American Silicon Products	5483.TWO	Neutral	78	73.1	7%	9.81	12.72	12.76	6.1	6.1
Gintech	3514.TW	Sell	88	120.0	-27%	17.24	20.23	23.75	4.4	3.7
Green Energy	3519.TW	Neutral	109	117.5	-7%	14.74	16.76	18.73	6.5	5.8

Source: TEJ, Goldman Sachs Research estimates.

## Exhibit 2: Taiwan solar companies' 12-month forward P/E



Source: TEJ, Goldman Sachs Research.

## Key changes to our assumptions and valuation methodology

We revise our 2008E-2010E fully diluted earnings forecasts for our solar coverage universe by -32% to 12% to reflect our revised 12%-16% ASP decline yoy estimate (vs. our previous assumptions of 8%-12% decline) based on the tightening credit environment and a more conservative view on the current global solar subsidy outlook, which we believe is likely to exert further downward pressure on module prices. Our global supply and demand model forecasts oversupply from 2H2009 under our base case scenario, which we believe will push ASPs down across the value chain.

Amid rising funding costs as the global credit environment deteriorates, we expect solar project developers to exert more downward pressure on module prices to maintain a positive spread between their IRR and WACC. Our global team's analysis indicates that an increase of 100 bp in debt financing cost would push PV module makers to reduce prices by 11% in order to maintain their current IRR.

In addition to credit restrictions, the market is also concerned that lower oil prices will lead to decreased policy support to fund and subsidize alternative energy projects, although our global energy team continues to have a strong secular bullish stance on oil prices given lackluster growth in the supply of crude in the market. As a result, we have changed our valuation methodology from DCF to PEG which, in our view, better captures the risk/reward and growth potential in the near-to-medium term.

We believe that in the current environment, investors are focusing more on near-term earnings outlook for the solar sector. We apply a PEG of 0.6X, which aligns with our China team, and 4-year forward EPS CAGR (2008E-2012E), in order to arrive at the company-specific P/E for 2009. We subsequently apply this to our 2009E EPS to calculate our 12-month target price. In our EPS CAGR assumptions, we use 2008 as the base year in order to avoid exaggerated growth numbers caused by a low base effect in 2007. We use a 4-year rather than the commonly used 3-year EPS CAGR to factor in the slowdown we expect in demand growth momentum for solar modules in 2012E. Based on our global alternative energy team's forecast, solar demand will only grow 24% yoy in 2012E vs. 63% in 2008E. Furthermore, our global demand forecast only extends through 2012E.

We cut our 12-month target prices for Motech, E-Ton and SAS by 40%-59% as a result of our higher ASP decline assumptions and our valuation methodology change to reflect the market focus on the near-term earnings outlook.

**Exhibit 3: Summary of changes to ratings, 12-month target price and earnings forecasts (in NT\$)**

Company Name	Ticker	Rating		Ccy	12-m TP			EPS 2008E			EPS 2009E			EPS 2010E		
		New	Old		New	Old	chg %	New	Old	chg %	New	Old	chg %	New	Old	chg %
Motech Industries	6244.TWO	Neutral	Neutral	TWD	104	173	(40)	10.66	9.50	12	14.15	12.81	10	16.38	16.33	0
E-Ton Solar Technology	3452.TWO	Neutral	Buy	TWD	142	345	(59)	18.02	20.49	(12)	28.33	31.42	(10)	29.26	42.76	(32)
Sino-American Silicon Products	5483.TWO	Neutral	Neutral	TWD	78	158	(51)	9.81	11.53	(15)	12.72	13.76	(8)	12.76	17.17	(26)
Gintech	3514.TW	Sell	N/A	TWD	88	N/A	N/A	17.24	N/A	N/A	20.23	N/A	N/A	23.75	N/A	N/A
Green Energy	3519.TW	Neutral	N/A	TWD	109	N/A	N/A	14.74	N/A	N/A	16.76	N/A	N/A	18.73	N/A	N/A

Source: Goldman Sachs Research estimates.

**Exhibit 4: 12-month target prices and sensitivity analysis**

Target price is based on PEG valuation with CAGR calculated from 2008E-2012E

**E-Ton Solar (3452.TWO)**

		EPS CAGR 2008E-2012E (%)				
		6.7	7.5	8.3	9.1	10.0
PEG (X)	0.48	91	102	113	125	136
	0.54	102	115	127	140	153
	0.60	113	127	142	156	170
	0.66	125	140	156	171	187
	0.72	136	153	170	187	204

		Up/downside from current share price				
		6.7	7.5	8.3	9.1	10.0
PEG (X)	0.48	-32%	-24%	-15%	-7%	2%
	0.54	-24%	-14%	-5%	5%	15%
	0.60	-15%	-5%	6%	17%	27%
	0.66	-7%	5%	17%	28%	40%
	0.72	2%	15%	27%	40%	53%

**Motech Industries (6244.TWO)**

		EPS CAGR 2008E-2012E (%)				
		9.8	11.0	12.2	13.5	14.7
PEG (X)	0.48	66	75	83	91	100
	0.54	75	84	93	103	112
	0.60	83	93	104	114	125
	0.66	91	103	114	126	137
	0.72	100	112	125	137	150

		Up/downside from current share price				
		9.8	11.0	12.2	13.5	14.7
PEG (X)	0.48	-36%	-28%	-20%	-12%	-4%
	0.54	-28%	-19%	-10%	-1%	8%
	0.60	-20%	-10%	0%	10%	20%
	0.66	-12%	-1%	10%	21%	32%
	0.72	-4%	8%	20%	32%	44%

**Sino-American Silicon (5483.TWO)**

		EPS CAGR 2008E-2012E (%)				
		8.2	9.2	10.2	11.2	12.3
PEG (X)	0.48	50	56	62	69	75
	0.54	56	63	70	77	84
	0.60	62	70	78	86	94
	0.66	69	77	86	94	103
	0.72	75	84	94	103	112

		Up/downside from current share price				
		8.2	9.2	10.2	11.2	12.3
PEG (X)	0.48	-32%	-23%	-15%	-6%	2%
	0.54	-23%	-14%	-4%	6%	15%
	0.60	-15%	-4%	7%	17%	28%
	0.66	-6%	6%	17%	29%	41%
	0.72	2%	15%	28%	41%	54%

**Gintech Energy (3514.TW)**

		EPS CAGR 2008E-2012E (%)				
		5.9	6.6	7.4	8.1	8.8
PEG (X)	0.48	56	63	71	78	85
	0.54	63	71	79	87	95
	0.60	71	79	88	97	106
	0.66	78	87	97	107	116
	0.72	85	95	106	116	127

		Up/downside from current share price				
		5.9	6.6	7.4	8.1	8.8
PEG (X)	0.48	-53%	-47%	-41%	-35%	-29%
	0.54	-47%	-40%	-34%	-27%	-21%
	0.60	-41%	-34%	-27%	-19%	-12%
	0.66	-35%	-27%	-19%	-11%	-3%
	0.72	-29%	-21%	-12%	-3%	6%

**Green Energy (3519.TW)**

		EPS CAGR 2008E-2012E (%)				
		8.9	10.0	11.1	12.2	13.3
PEG (X)	0.48	70	79	88	96	105
	0.54	79	89	99	108	118
	0.60	88	99	109	120	131
	0.66	96	108	120	132	145
	0.72	105	118	131	145	158

		Up/downside from current share price				
		8.9	10.0	11.1	12.2	13.3
PEG (X)	0.48	-40%	-33%	-25%	-18%	-11%
	0.54	-33%	-25%	-16%	-8%	1%
	0.60	-25%	-16%	-7%	2%	12%
	0.66	-18%	-8%	2%	13%	23%
	0.72	-11%	1%	12%	23%	34%

Note: We use a PEG of 0.6X and 4-yr forward EPS CAGR (2008E-2012E) to arrive at our 2009 P/E ratio for our target price.

Source: Goldman Sachs Research estimates.

**Exhibit 5: Asian solar companies currently trade at implied PEG of 0.5X**

	<b>Company</b>	<b>Ticker</b>	<b>2008E-2012E EPS CAGR</b>	<b>2009E P/E</b>	<b>PEG</b>
<b>China</b>	JA Solar	JASO	10	4.0	0.4
	LDK Solar	LDK	11	4.8	0.4
	Solarfun Power Holdings	SOLF	11	3.7	0.3
	Suntech Power	STP	28	4.2	0.1
	Trina Solar	TSL	7	3.4	0.5
	Yingli Green Energy	YGE	13	3.7	0.3
<b>Taiwan</b>	Motech	6244.TWO	12	7.3	0.6
	E-Ton	3452.TWO	8	4.7	0.6
	Sino-American Silicon	5483.TWO	10	5.7	0.6
	Gintech	3514.TW	7	5.9	0.8
	Green Energy	3519.TW	11	7.0	0.6
	<b>Asia Average</b>				<b>0.5</b>

Note: Priced as of October 27, 2008

Source: Goldman Sachs Research estimates, Gao Hua Securities Research estimates.

**Exhibit 6: Global solar valuation comparison (Price as of October 27, 2008)**

Company Name	Ticker	Rating	Price	Ccy	Market Cap.	P/E			EPS			P/B			EV/EBITDA			ROE (%)		
						08E	09E	10E	08E	09E	10E	08E	09E	10E	08E	09E	10E	08E	09E	10E
<b>Taiwan solar stocks</b>						(US\$ mn)														
Motech	6244.TWO	Neutral	104.0	TWD	639.4	9.8X	7.3X	6.4X	10.7	14.2	16.4	1.8X	1.6X	1.4X	6.6X	5.5X	4.7X	19%	27%	28%
E-ton	3452.TWO	Neutral	133.5	TWD	241.7	7.4X	4.7X	4.6X	18.0	28.3	29.3	2.1X	1.1X	1.0X	9.1X	4.9X	4.7X	32%	32%	23%
Sino-American Silicon Products	5483.TWO	Neutral	73.1	TWD	434.1	7.5X	5.7X	5.7X	9.8	12.7	12.8	2.3X	1.7X	1.4X	6.5X	5.5X	5.3X	33%	36%	28%
Gintech	3514.TW	Sell	120.0	TWD	534.2	7.0X	5.9X	5.1X	17.2	20.2	23.8	2.1X	1.6X	1.3X	7.4X	5.9X	4.8X	35%	30%	28%
Green Energy	3519.TW	Neutral	117.5	TWD	375.9	8.0X	7.0X	6.3X	14.7	16.8	18.7	2.4X	1.9X	1.6X	5.3X	5.0X	4.3X	35%	31%	28%
<b>China solar stocks</b>																				
JA Solar	JASO	Neutral	3.8	USD	576.0	4.2X	4.0X	3.5X	0.9	0.9	1.1	0.8X	0.6X	0.5X	0.7X	NM	NM	20%	17%	16%
LDK Solar	LDK	Neutral	14.7	USD	1,557.7	4.5X	4.8X	4.1X	3.2	3.1	3.6	1.0X	0.8X	0.7X	6.4X	4.8X	3.6X	29%	18%	17%
Solarfun Power Holdings	SOLF	Neutral	4.6	USD	219.1	4.7X	3.7X	3.1X	1.0	1.2	1.5	0.4X	0.4X	0.3X	5.8X	3.9X	2.2X	12%	11%	11%
Suntech Power	STP	Buy	12.0	USD	1,812.8	6.5X	4.2X	3.3X	1.9	2.8	3.7	0.8X	0.7X	0.5X	3.8X	2.5X	1.4X	15%	17%	18%
Trina Solar	TSL	Neutral	10.0	USD	253.3	2.9X	3.4X	2.9X	3.4	3.0	3.5	0.5X	0.5X	0.4X	4.9X	4.7X	3.6X	21%	15%	14%
Yingli Green Energy	YGE	Buy	3.7	USD	467.0	4.3X	3.7X	3.2X	0.9	1.0	1.1	0.7X	0.6X	0.5X	4.0X	3.1X	2.1X	14%	13%	13%
<b>U.S solar stocks</b>																				
First Solar	FSLR	Sell*	107.9	USD	8,617.9	29.8X	18.2X	13.4X	3.6	5.9	8.0	6.0X	4.6X	3.5X	18.3X	11.0X	7.9X	24%	30%	30%
SunPower Corp.	SPWRA	Sell	34.7	USD	2,795.4	31.4X	19.3X	15.1X	1.1	1.8	2.3	2.7X	2.4X	2.1X	12.8X	9.0X	7.1X	10%	14%	16%
Evergreen Solar, Inc.	ESLR	Neutral	2.4	USD	314.9	NM	12.2X	9.2X	(0.4)	0.2	0.3	0.6X	0.7X	0.6X	NM	12.2X	9.1X	-10%	6%	7%
<b>Europe solar stocks</b>																				
Aleo Solar	AS1Gn.DE	Sell*	4.8	EUR	78.5	4.9X	11.9X	5.8X	1.0	0.4	0.8	0.8X	0.8X	0.7X	4.1X	6.8X	4.7X	18%	7%	12%
Centrosolar	C3OG.DE	Sell	3.2	EUR	57.9	3.5X	6.4X	3.8X	0.9	0.5	0.8	0.5X	0.5X	0.4X	8.4X	11.7X	8.0X	9%	7%	11%
Conergy AG	CGYG.DE	Sell	3.1	EUR	716.7	NM	89.6X	13.2X	(1.9)	0.0	0.2	1.2X	1.2X	1.1X	NM	12.7X	6.4X	-33%	1%	9%
Ersol Solar Energy AG	ES6G.DE	Neutral	100.0	EUR	1,342.0	24.5X	54.7X	29.8X	4.1	1.8	3.4	3.3X	3.1X	2.8X	13.4X	19.6X	12.7X	15%	6%	10%
Phoenix Solar AG	PS4G.DE	Neutral	19.6	EUR	163.2	7.2X	9.0X	7.4X	2.7	2.2	2.6	1.5X	1.3X	1.1X	3.7X	4.0X	3.4X	27%	16%	17%
PV Crystalox	PVCS.L	Buy	116.5	GBP	751.7	10.5X	13.7X	8.0X	11.1	8.5	14.6	2.4X	2.0X	1.6X	6.0X	7.2X	5.0X	27%	16%	23%
Q-Cells AG	QCEG.DE	Buy	21.7	EUR	2,965.6	10.3X	10.7X	5.7X	2.1	2.0	3.8	1.2X	1.1X	0.9X	4.4X	8.0X	4.4X	12%	11%	17%
Renesola	SOLA.L	Neutral	156.5	GBP	242.1	4.5X	6.7X	3.8X	35.0	23.4	40.7	0.7X	0.6X	0.5X	4.7X	5.9X	4.3X	22%	9%	14%
Renewable Energy Corporation	REC.OL	Neutral	52.9	NOK	3,713.7	15.0X	18.9X	8.4X	3.5	2.8	6.3	1.9X	1.8X	1.5X	9.3X	10.7X	5.7X	14%	10%	19%
Solar Fabrik AG	SFXG.DE	Neutral	6.0	EUR	87.6	6.3X	13.4X	6.9X	1.0	0.4	0.9	0.8X	0.8X	0.7X	5.1X	7.7X	4.5X	10%	6%	10%
Solaria Energia	SLRS.MC	Neutral	2.2	EUR	285.3	2.5X	4.9X	5.1X	0.9	0.4	0.4	0.7X	0.6X	0.5X	0.7X	1.9X	1.2X	30%	12%	11%
SolarWorld AG	SWVG.DE	Neutral	13.8	EUR	1,920.7	11.3X	16.8X	8.7X	1.2	0.8	1.6	1.9X	1.7X	1.5X	5.9X	8.0X	5.3X	19%	11%	18%
SOLON AG	SOOG.DE	Sell	19.1	EUR	297.3	6.7X	9.8X	4.5X	2.8	1.9	4.2	0.6X	0.6X	0.5X	4.0X	5.2X	3.7X	9%	6%	12%
Sunways AG	SWWG.DE	Neutral	2.8	EUR	39.8	12.7X	8.3X	3.1X	0.2	0.3	0.9	0.6X	0.6X	0.5X	7.5X	6.8X	5.2X	5%	7%	17%
<b>Mean for China solar stocks</b>						<b>4.5X</b>	<b>4.0X</b>	<b>3.3X</b>	<b>1.9</b>	<b>2.0</b>	<b>2.4</b>	<b>0.7X</b>	<b>0.6X</b>	<b>0.5X</b>	<b>4.3X</b>	<b>3.8X</b>	<b>2.6X</b>	<b>19%</b>	<b>15%</b>	<b>15%</b>
<b>Mean for U.S solar stocks</b>						<b>30.6X</b>	<b>16.6X</b>	<b>12.6X</b>	<b>1.5</b>	<b>2.6</b>	<b>3.5</b>	<b>3.1X</b>	<b>2.5X</b>	<b>2.1X</b>	<b>15.5X</b>	<b>10.7X</b>	<b>8.0X</b>	<b>8%</b>	<b>17%</b>	<b>18%</b>
<b>Mean for Europe solar stocks</b>						<b>9.2X</b>	<b>19.6X</b>	<b>8.2X</b>	<b>4.6</b>	<b>3.3</b>	<b>5.8</b>	<b>1.3X</b>	<b>1.2X</b>	<b>1.0X</b>	<b>5.9X</b>	<b>8.3X</b>	<b>5.3X</b>	<b>13%</b>	<b>9%</b>	<b>14%</b>
<b>Global mean</b>						<b>9.5X</b>	<b>13.5X</b>	<b>7.1X</b>	<b>5.4</b>	<b>5.6</b>	<b>7.4</b>	<b>1.5X</b>	<b>1.3X</b>	<b>1.1X</b>	<b>6.5X</b>	<b>7.2X</b>	<b>5.0X</b>	<b>17%</b>	<b>15%</b>	<b>17%</b>
<b>Mean for Taiwan solar stocks</b>						<b>7.9X</b>	<b>6.2X</b>	<b>5.6X</b>	<b>14.1</b>	<b>18.4</b>	<b>20.2</b>	<b>2.1X</b>	<b>1.6X</b>	<b>1.3X</b>	<b>7.0X</b>	<b>5.4X</b>	<b>4.8X</b>	<b>31%</b>	<b>31%</b>	<b>27%</b>

\* The stock is on our Conviction List.

For methodology and risks associated with price targets mentioned, please refer to the analyst's previously published research.

For important disclosures, please go to <http://www.gs.com/research/hedge.html>.

Source: Goldman Sachs Research estimates, Gao Hua Securities Research estimates.

# Gintech Energy (3514.TW; Sell): Vulnerable to ASP decline

We initiate on Gintech with a Sell rating and 12-month target price of NT\$88, implying 27% potential downside.

## Margins would be squeezed significantly if ASPs fall sharply

- In our view, the company’s guidance on potential ASP decline in 2009 at 3% yoy is optimistic. We believe its cost reduction capability is limited due to Gintech’s heavy reliance on long-term contracts with MEMC, which is supplying about 45% of its raw materials in 2008/ 2009. We expect Gintech’s gross margins to drop 2.8 pp yoy in 2009E to 15.8%.
- In our view, the company is over-exposed to small and mid-sized customers, which may be less reliable as long-term sales accounts. And if the current credit environment deteriorates further, the risk of smaller customers defaulting on sale orders is significantly higher than it is for large customers.

## Limited financing options, but large capital commitment

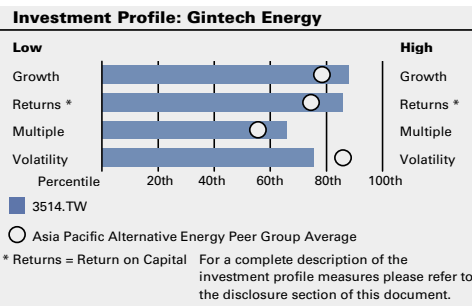
- We believe Gintech has stretched itself thin with aggressive capacity expansion over the past two years—its capacity will increase 11X to 660MW by end-2008 (from 60MW in 2006) and the company expects it to reach 1.5 GW in 2011. To achieve such substantial growth, Gintech has relied heavily on the markets in the past to raise the required capex and funds for downpayments on its long-term contracts. We believe it will be tough for Gintech to follow the same strategy in the current environment, given its gearing is 70% (based on 1H2008 consolidated results) and its bank covenants require it to maintain gearing below 100%.
- The company recently announced that it had NT\$1.3 bn cash in hand at the end of 3Q2008; and by the end of 2008, it would have about NT\$2 bn cash inflow from equipment depreciation and net income. However, its capex and long-term contracts downpayment will amount to NT\$ 5.5 bn in 2008, as per the company. In addition, its US\$3.7 bn 10-year long-term contracts with MEMC will continue to stretch its balance sheet in the coming years as the annual fixed downpayment becomes due at the beginning of each year. The company said recently that it is still considering issuing 300mn GDR shares, something we believe may be challenging in the current macro environment.
- Gintech plans to add 420MW capacity by 2010, which will require about NT\$4.5 bn capex, at a time when we forecast oversupply of solar modules is likely. Under such a scenario, utilization rates for any new capacity would likely be adversely impacted, in our view.

## Valuation

Our 12-month target price of NT\$88 is based on PEG with 4-year EPS CAGR (2008E-2012E) of 7.4% and PEG assumption of 0.6X. It currently trades at 5.9X 2009E P/E and 5.1X 2010E vs. global average of 13.5X and 7.1X, respectively.

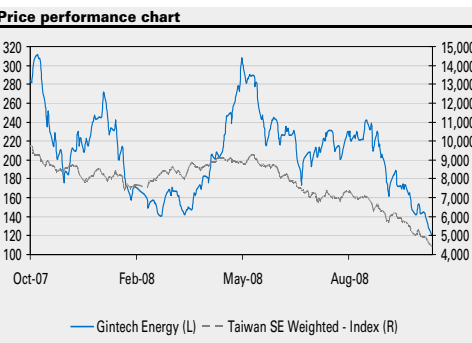
## Key risks

- Polysilicon shortage extending to 2010 and beyond—we expect oversupply in 2H2009, at present;
- larger-than-expected long-term polysilicon contract price decline.



Key data	Current
Price (NT\$)	120.00
12 month price target (NT\$)	88.00
Market cap (NT\$ mn / US\$ mn)	17,899.2 / 535.3
Foreign ownership (%)	15.0

	12/07	12/08E	12/09E	12/10E
EPS (NT\$)	4.96	17.24	20.23	23.75
EPS growth (%)	--	247.6	17.3	17.4
EPS (diluted) (NT\$)	4.89	17.04	19.98	23.43
EPS (basic pre-ex) (NT\$)	4.96	17.24	20.23	23.75
P/E (X)	24.2	7.0	5.9	5.1
P/B (X)	2.0	2.1	1.6	1.3
EV/EBITDA (X)	30.8	7.4	5.9	4.8
Dividend yield (%)	0.0	0.0	2.9	5.1
ROE (%)	--	34.7	30.3	28.2



Share price performance (%)	3 month	6 month	12 month
Absolute	(47.8)	(51.2)	(57.7)
Rel. to Taiwan SE Weighted Index	(13.6)	(0.1)	(6.6)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 10/27/2008 close.

**Exhibit 7: Gintech Energy summary financials**

<b>Profit model (NT\$ mn)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Balance sheet (NT\$ mn)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
<b>Total revenue</b>	<b>6,829.2</b>	<b>19,790.8</b>	<b>29,314.5</b>	<b>42,715.4</b>	Cash & equivalents	135.3	108.2	155.8	436.4
Cost of goods sold	(6,010.3)	(16,113.8)	(24,672.2)	(36,796.9)	Accounts receivable	816.7	2,331.5	3,453.5	5,032.2
SG&A	(176.4)	(372.1)	(536.1)	(726.2)	Inventory	1,043.4	2,869.6	4,393.7	6,552.9
R&D	(33.6)	(89.4)	(175.9)	(213.6)	Other current assets	3,044.2	3,958.2	4,397.2	4,271.5
Other operating profit/(expense)	0.0	0.0	0.0	0.0	<b>Total current assets</b>	<b>5,039.6</b>	<b>9,267.4</b>	<b>12,400.1</b>	<b>16,293.0</b>
<b>EBITDA</b>	<b>782.8</b>	<b>3,618.2</b>	<b>4,417.0</b>	<b>5,637.0</b>	Net PP&E	3,977.8	8,951.3	10,816.5	14,627.1
Depreciation & amortization	(173.9)	(402.8)	(486.7)	(658.2)	Net intangibles	5.7	5.7	5.7	5.7
<b>EBIT</b>	<b>608.9</b>	<b>3,215.4</b>	<b>3,930.3</b>	<b>4,978.8</b>	Total investments	0.0	0.0	0.0	0.0
Interest income	5.8	2.9	3.1	7.2	Other long-term assets	2,881.3	3,496.3	3,496.3	3,496.3
Interest expense	(76.3)	(134.1)	(173.4)	(184.0)	<b>Total assets</b>	<b>11,984.5</b>	<b>21,800.7</b>	<b>26,798.7</b>	<b>34,502.1</b>
Income/(loss) from uncons. subs.	0.0	0.0	0.0	0.0	Accounts payable	674.6	3,531.8	5,407.6	8,065.1
Others	(44.6)	(108.5)	(263.8)	(213.6)	Short-term debt	1,289.6	4,721.5	4,496.2	5,888.3
<b>Pretax profits</b>	<b>493.8</b>	<b>2,975.7</b>	<b>3,496.1</b>	<b>4,588.4</b>	Other current liabilities	671.8	1,556.6	2,292.7	3,330.4
Income tax	(6.8)	(144.9)	(174.8)	(688.3)	<b>Total current liabilities</b>	<b>2,636.1</b>	<b>9,809.8</b>	<b>12,196.5</b>	<b>17,283.8</b>
Minorities	0.0	0.0	0.0	0.0	Long-term debt	2,600.2	2,389.1	2,220.7	1,901.6
<b>Net income pre-preferred dividends</b>	<b>487.0</b>	<b>2,830.8</b>	<b>3,321.3</b>	<b>3,901.1</b>	Other long-term liabilities	19.5	19.5	19.5	19.5
Preferred dividends	0.0	0.0	0.0	0.0	Total long-term liabilities	2,619.7	2,408.6	2,240.2	1,921.0
<b>Net income (pre-exceptionals)</b>	<b>487.0</b>	<b>2,830.8</b>	<b>3,321.3</b>	<b>3,901.1</b>	<b>Total liabilities</b>	<b>5,255.8</b>	<b>12,218.5</b>	<b>14,436.7</b>	<b>19,204.8</b>
Post-tax exceptionals	0.0	0.0	0.0	0.0	<b>Preferred shares</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Net income</b>	<b>487.0</b>	<b>2,830.8</b>	<b>3,321.3</b>	<b>3,901.1</b>	<b>Total common equity</b>	<b>6,728.7</b>	<b>9,582.2</b>	<b>12,361.9</b>	<b>15,297.3</b>
EPS (basic, pre-except) (NT\$)	4.96	17.24	20.23	23.75	Minority interest	0.0	0.0	0.0	0.0
EPS (basic, post-except) (NT\$)	4.96	17.24	20.23	23.75	<b>Total liabilities &amp; equity</b>	<b>11,984.5</b>	<b>21,800.7</b>	<b>26,798.6</b>	<b>34,502.1</b>
EPS (diluted, post-except) (NT\$)	4.89	17.04	19.98	23.43	<b>BVPS (NT\$)</b>	<b>58.92</b>	<b>58.35</b>	<b>75.28</b>	<b>93.16</b>
DPS (NT\$)	0.00	0.00	3.45	6.07					
Dividend payout ratio (%)	0.0	0.0	17.0	25.5					
Free cash flow yield (%)	(28.1)	(17.2)	4.2	0.2					
<b>Growth &amp; margins (%)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Ratios</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
Sales growth	--	189.8	48.1	45.7	ROE (%)	--	34.7	30.3	28.2
EBITDA growth	--	362.2	22.1	27.6	ROA (%)	--	16.8	13.7	12.7
EBIT growth	--	428.1	22.2	26.7	ROACE (%)	--	21.8	19.6	19.5
Net income growth	--	481.3	17.3	17.4	Inventory days	--	44.3	53.7	54.3
EPS growth	--	247.6	17.3	17.4	Receivables days	--	29.0	36.0	36.3
Gross margin	12.0	18.6	15.8	13.9	Payable days	--	47.6	66.1	66.8
EBITDA margin	11.5	18.3	15.1	13.2	Net debt/equity (%)	55.8	73.1	53.1	48.1
EBIT margin	8.9	16.2	13.4	11.7	Interest cover - EBIT (X)	8.6	24.5	23.1	28.2
<b>Cash flow statement (NT\$ mn)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Valuation</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
Net income pre-preferred dividends	487.0	2,830.8	3,321.3	3,901.1	P/E (analyst) (X)	24.2	7.0	5.9	5.1
D&A add-back	173.9	402.8	486.7	658.2	P/B (X)	2.0	2.1	1.6	1.3
Minorities interests add-back	0.0	0.0	0.0	0.0	EV/EBITDA (X)	30.8	7.4	5.9	4.8
Net (inc)/dec working capital	(967.1)	(1,115.0)	(462.8)	102.6	Dividend yield (%)	0.0	0.0	2.9	5.1
Other operating cash flow	(2,653.3)	0.0	0.0	0.0					
<b>Cash flow from operations</b>	<b>(2,959.5)</b>	<b>2,118.6</b>	<b>3,345.3</b>	<b>4,660.9</b>					
Capital expenditures	(2,684.1)	(5,376.2)	(2,352.0)	(4,468.8)					
Acquisitions	0.0	0.0	0.0	0.0					
Divestitures	0.0	0.0	0.0	0.0					
Others	(2,202.5)	0.0	0.0	0.0					
<b>Cash flow from investments</b>	<b>(4,886.6)</b>	<b>(5,376.2)</b>	<b>(2,352.0)</b>	<b>(4,468.8)</b>					
Dividends paid (common & pref)	0.0	0.0	(566.2)	(996.4)					
Inc/(dec) in debt	2,327.0	3,207.7	(404.1)	1,053.3					
Common stock issuance (repurchase)	4,571.9	0.0	0.0	0.0					
Other financing cash flows	16.7	0.0	0.0	0.0					
<b>Cash flow from financing</b>	<b>6,918.7</b>	<b>3,230.4</b>	<b>(945.7)</b>	<b>88.5</b>					
<b>Total cash flow</b>	<b>(927.4)</b>	<b>(27.2)</b>	<b>47.6</b>	<b>280.6</b>					

Note: Last actual year may include reported and estimated data.

Source: Company data, Goldman Sachs Research estimates.

### The cost of playing catch up

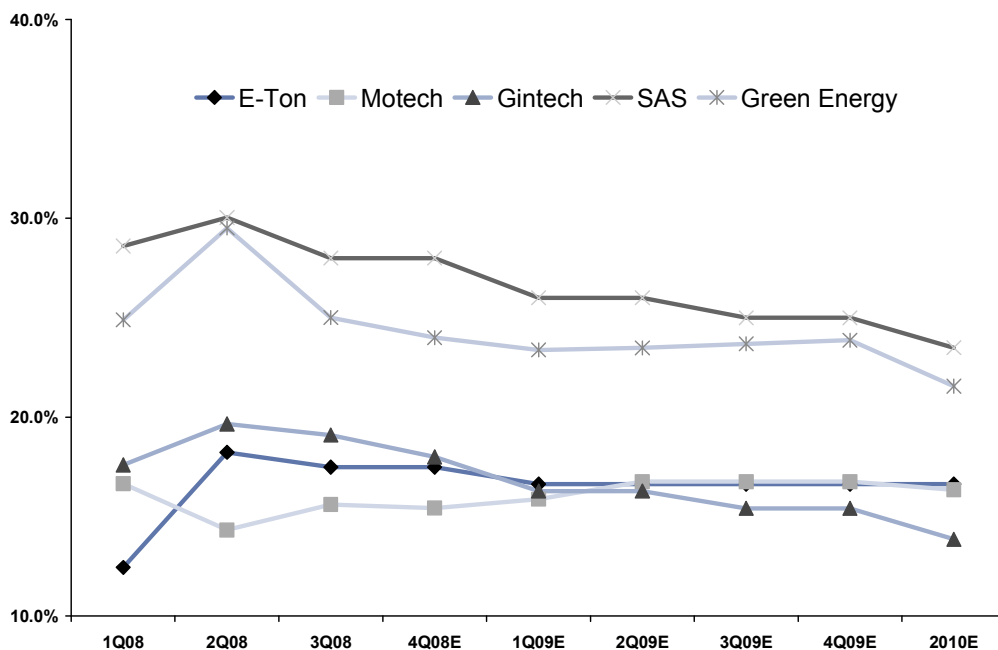
Gintech is one of the most aggressive solar cell manufacturing companies in Taiwan, in our view. The company forecasts its capacity to increase 11X to 660MW in 2008 (from 60MW in 2006) and to reach 1.5GW by 2011. However, its aggressive entry into expansion strategy has led to: 1) vulnerability to sharp ASP decline as the room for cost reduction is limited due to its heavy reliance on long-term contracts, especially from MEMC, 2) over-exposure to small- and medium-sized customers, and 3) an overstretched balance sheet due to large capex commitment and long-term contracts downpayments.

#### 1. Vulnerable to sharp ASP decline

With two long-term supplier contracts worth US\$3.7 bn, MEMC is the major polysilicon supplier to Gintech. We expect MEMC to supply about 45% of Gintech’s raw materials needs in 2008 and 2009 under current contracts. MEMC holds a 6.8% stake in Gintech. Gintech’s contracts with MEMC are fixed with price decline of about 5%-10% a year. Such fixed price terms limit Gintech’s room for cost reduction and if ASP falls more than 10%, its margin will be under significant pressure. Furthermore the company’s guidance on its potential ASP decline in 2009 at 3% yoy is optimistic in our view, and far below our estimates of 15%.

**Exhibit 8: We expect Gintech’s gross margin to fall as ASP declines**

Gross margin trend of Taiwan solar companies, 1Q2008-2010E



Source: Goldman Sachs Research estimates.

To reduce its heavy dependence on MEMC, Gintech has been aggressively expanding its capacity and signing new long-term contracts. Although we view positively Gintech’s aggressive capacity expansion—which should help it to reduce its dependence on MEMC as well as capture market share before the market becomes saturated—there are two major risks, in our view: 1) the financial cost of rapid expansion, and 2) underutilization of new plant in the event of polysilicon oversupply occurring earlier than the company

expects. As a result, we see more downside risk to its topline growth and margin contraction in the next 12 months.

**Exhibit 9: Gintech relies heavily on polysilicon supply from MEMC**  
MEMC will supply about 45% of Gintech’s raw material needs in 2008 and 2009

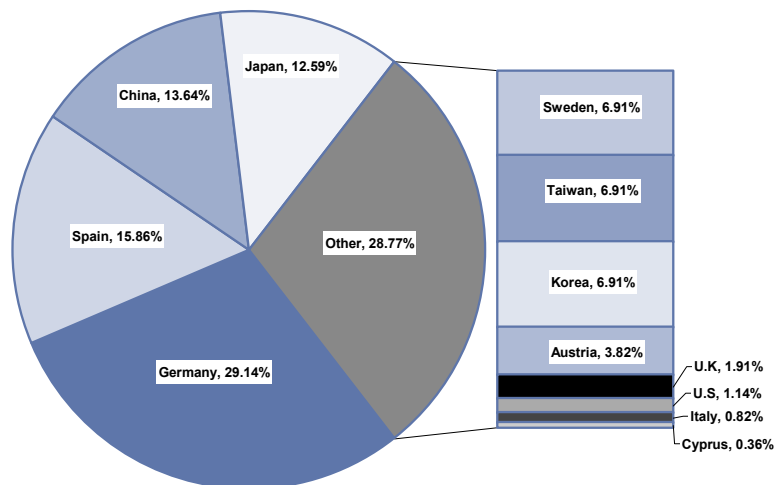
MW	2008E	2009E	2010E	2011E
MEMC supply	110	200	300	350
Output total	250	440	880	1,080
<b>Percentage</b>	<b>44%</b>	<b>45%</b>	<b>34%</b>	<b>32%</b>

Source: Company data, Goldman Sachs Research estimates.

**2. Over-exposure to small and mid-sized customers**

Given its aggressive capacity expansion plan, we believe its critical for Gintech to secure more reliable long-term sales contracts to employ its capacity, as the spot market may shrink drastically once the market is saturated. However, looking at Gintech’s sales breakdown in 2008E, we believe its sales-to-spot market or short-term contracts are still relatively high as sales to their indirect end-markets, i.e Taiwan and China, account for more than 20% of overall sales. We believe the company is over-exposed to small and mid-sized customers, which will be less reliable as long-term sales accounts. And if the current credit environment deteriorates further, the risks of small customer defaults on their sales orders are significantly higher than large MW customers.

**Exhibit 10: 20% of Gintech’s sales in 2008E likely to come from module makers in China and Taiwan, which are generally smaller in size**  
Gintech’s 2008E estimated sales breakdown



Source: Company data, Goldman Sachs Research estimates.

**3. Overstretched balance sheet and limited financing options**

To finance the capacity expansion and make deposit payments for long-term polysilicon contracts, normally 5%-10% of total contract value, Gintech plans to issue 300 mn new shares via a proposed GDR placement, in addition to the NT\$5.2 bn outstanding long-term debt that it has already taken.

In our view, success of the company's proposed GDR issuance will be critical to the Gintech's financial strength in the near term. We note that in the current tough macro environment, share placements globally have been more difficult to achieve than in the past few years. According to Dealogic, so far this year there have been only US\$1.2 bn worth of GDR sales by Asian issuers, compared with a record US\$26.1 bn in 2007 and US\$16.9 bn in 2006. In Taiwan, there have been only two GDR issues so far this year (from Asia Cement and Wistron) raising US\$144 mn.

On October 28, Gintech announced that its proposed 300 mn new share GDR issuance is still ongoing, although it may now be delayed from its original proposed schedule of early October 2008. The regulatory approval for Gintech's proposed GDR issuance expires in February 2009. We believe in the current market conditions, successfully issuing the proposed GDR may prove very challenging. Without new equity injection, we estimate Gintech's balance sheet will be pushed to the limit of its long-term debt bank covenants.

We expect Gintech's capex to be about NT\$5.4 bn in 2008E, most of which will be used for expanding the capacity at its Hsinchu Site A by adding another 6 production lines. Furthermore, the company currently has NT\$5.2 bn debt outstanding and we expect about NT\$260 mn debt to become due within the next nine months. The company recently announced that it had NT\$1.3 bn cash in hand at the end of 3Q2008; and by the end-2008, it would have about NT\$2 bn cash inflow from equipment depreciation and net income. Without the GDR issuance, we expect Gintech's balance sheet to be stretched and its capacity expansion may be stalled significantly.

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**Exhibit 11: Gintech has NT\$5.2 bn outstanding long-term debt**

Gintech's outstanding debt (NT\$ mn)

<b>Short term borrowing</b>								
	Authorized	Used	Interest rate					
	4,740	1,057	2.4-2.53%					
<b>Long term borrowing</b>								
	Authorized	Used	Interest rate	<b>Payment schedule</b>				
				2008E	2009E	2010E	2011E	2012E
LTD1	680	680	3.36-4.24%	160	160	160	160	-
LTD2	1,200	1,000	3.39-4.00%	-	-	-	1,000	-
LTD3	2,200	1,500	2.96-3.01%	-	321	429	429	321
LTD4	1,500	1,500	2.95-3.03%	-	-	-	-	1,500
LTD5	800	800	2.99-3.02%	-	-	-	-	800
<b>Current portion</b>		<b>267</b>	<b>Total payment</b>	<b>160</b>	<b>481</b>	<b>589</b>	<b>1,589</b>	<b>2,621</b>
<b>Total debt</b>	<b>6,380</b>	<b>5,213</b>						

Source: Company data, Goldman Sachs Research estimates.

**Exhibit 12: We forecast Gintech’s current ratio will fall below 1 without the proposed GDR issuance**

Gintech’s financials ratio analysis

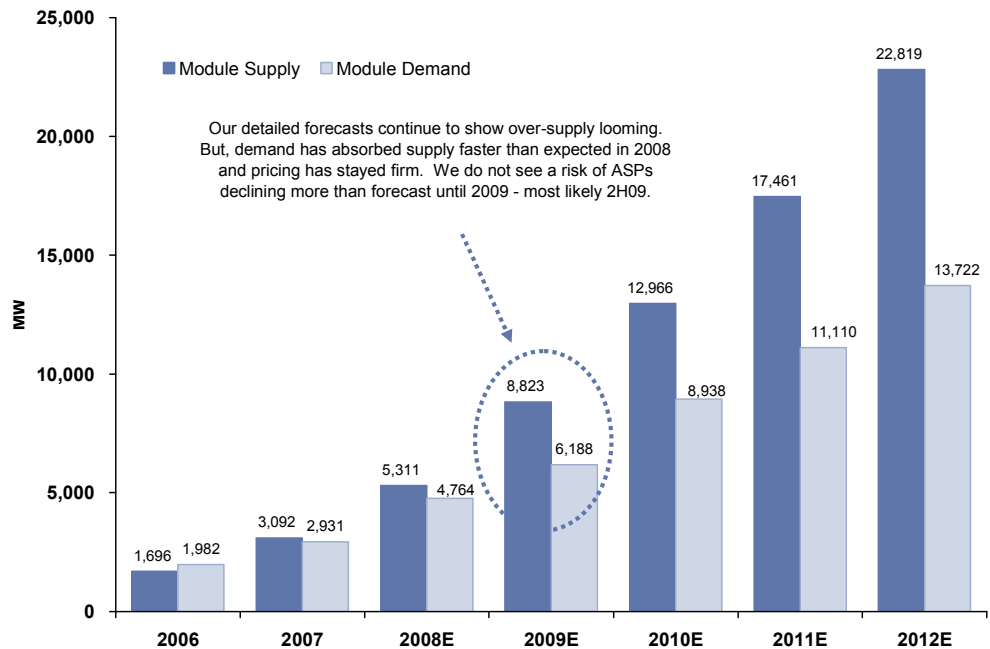
	2007	2008E	2009E	2010E
<b>Current ratio</b>	1.9	0.9	1.0	0.9
<b>Debt/equity</b>	0.6	0.8	0.6	0.5
<b>Interest coverage</b>	9.8	26.2	24.0	29.5
<b>Net assets</b>	6,729	9,582	12,362	15,297

Source: TEJ, Goldman Sachs Research estimates.

**Utilization rate will be under significant pressure in 2010E**

In our view, oversupply in the solar sector is almost inevitable. Furthermore, the rapid emergence of thin film technology will shorten the time to oversupply, in our view. Consequently the timing of Gintech’s expansion is critical. If it can expand its capacity fast enough and leverage its long-term polysilicon contracts to capture market share, it will be in a good position to consolidate and further strengthen its position. However, if it fails to do so and its capacity ramp-up coincides with the timing of oversupply, its utilization rate will come under significant pressure. We expect Gintech to add 420W of capacity in 2010E, just as there is polysilicon oversupply, in our view.

**Exhibit 13: Global demand has absorbed supply faster than we expected in 2008; we see risk of oversupply in 2H2009**



Source: Company data, Goldman Sachs Research estimates.

### Gintech Energy company profile

Gintech was founded in 2005 and listed on the Taiwan Stock Exchange in 2007. The company is one of the most aggressive solar cell makers in Taiwan in terms of capacity expansion and securing long-term contracts to fuel its growth. By end-2008, we believe Gintech will become the largest solar cell maker in Taiwan in terms of capacity and by 2010, with 1.3 GW capacity, it will account for 24% of total crystalline solar cell capacity in Taiwan, or about 6% global cell capacity.

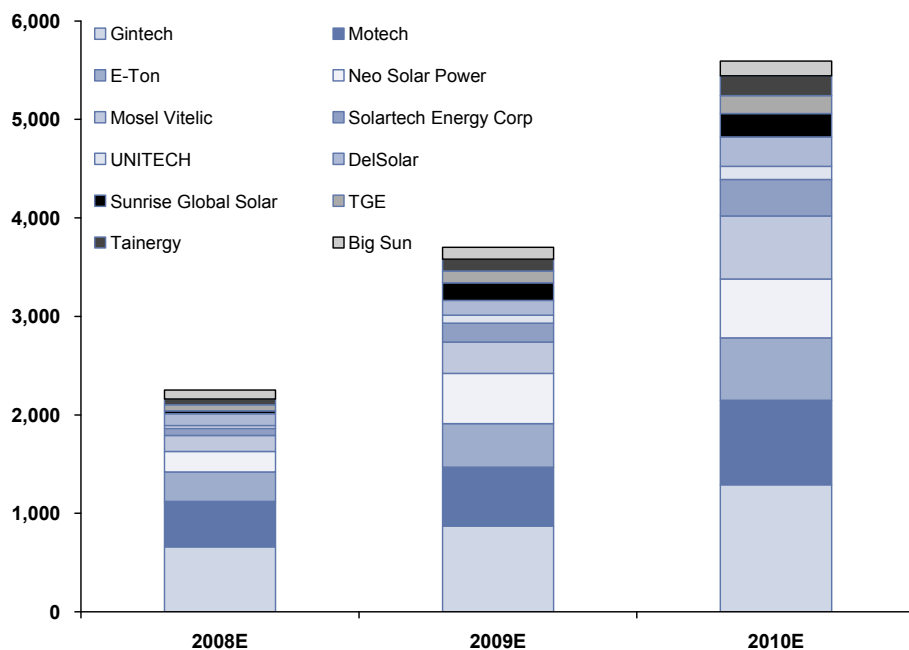
Currently Gintech has two production facilities, one at Guanyin with an annual capacity of 60 MW, the other at Hsinchu with an annual capacity of 600 MW. The company is building another production plant at Hsinchu with an annual capacity of 840 MW, which is scheduled to start production in November 2009.

MEMC is the major polysilicon supplier to Gintech, with which it has signed two long-term supply contracts worth US\$3.7 bn for 10 years. MEMC holds a 6.8% stake in Gintech.

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#### Exhibit 14: Gintech is one of the most aggressive solar cell makers in Taiwan, in our view

Gintech will become the No. 1 solar cell maker in Taiwan in terms of capacity by end-2008



Note: Declared capacity in MW

Source: Company Data, Goldman Sachs Research estimates.

**Exhibit 15: Gintech's production facilities**

Hsinchu site B is scheduled to start production in 4Q2009

	Production starts	Year End capacity in MW			
		2008E	2009E	2010E	2011E
<b>Guanyin Site</b>	Aug-06	60	60	60	60
<b>Hsinchu Site A</b>	Oct-07	600	600	600	600
<b>Hsinchu Site B</b>	Nov-09	0	210	630	840
Total year end capacity		660	870	1,290	1,500
Total production output		250	440	880	1,080

Source: Company data, Goldman Sachs Research estimates.

**Exhibit 16: Gintech's long-term contracts**

MEMC will supply most of Gintech's raw material needs over 2008 and 2009

Supplier	Order size	Duration
MEMC	US\$ 3 bn	10 year period starting in 2006
MEMC	US\$ 700 mn	9 year period starting in 2007
Renesola	525 MW	6 year period starting in 2008
Nexolon	415 MW	6 year period starting in 2008
Deutsche Solar	200 MW	8 year period starting in 2009
REC	US\$ 600 mn	6 year period starting in 2009

Source: Company data, Goldman Sachs Research estimates.

# Green Energy (3519.TW; Neutral): Hinging on its thin film business

We initiate on Green Energy with a Neutral rating and 12-month target price of NT\$109, implying 7% potential downside.

## Solar wafer business: Limited earnings growth momentum

In our view, the long-term growth for Green Energy's solar wafer business is limited due to:

- Limited visibility on capacity expansion: we expect Green Energy's capacity to increase gradually to 270MW in 2009E from the current 200MW; beyond that the capacity expansion plan is still unclear.
- Heavy reliance on OEM: OEM accounted for about 65% of Green Energy's 1H2008 revenues and we expect the OEM percentage to reach 80% in 2H2008.
- Gross margin to trend down from 3Q2008: we expect its gross margin to trend down from 3Q as the company sells more through long-term contracts and wafer makers' margins will be under more pressure than cell makers'.

## Thin film business: Positive long term, but tech risk high

Green Energy has already secured orders worth €39.8 mn in 2009 for its thin film solar modules, which we estimate will account for 100% of its output in 2009. We expect the thin film business to contribute 17% and 25% to total revenues in 2009E and 2010E, respectively. We view Green Energy's thin film business' prospects positively as its choice of turnkey solution (from Applied) offers potential for cost reduction, in our view. However, film uniformity on large glass substrate remains a challenge. We believe the risk of delay in product yield improvement could be high as the film uniformity requirement is higher for solar cell applications than TFT LCD. The large glass substrate also poses challenges for handling and transportation of finished products.

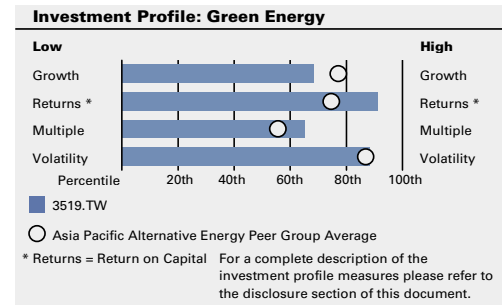
## Valuation

Our 12-month target price of NT\$109 is based on PEG valuation with 4-year EPS CAGR (2008E-2012E) of 11.1% and PEG assumption of 0.6X. We use 2008 as the base year to avoid exaggerated growth numbers caused by a low base effect in 2007. The stock currently trades at 7.0X 2009E P/E and 6.3X 2010E vs. global average of 13.5X and 7.1X, respectively.

## Key risks

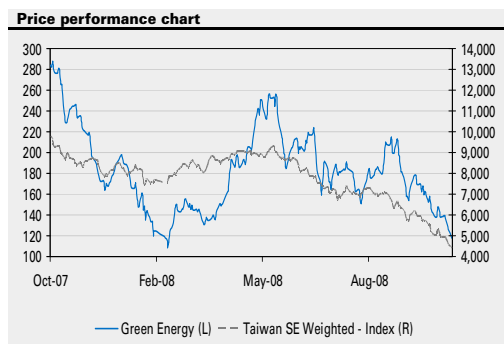
Downside risks: 1) lower-than-expected demand, 2) longer-than-expected mass production ramp up of its thin film line.

Upside risks: 1) stronger-than-expected capacity expansion, 2) better-than-expected product yield of its thin film modules.



Key data	Current
Price (NT\$)	117.50
12 month price target (NT\$)	109.00
Market cap (NT\$ mn / US\$ mn)	12,596.0 / 376.7
Foreign ownership (%)	1.5

	12/07	12/08E	12/09E	12/10E
EPS (NT\$)	7.41	14.74	16.76	18.73
EPS growth (%)	--	99.0	13.7	11.7
EPS (diluted) (NT\$)	7.11	14.31	16.43	18.45
EPS (basic pre-ex) (NT\$)	7.41	14.74	16.76	18.73
P/E (X)	15.9	8.0	7.0	6.3
P/B (X)	3.7	2.4	1.9	1.6
EV/EBITDA (X)	24.1	5.3	5.0	4.3
Dividend yield (%)	3.9	2.1	4.4	5.7
ROE (%)	--	35.5	30.7	28.2



Share price performance (%)	3 month	6 month	12 month
Absolute	(36.3)	(42.6)	(58.5)
Rel. to Taiwan SE Weighted Index	5.5	17.7	(8.5)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 10/27/2008 close.

**Exhibit 17: Green Energy summary financials**

Profit model (NT\$ mn)	12/07	12/08E	12/09E	12/10E	Balance sheet (NT\$ mn)	12/07	12/08E	12/09E	12/10E
<b>Total revenue</b>	<b>5,042.0</b>	<b>9,277.4</b>	<b>12,984.1</b>	<b>16,225.7</b>	Cash & equivalents	893.0	281.6	392.8	327.8
Cost of goods sold	(4,094.0)	(6,881.6)	(9,917.5)	(12,728.2)	Accounts receivable	342.3	610.0	853.8	1,066.9
SG&A	(162.3)	(246.9)	(341.6)	(405.6)	Inventory	1,816.2	1,885.4	1,630.3	2,092.3
R&D	(27.4)	(155.9)	(244.8)	(243.4)	Other current assets	449.5	2,503.2	2,632.8	2,665.1
Other operating profit/(expense)	0.0	0.0	0.0	0.0	<b>Total current assets</b>	<b>3,501.0</b>	<b>5,280.3</b>	<b>5,509.7</b>	<b>6,152.1</b>
<b>EBITDA</b>	<b>959.5</b>	<b>2,284.0</b>	<b>2,865.1</b>	<b>3,349.3</b>	Net PP&E	3,286.4	4,850.9	6,413.7	8,346.7
Depreciation & amortization	(201.2)	(291.1)	(384.8)	(500.8)	Net intangibles	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>758.3</b>	<b>1,992.9</b>	<b>2,480.2</b>	<b>2,848.5</b>	Total investments	0.0	0.0	0.0	0.0
Interest income	8.3	14.6	8.3	8.9	Other long-term assets	73.5	73.5	73.5	73.5
Interest expense	(65.4)	(48.9)	(23.0)	(30.8)	<b>Total assets</b>	<b>6,860.9</b>	<b>10,204.6</b>	<b>11,996.8</b>	<b>14,572.3</b>
Income/(loss) from uncons. subs.	0.0	0.0	0.0	0.0	Accounts payable	226.4	2,639.5	2,445.4	3,138.5
Others	40.5	29.2	136.5	81.1	Short-term debt	2,080.2	98.0	541.8	789.4
<b>Pretax profits</b>	<b>741.8</b>	<b>1,987.9</b>	<b>2,602.1</b>	<b>2,907.8</b>	Other current liabilities	1,113.3	1,324.0	1,599.7	1,840.2
Income tax	(120.0)	(492.6)	(650.5)	(726.9)	<b>Total current liabilities</b>	<b>3,420.0</b>	<b>4,061.6</b>	<b>4,586.9</b>	<b>5,768.0</b>
Minorities	0.0	0.0	0.0	0.0	Long-term debt	680.6	466.4	379.9	374.0
<b>Net income pre-preferred dividends</b>	<b>621.8</b>	<b>1,495.3</b>	<b>1,951.5</b>	<b>2,180.8</b>	Other long-term liabilities	1.3	1.3	1.3	1.3
Preferred dividends	0.0	0.0	0.0	0.0	Total long-term liabilities	681.9	467.7	381.2	375.3
<b>Net income (pre-exceptionals)</b>	<b>621.8</b>	<b>1,495.3</b>	<b>1,951.5</b>	<b>2,180.8</b>	<b>Total liabilities</b>	<b>4,101.9</b>	<b>4,529.2</b>	<b>4,968.0</b>	<b>6,143.3</b>
Post-tax exceptionals	0.0	0.0	0.0	0.0	<b>Preferred shares</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Net income</b>	<b>621.8</b>	<b>1,495.3</b>	<b>1,951.5</b>	<b>2,180.8</b>	<b>Total common equity</b>	<b>2,759.0</b>	<b>5,675.4</b>	<b>7,028.8</b>	<b>8,429.0</b>
EPS (basic, pre-except) (NT\$)	7.41	14.74	16.76	18.73	Minority interest	0.0	0.0	0.0	0.0
EPS (basic, post-except) (NT\$)	7.41	14.74	16.76	18.73	<b>Total liabilities &amp; equity</b>	<b>6,860.9</b>	<b>10,204.6</b>	<b>11,996.8</b>	<b>14,572.3</b>
EPS (diluted, post-except) (NT\$)	7.11	14.31	16.43	18.45	<b>BVPS (NT\$)</b>	<b>31.93</b>	<b>48.74</b>	<b>60.36</b>	<b>72.38</b>
DPS (NT\$)	4.56	2.45	5.14	6.70					
Dividend payout ratio (%)	61.6	16.6	30.6	35.8					
Free cash flow yield (%)	(10.3)	2.4	2.9	3.4					
<b>Growth &amp; margins (%)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Ratios</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
Sales growth	--	84.0	40.0	25.0	ROE (%)	--	35.5	30.7	28.2
EBITDA growth	--	138.0	25.4	16.9	ROA (%)	--	17.5	17.6	16.4
EBIT growth	--	162.8	24.5	14.8	ROACE (%)	--	28.7	29.0	26.1
Net income growth	--	140.5	30.5	11.7	Inventory days	--	98.2	64.7	53.4
EPS growth	--	99.0	13.7	11.7	Receivables days	--	18.7	20.6	21.6
Gross margin	18.8	25.8	23.6	21.6	Payable days	--	76.0	93.6	80.1
EBITDA margin	19.0	24.6	22.1	20.6	Net debt/equity (%)	67.7	5.0	7.5	9.9
EBIT margin	15.0	21.5	19.1	17.6	Interest cover - EBIT (X)	13.3	58.2	169.4	130.5
<b>Cash flow statement (NT\$ mn)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Valuation</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
Net income pre-preferred dividends	621.8	1,495.3	1,951.5	2,180.8	P/E (analyst) (X)	15.9	8.0	7.0	6.3
D&A add-back	201.2	291.1	384.8	500.8	P/B (X)	3.7	2.4	1.9	1.6
Minorities interests add-back	0.0	0.0	0.0	0.0	EV/EBITDA (X)	24.1	5.3	5.0	4.3
Net (inc)/dec working capital	(571.8)	382.2	23.5	230.2	Dividend yield (%)	3.9	2.1	4.4	5.7
Other operating cash flow	(132.7)	0.0	0.0	0.0					
<b>Cash flow from operations</b>	<b>118.5</b>	<b>2,168.6</b>	<b>2,359.9</b>	<b>2,911.8</b>					
Capital expenditures	(2,250.4)	(1,855.5)	(1,947.6)	(2,433.8)					
Acquisitions	0.0	0.0	0.0	0.0					
Divestitures	0.0	0.0	0.0	0.0					
Others	(70.3)	0.0	0.0	0.0					
<b>Cash flow from investments</b>	<b>(2,320.6)</b>	<b>(1,855.5)</b>	<b>(1,947.6)</b>	<b>(2,433.8)</b>					
Dividends paid (common & pref)	(240.0)	(248.7)	(598.1)	(780.6)					
Inc/(dec) in debt	1,912.5	(2,345.5)	297.1	237.6					
Common stock issuance (repurchase)	1,150.0	1,669.8	0.0	0.0					
Other financing cash flows	0.0	0.0	0.0	0.0					
<b>Cash flow from financing</b>	<b>2,822.5</b>	<b>(924.4)</b>	<b>(301.1)</b>	<b>(543.0)</b>					
<b>Total cash flow</b>	<b>620.4</b>	<b>(611.4)</b>	<b>111.2</b>	<b>(65.0)</b>					

Note: Last actual year may include reported and estimated data.  
Source: Company data, Goldman Sachs Research estimates.

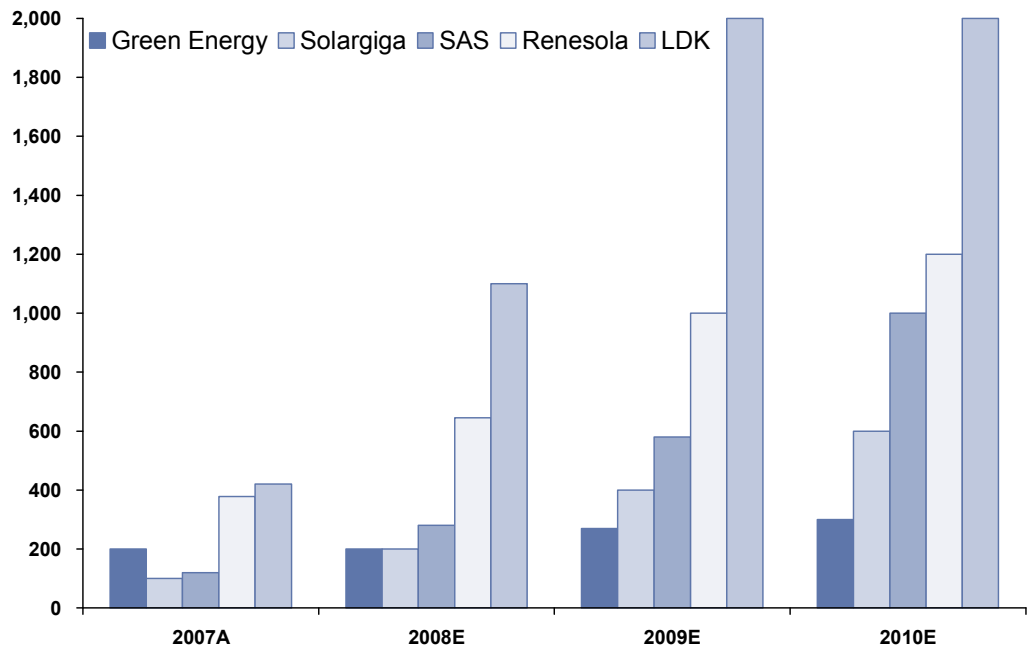
### Solar wafer business: Limited earnings growth momentum

In our view, Green Energy will find it tough to capture significant market share given its limited capacity expansion plans. Green Energy has not announced any new purchase of furnaces, and we expect its capacity to increase from the current 200MW to 270MW by the end of 2009E by increasing the current furnace output from 270kg/ingot to 450kg/ingot. This is significantly less than SAS's 580 MW, LDK Solar's 2GW and Renesola's 1GW in 2009.

The company recently announced an investment of US\$5 mn for 40% holding in Ultra Energy Holding, a solar wafer slicing company based in Shandong, China. Ultra Energy will start with an annual capacity of 60 MW and mass production begins in 2H2009. We do not view such investment in China as a strong driver of the company's earning growth as we see limited cost savings and synergy between its other businesses in expanding the wafer slicing capacity to China.

#### Exhibit 18: Green Energy is far less aggressive in terms of capacity expansion

Leading China and Taiwan wafer makers' capacity expansion plans (in MW)



Source: Company Data, Goldman Sachs Research estimates.

#### High percentage of OEM further constrains topline growth

OEM accounts for about 65% of Green Energy's 1H2008 revenues and we expect it to reach 80% in 2H2008E. We believe the high OEM percentage constrains Green Energy's capability to expand capacity as it will depend heavily on the current long-term customer orders to fill its capacity (over US\$2.5 bn long-term sales contracts over the next 8 years). On the other hand, its long-term supplier contracts only stand at US\$1.1 bn with DC Chemical. This means the remainder, of US\$1.4 bn—at least 56% of Green Energy's business—will continue to come from OEM in the future. In contrast, SAS had about US\$3 bn of long-term sales contracts secured, along with over 3 GW of long-term supplier contracts, or almost 100% of its long-term sales contracts are backed by long-term polysilicon supplier contracts.

**Exhibit 19: Green Energy has secured about US\$2.5 bn long-term sales contracts**

Green Energy’s long-term supply and sales contracts

Supplier	Order size	Duration
DC Chemical	US\$ 260 mn	A 9 year period starting in 2008
DC Chemical	US\$ 858 mn	A 9 year period starting in 2008

Customer	Order size	Duration
5 Asian cell makers	US\$ 990 mn	8 year period starting in 2008
4 European and Asian cell makers	US\$ 574 mn	8 year period starting in 2008
Asia and Australia customers	US\$ 947 mn	8 year period starting in 2009
3 German and Spain thin film customers	Euro 39.8 mn	1 year in 2009

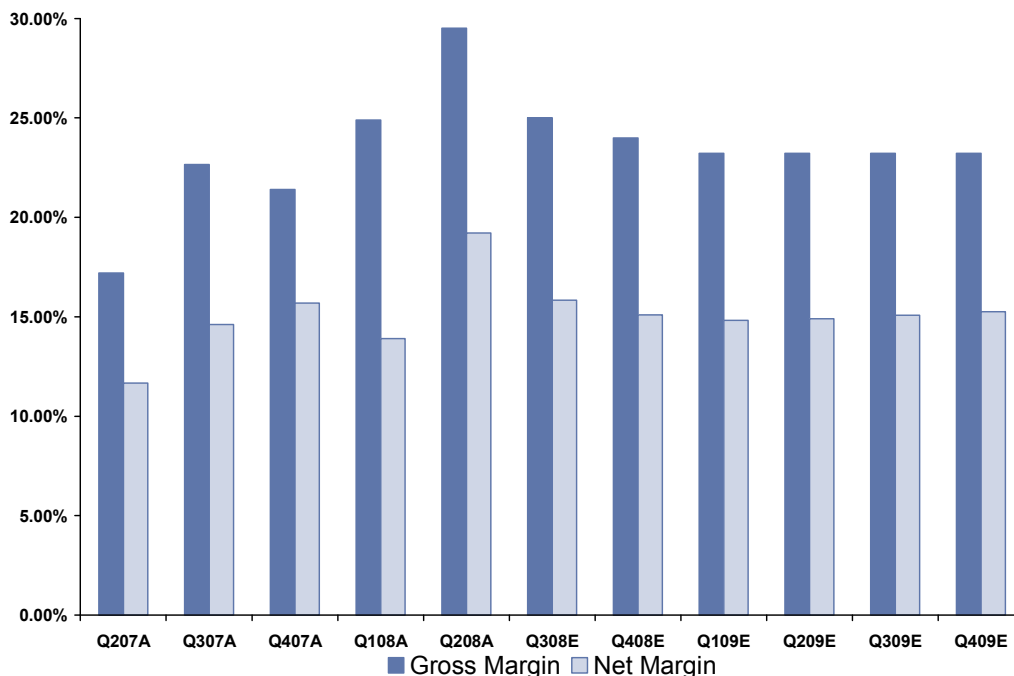
Source: Company Data, Goldman Sachs Research estimates.

**We expect the gross margin to decline gradually**

Green Energy’s reported record high gross margins of 29.5% in 2Q2008. We expect its gross margin to gradually trend down from 3Q as we expect: 1) Green Energy to sell more to long-term customers and less in the spot market as it increases its focus on the OEM space; 2) competition to drive down gross margins across the value chain in the solar space from 2H2009. We expect wafer makers’ gross margins to fall proportionally more than cell makers’ once ASP drops across the solar value chain. This is because wafer makers currently enjoy much higher gross margins, 28%-30%, versus cell makers’ 15%-19%.

**Exhibit 20: We expect Green Energy’s solar wafer business margins to trend down**

Green Energy’s gross and net margin trend



Source: TEJ, Goldman Sachs Research estimates.

### Thin film business: Positive long term, but tech risk is high

Green Energy has already secured orders worth €39.8 mn in 2009 for its thin film solar modules, which we estimate will account for 100% of its output in 2009. We expect the thin film business to contribute 17% and 25% to the total revenue in 2009E and 2010E, respectively. The company has made a move into the thin film solar cell sector, with turnkey solutions provided by Applied Material. Applied Material's turnkey solution is based on its G8.5 TFT equipment with glass size of 2.2m x 2.6m. We expect Green Energy to start production for its thin film line by end-2008 with an annual capacity of 30 MW and further increase the capacity to 50 MW by end-2009. Its initial conversion efficiency is targeted at 6%. For the initial 30 MW line, total capex is about US\$120 mn and US\$80 mn would be spent on equipment purchase from Applied Material.

Of the three thin film solar turnkey solution providers—ULVAC, Oerlikon and Applied Materials—Applied Materials uses the largest glass substrate, hence the greatest potential for cost reduction, in our view. However, realizing cost reduction will not be easy as throughput is the key bottleneck for thin film solar module production and improving throughput of these large size substrates is especially difficult due to plasma uniformity of the PECVD.

At this stage, Applied's turnkey solution has not been used by any of its customer for mass production. Green Energy will be among the first few Applied customers to start mass production. We believe the risk of delay in product yield improvement is high, given the challenge of achieving film uniformity for large glass substrates. The large glass substrate also poses challenges of handling and transportation of finished products. Both ULVAC and Oerlikon's turnkey solutions have been proven for mass production by their local customers.

We expect Green Energy's thin film business to initially have gross margins of about 25% and then gradually increase to 26% before dropping to 22% in 2010E, when competition intensifies in the solar sector as polysilicon becomes more readily available.

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#### Exhibit 21: Applied Materials thin film turnkey solution uses the largest glass substrate

Thin film technology developers

	Company	Glass substrate	PECVD	Taiwan companies	Efficiency	Capex
In-house	Mitsubishi Heavy Industries	1.4 m x 1.1 m	VHF 60 MHz	N/A	13.1%	N/A
	Sharp	1.4 m x 1.0 m	Short-pulsed VHF	N/A	13.0%	US\$1.5/W
	Kaneka	1.2 m x 1.0 m	N/A	N/A	13.4%	US\$ 2.5/W
Turn key	Oerlikon	1.25 m x 1.1 m	VHF 40 MHz	Sun Well, AURIA SOLAR	10.4%	US\$ 2.9/W
	ULVAC	1.4 m x 1.1 m	VHF 40.MHz	NexPower, Sunner Solar	10.0%	US \$ 2.0/W
	Applied Material	2.6 m x 2.2 m	RF 14 MHz	Green Energy	10.2%	US\$ 1.6/W

Note: Efficiency is best research efficiency based on dual junctions (also known as tandem).

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Source: IT IS, Goldman Sachs Research estimates.

**Exhibit 22: Green Energy is the only company in Taiwan that uses Applied’s turnkey solution**

Taiwan thin film solar companies

Solar cell- Thin film	Ticker	Market cap US \$ mil	Capacity in MW			Location	Note
			2008E	2009E	2010E		
NexPower	Not listed	N/A	38	60	200	Hsinchu	ULVAC
Sun Well Solar	Not listed	N/A	46	120	225	Taipei	Oerlikon
AURIA SOLAR	Not listed	N/A	30	60	120	Tainan	Oerlikon
Green Energy	3519.TW	467	30	50	120	Taipei	Applied
Ritek	2349.TW	359	30	90	120	Hsinchu	CIGS(Scheuten)
Kenmos PV	Not listed	N/A	10	20	30	Tainan	NanoPV
Chi Mei Opto	3009.TW	3,535	0	30	30	Hsinchu	ULVAC
Sinoar Solar	Not listed	N/A	50	50	50	Miaulih	Chronar (EPV)
Formosun Solar Corp	Not listed	N/A	6	11	18	Hsinchu	EPV Solar
Solartech Energy Corp	Not listed	N/A	30	30	60	Hsinchu	CIGS: Centrotherm
NanoWin	Not listed	N/A	0	25	25	Tainan	CIGS
Sunner Solar	Not listed	N/A	25	35	50	Sindian	ULVAC
			<b>294</b>	<b>581</b>	<b>1,048</b>		

Source: Company Data, Goldman Sachs Research estimates.

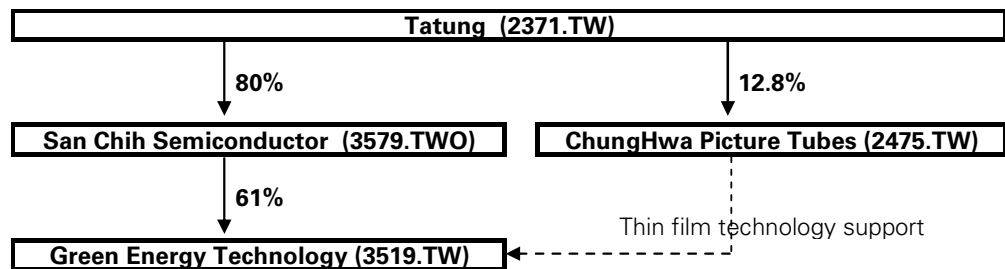
**Green Energy company profile**

Green Energy was established in 2004 with a focus on multi-crystalline solar wafer production. San Chih Semiconductor (3579.TWO) and a member of the Tatung (2371.TW) group holds 61% stake in the company. It currently has 80 furnaces with a capacity equivalent of 200 MW.

Green Energy’s technical teams are from San Chih Semiconductor (3579.TWO), a semiconductor wafer producer, for its multi-crystalline wafer business and from ChungHwa Picture Tubes (2475.TW), a TFT LCD panel maker, for its thin film solar cell business. Both San Chih and ChungHwa belong to the Tatung group (2371.TW). Tatung was founded in 1918; the company has subsequently diversified into design and manufacturing of digital consumer products, including LCD TVs, network-connected devices and home appliances, system integration, heavy industrial equipment such as wire, cable and industrial products such as optical fiber cables, gas insulated switchgears, motors, generators, and transformers. In 2007, the company derived 52.7%, 18.0%, 16.6% and 12.7% of its total revenue from its digital electronics products, wires and cables, heavy electrical products and household appliances, respectively.

**Exhibit 23: Green Energy is a part of the Tatung group**

Green Energy’s shareholding structure



Source: Company Data, Goldman Sachs Research estimates.

# E-Ton Solar (3452.TWO): Downgrade to Neutral on credit concerns

We view E-Ton as a long-term leader in the Taiwan solar sector based on the company’s efforts to differentiate itself by producing high efficiency cells. However, in the current tough market conditions, E-Ton’s relative high leverage—of 115% net debt/equity based on 1H2008 consolidated results—has increasingly become a concern. That said, we do not foresee any near-term payment pressure for E-Ton’s NT\$9.4 bn long-term debt as only NT\$395 mn and NT\$1.24 bn fall due in 2009 and 2010, respectively, and NT\$2.6 bn in 2011. As investors have become more risk averse, especially for small-cap stocks such as E-Ton, we believe it will be hard for E-Ton’s share price to outperform in the near term.

Furthermore, we believe high leverage may constrain its capacity to raise additional capital to finance expansion plans and research & development. This increasing risk makes the risk/reward less attractive at present, in our view. Hence, we downgrade it to Neutral from Buy.

The stock has fallen 41.1% since we added it to the Buy list on August 5, 2008, versus the Taiwan SE-Weighted index down 35.9%. Over the past 12 months, the stock was down 51.5% versus the index down 54.7%. The drastic deterioration in the global credit environment has caused a derating across the sector in terms of valuations and consequently exerted more downward pressure on solar module prices than we expected.

## Reduce earnings, target price on a more cautious outlook

We lower our ASP assumptions for 2009E and 2010E following our global team’s cautious view on the solar sector as the current tough credit environment increases financing costs of system integrators and puts downward pressure on the solar module ASP. For FY2009E/ FY2010E, we revise downwards our EPS for E-Ton by 10% and 32%, respectively, to NT\$28.33 and NT\$29.3, and our target price by 59% to NT\$142.

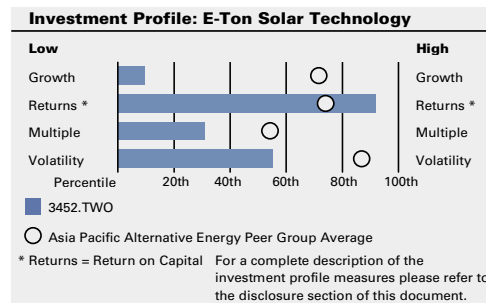
## Valuation

Our 12-month target price of NT\$142 is based on PEG valuation with 4-year EPS CAGR (2008E-2012E) of 8.3% and PEG assumption of 0.6X. We use 2008 as the base year in order to avoid exaggerated growth numbers caused by a low base effect in 2007. The stock currently trades at 7.4X 2009E P/E and 4.7X 2010E vs. global average of 13.5X and 7.1X, respectively.

## Key risks

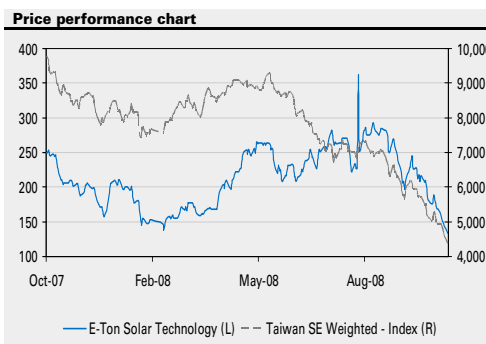
Downside risks: 1) Lower-than-expected ASP and margin erosion, 2) longer-than-expected weak credit environment.

Upside risks: 1) Stronger than expected shipments, and 2) better-than-expected ASP.



Key data	Current
Price (NT\$)	133.50
12 month price target (NT\$)	142.00
Market cap (NT\$ mn / US\$ mn)	8,097.4 / 242.2
Foreign ownership (%)	9.0

	12/07	12/08E	12/09E	12/10E
<b>EPS (NT\$) New</b>	<b>8.31</b>	<b>18.02</b>	<b>28.33</b>	<b>29.26</b>
EPS revision (%)	0.0	(12.0)	(9.8)	(31.6)
EPS growth (%)	(25.0)	116.9	57.2	3.3
<b>EPS (dil) (NT\$) New</b>	<b>8.31</b>	<b>18.02</b>	<b>28.33</b>	<b>29.26</b>
P/E (X)	16.1	7.4	4.7	4.6
P/B (X)	2.4	2.1	1.1	1.0
EV/EBITDA (X)	47.5	9.1	4.9	4.7
Dividend yield (%)	2.2	2.8	4.3	4.5
ROE (%)	18.7	31.5	31.9	23.1



Share price performance (%)	3 month	6 month	12 month
Absolute	(50.7)	(46.5)	(51.5)
Rel. to Taiwan SE Weighted Index	(18.4)	9.6	6.9

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 10/27/2008 close.

**Exhibit 24: E-Ton Solar summary financials**

<b>Profit model (NT\$ mn)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Balance sheet (NT\$ mn)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
<b>Total revenue</b>	<b>5,973.9</b>	<b>15,310.4</b>	<b>28,042.8</b>	<b>25,533.7</b>	Cash & equivalents	1,392.9	3,335.7	6,554.1	8,786.4
Cost of goods sold	(5,067.1)	(12,632.9)	(23,273.6)	(21,165.5)	Accounts receivable	996.7	1,677.9	2,689.0	2,098.7
SG&A	(73.0)	(93.1)	(168.3)	(102.1)	Inventory	1,149.4	1,471.3	2,719.6	3,364.9
R&D	(121.2)	(526.3)	(981.5)	(766.0)	Other current assets	1,144.0	1,402.0	1,677.9	1,975.1
Other operating profit/(expense)	0.0	(8.6)	0.0	0.0	<b>Total current assets</b>	<b>4,683.0</b>	<b>7,886.9</b>	<b>13,640.6</b>	<b>16,225.0</b>
<b>EBITDA</b>	<b>712.5</b>	<b>2,049.5</b>	<b>3,619.4</b>	<b>3,500.0</b>	Net PP&E	3,880.1	5,057.3	5,984.6	6,973.9
Depreciation & amortization	(113.2)	(87.5)	(102.9)	(119.4)	Net intangibles	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>599.3</b>	<b>1,962.1</b>	<b>3,516.6</b>	<b>3,380.7</b>	Total investments	0.0	0.0	0.0	0.0
Interest income	94.6	57.3	119.8	185.9	Other long-term assets	3,608.0	4,832.9	4,133.6	3,882.3
Interest expense	(184.3)	(236.0)	(522.6)	(323.2)	<b>Total assets</b>	<b>12,171.1</b>	<b>17,777.0</b>	<b>23,758.9</b>	<b>27,081.2</b>
Income/(loss) from uncons. subs.	0.0	0.0	0.0	0.0	Accounts payable	250.8	766.7	1,152.8	1,049.7
Others	389.5	93.9	13.4	13.4	Short-term debt	3,777.5	1,315.8	1,540.8	1,690.8
<b>Pretax profits</b>	<b>899.2</b>	<b>1,877.3</b>	<b>3,127.2</b>	<b>3,256.8</b>	Other current liabilities	182.2	145.9	145.9	145.9
Income tax	(7.1)	(79.4)	(156.2)	(162.8)	<b>Total current liabilities</b>	<b>4,210.5</b>	<b>2,228.3</b>	<b>2,839.4</b>	<b>2,886.3</b>
Minorities	0.0	0.0	0.0	0.0	Long-term debt	2,994.4	7,456.1	8,731.1	9,581.1
<b>Net income pre-preferred dividends</b>	<b>892.1</b>	<b>1,797.9</b>	<b>2,971.1</b>	<b>3,094.0</b>	Other long-term liabilities	4.7	1,656.0	0.0	0.0
Preferred dividends	0.0	0.0	0.0	0.0	Total long-term liabilities	2,999.1	9,112.1	8,731.1	9,581.1
<b>Net income (pre-exceptionals)</b>	<b>892.1</b>	<b>1,797.9</b>	<b>2,971.1</b>	<b>3,094.0</b>	<b>Total liabilities</b>	<b>7,209.6</b>	<b>11,340.4</b>	<b>11,570.6</b>	<b>12,467.4</b>
Post-tax exceptionals	(141.3)	0.0	0.0	0.0	<b>Preferred shares</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Net income</b>	<b>750.7</b>	<b>1,797.9</b>	<b>2,971.1</b>	<b>3,094.0</b>	<b>Total common equity</b>	<b>4,961.5</b>	<b>6,436.6</b>	<b>12,188.3</b>	<b>14,613.8</b>
EPS (basic, pre-except) (NT\$)	14.71	18.02	28.33	29.26	Minority interest	0.0	0.0	0.0	0.0
EPS (basic, post-except) (NT\$)	8.31	18.02	28.33	29.26	<b>Total liabilities &amp; equity</b>	<b>12,171.1</b>	<b>17,777.0</b>	<b>23,758.9</b>	<b>27,081.2</b>
EPS (diluted, post-except) (NT\$)	8.31	18.02	28.33	29.26	<b>BVPS (NT\$)</b>	<b>54.90</b>	<b>64.53</b>	<b>116.23</b>	<b>138.21</b>
DPS (NT\$)	3.00	3.68	5.78	5.97					
Dividend payout ratio (%)	36.1	20.4	20.4	20.4					
Free cash flow yield (%)	(21.7)	11.2	10.8	11.5					
<b>Growth &amp; margins (%)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Ratios</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
Sales growth	76.3	156.3	83.2	(8.9)	ROE (%)	18.7	31.5	31.9	23.1
EBITDA growth	(10.9)	187.6	76.6	(3.3)	ROA (%)	8.2	12.0	14.3	12.2
EBIT growth	(20.2)	227.4	79.2	(3.9)	ROACE (%)	14.8	17.7	24.1	19.5
Net income growth	14.7	139.5	65.3	4.1	Inventory days	61.4	37.9	32.9	52.5
EPS growth	(25.0)	116.9	57.2	3.3	Receivables days	42.7	31.9	28.4	34.2
Gross margin	15.2	17.5	17.0	17.1	Payable days	17.9	14.7	15.1	19.0
EBITDA margin	11.9	13.4	12.9	13.7	Net debt/equity (%)	108.4	84.5	30.5	17.0
EBIT margin	10.0	12.8	12.5	13.2	Interest cover - EBIT (X)	6.7	11.0	8.7	24.6
<b>Cash flow statement (NT\$ mn)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Valuation</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
Net income pre-preferred dividends	892.1	1,797.9	2,971.1	3,094.0	P/E (analyst) (X)	16.1	7.4	4.7	4.6
D&A add-back	113.2	87.5	102.9	119.4	P/B (X)	2.4	2.1	1.1	1.0
Minorities interests add-back	0.0	0.0	0.0	0.0	EV/EBITDA (X)	47.5	9.1	4.9	4.7
Net (inc)/dec working capital	(1,008.5)	(781.6)	(2,149.3)	(455.2)	Dividend yield (%)	2.2	2.8	4.3	4.5
Other operating cash flow	(3,126.4)	1,822.9	2,003.5	101.4					
<b>Cash flow from operations</b>	<b>(3,129.6)</b>	<b>2,926.7</b>	<b>2,928.1</b>	<b>2,859.5</b>					
Capital expenditures	(2,943.7)	(1,264.6)	(1,030.2)	(1,108.6)					
Acquisitions	0.0	0.0	0.0	0.0					
Divestitures	0.0	0.0	0.0	0.0					
Others	(245.5)	(1,000.0)	0.0	0.0					
<b>Cash flow from investments</b>	<b>(3,189.2)</b>	<b>(2,264.6)</b>	<b>(1,030.2)</b>	<b>(1,108.6)</b>					
Dividends paid (common & pref)	(362.3)	(271.1)	(366.7)	(605.9)					
Inc/(dec) in debt	1,261.1	(461.7)	1,725.0	1,150.0					
Common stock issuance (repurchase)	0.0	378.4	0.0	0.0					
Other financing cash flows	4,121.2	1,635.1	(37.9)	(62.6)					
<b>Cash flow from financing</b>	<b>5,019.9</b>	<b>1,280.7</b>	<b>1,320.4</b>	<b>481.5</b>					
<b>Total cash flow</b>	<b>(1,299.0)</b>	<b>1,942.8</b>	<b>3,218.4</b>	<b>2,232.3</b>					

Note: Last actual year may include reported and estimated data.

Source: Company data, Goldman Sachs Research estimates.

## E-Ton: Credit concerns overshadow fundamental growth

We view E-Ton as a long-term leader in the Taiwan solar sector based on its efforts to differentiate itself by producing high efficiency cells. However, in the current tough macro environment and with uncertainties surrounding government policy if economic conditions deteriorate and oil prices fall further, we believe investors will be more concerned about the company's near-term financial strength than future earnings growth momentum, especially for small cap stocks such as E-Ton.

E-Ton's high leverage is mainly due to its investment in subsidiary Gloria Solar International Holding (GIH), Auria Solar and its downpayment to M.Setek for long-term polysilicon supply contracts. However, we see no danger of the company facing any serious liquidity issues. Of its NT\$9.4 bn long-term debt, only NT\$395 mn and NT\$1.24 bn fall due in 2009 and 2010, with NT\$2.6 bn due in 2011. The company has publicly stated it plans to use the proceeds from its 53%-owned subsidiary GIH's potential IPO to pay-off most of its debt. We believe the current market conditions may make the planned IPO much more challenging.

We do not see E-Ton facing near-term payment pressure for its long-term debt. However, we believe the continuing deterioration in the credit environment would cause concern as:

- 1) E-Ton's high leverage and an increasingly challenging environment could limit its capability to raise enough capital for expansion plans and research & development.
- 2) Increasing financing cost for solar system integrators will exert downward pressure on the ASP of solar modules.
- 3) A fall in oil prices (as the economy slows down) would cast a shadow on the attractiveness of solar as a competitive alternative energy source, although we still believe the key government subsidized programs will not reverse course sharply in the short term even as oil prices continue to fall.

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### Exhibit 25: E-Ton is most leveraged in the Taiwan solar sector

Liquidity analysis of Taiwan solar stocks

	<b>E-Ton</b>	<b>Motech</b>	<b>SAS</b>	<b>Gintech</b>	<b>Green Energy</b>
Net debt/Equity	115%	-10%	21%	69%	-8%
Net debt/Market cap	70%	-5%	7%	31%	-3%
Cash/Market cap	11%	16%	7%	0%	19%
Current ratio	2.5	1.8	0.9	2.2	1.3
Quick ratio	2.1	1.1	0.6	1.9	0.9
Net debt/EBITDA	9.2	-0.8	0.8	3.8	-0.3
Short-term debt/cash	0.7	0.2	1.2	0.0	0.3
Capex/Sales	19%	10%	10%	31%	18%
Capex/EBITDA	118%	84%	38%	160%	65%
Cash conversion cycle	56.3	76.5	83.5	18.9	93.6
Interest coverage	6.1	15.4	26.0	12.4	24.9
FCF/Sales	0.9%	-14.3%	14.6%	-1.0%	37.6%
Z-score	1.5	5.1	4.8	3.0	4.8
QDFII Holding	9%	16%	8%	15%	1%

Note: Based on 1H2008 consolidated results as we believe parent only financial analysis does not reflect the full credit risks. Z-score is NOT adjusted to full year results.

Source: Goldman Sachs Research estimates.

**Exhibit 26: We see no near-term payment pressure from E-Ton's long-term debt**  
E-Ton's long-term debt payment schedule (NT\$ mn)

<b>E-Ton Solar (3452.TWO)</b>									
<b>Short term borrowing</b>									
	Authorized	Used	Interest rate						
	2,870	1,125	2.45-2.50%						
<b>Long term borrowing</b>				<b>Payment schedule</b>					
	Authorized	Used	Interest rate	2008E	2009E	2010E	2011E	2012E	2013E
CB1	3,000	800	-	-	-	-	800	-	-
CB2	1,000	857	-	-	-	-	-	-	857
LTD1	4,000	2,634	3.25-3.28%	-	395	790	922	527	-
LTD2	3,000	2,996	3.12-3.25%	-	-	449	899	1,049	599
LTD3	2,268	2,125	3.38-3.38%	-	-	-	-	-	2,125
<b>Current portion</b>	<b>110</b>	<b>Total payment</b>	<b>110</b>	<b>395</b>	<b>1,240</b>	<b>2,621</b>	<b>1,575</b>	<b>3,581</b>	
<b>Total debt</b>	<b>10,646</b>								

Note: CB is convertible bond. LTD is Long Term Debt

Source: Company Data, Goldman Sachs Research estimates.

**High conversion efficiency product will help E-Ton maintain price premium**

On October 7, E-Ton revealed its new monocrystalline solar cell, produced from 5-inch silicon wafers with an average conversion efficiency of 17.9% and peak efficiency of 18.17%. The general conversion efficiency for solar cells produced from 5-inch monocrystalline wafers is 17% at maximum and 16.5% on average. E-Ton plans to begin shifting 50 MW, or 16.7%, of its production capacity for volume production of the new solar cells in 1H2009. The company expects to shift all of its capacity to making the new products in 2010 and that the gross margin will improve by 4%-8% with every 1% conversion efficiency improvement.

We have already started to observe price segmentation in the solar cell sector—while solar cells with conversion efficiency above 17% can fetch a market price of at least US\$3.85/W, solar cells with conversion efficiency below 13% can only be sold as scrap wafers for recycling. We believe when the space gets more crowded, the premium for high efficiency will only become higher.

**Exhibit 27: High conversion efficiency commands a high ASP premium**

Type	Conversion efficiency	ASP
Mono solar cell	Above 17%	\$3.85 and above
Mono solar cell	Above 15.8%, below 17%	\$2.9-\$3.7
Mono solar cell	Above 15%, below 15.8%	\$2.5-\$3
Mono solar cell	Below 13%	Scrap
Multi solar cell	Above 15%	\$2.9-\$3.7
Multi solar cell	Above 13%, below 15%	\$2.5-\$3
Multi solar cell	Below 13%	Scrap

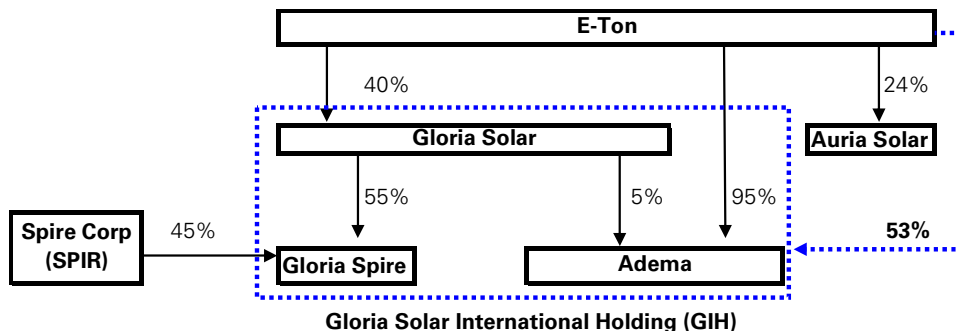
Source: Digital Times, Goldman Sachs Research estimates.

**Downstream integration offers certain margin protection**

Given the potential sharp ASP fall of the solar module with oversupply in 2010E, we believe solar cell makers with downstream vertical integration are in a good position to absorb some downward margin pressure. The competition in the solar space will be on

two fronts—cost reduction and the ability of transforming from a manufacturer to service provider. We believe E-Ton’s position in the downstream system integration will offer it certain margin protection. Gloria Spire was formed as a joint venture between Gloria Solar, in which E-Ton holds 40% stake, and Spire Corp (SPIR) in August 2007 to conduct business as a PV system integrator in the US.

**Exhibit 28: E-Ton holds 53% of Gloria Solar International Holding**  
Holding structure of GIH



Wafer	Cell	Module	System	Thin film
Adema	E-Ton	Gloria Solar	Gloria Spire	Auria Solar

Source: Company data, Goldman Sachs Research estimates.

**Exhibit 29: E-Ton’s share price performance**  
Price as of October 27, 2008

Company	Ticker	Primary analyst	Price currency	Price as of 10/27/08	Price performance since 08/05/08	3 month price performance	6 month price performance	12 month price performance
<b>Asia Pacific Alternative Energy Peer Group</b>								
<b>E-Ton Solar Technology</b>	<b>3452.TWO</b>	<b>Min Li</b>	<b>NT\$</b>	<b>133.50</b>	<b>-41.1%</b>	<b>-50.7%</b>	<b>-46.5%</b>	<b>-51.5%</b>
China High Speed Transmission Equip	0658.HK	Cheryl Tang	HK\$	4.70	-68.0%	-67.4%	-67.8%	-74.8%
Huayi Electric	600290.SS	Cheryl Tang	Rmb	5.68	-66.4%	-71.6%	-79.0%	-81.9%
JA Solar Holdings	JASO	Cheryl Tang	\$	3.82	-75.1%	-73.7%	-84.2%	-79.6%
LDK Solar	LDK	Cheryl Tang	\$	14.69	-54.0%	-54.2%	-53.2%	-61.2%
Motech Industries	6244.TWO	Min Li	NT\$	104.00	-33.1%	-44.4%	-49.7%	-65.9%
Sino-American Silicon Products	5483.TWO	Min Li	NT\$	73.10	-39.6%	-50.0%	-61.9%	-75.7%
Solarfun Power Holdings	SOLF	Cheryl Tang	\$	4.55	-64.7%	-65.0%	-67.3%	-64.7%
Suntech Power	STP	Cheryl Tang	\$	11.95	-63.3%	-64.1%	-73.4%	-78.3%
Suzlon Energy	SUZL.BO	Anirudh Gangahar	Rs	47.25	-80.3%	-77.7%	-83.7%	-87.9%
Trina Solar	TSL	Cheryl Tang	\$	9.99	-62.7%	-62.1%	-76.2%	-82.1%
Xinjiang Goldwind Science&Technology	002202.SZ	Cheryl Tang	Rmb	15.42	-52.2%	-59.4%	-68.6%	-89.3%
Yingli Green Energy	YGE	Cheryl Tang	\$	3.68	NA	-75.4%	-83.7%	-89.3%
<b>Taiwan SE Weighted - Index</b>				<b>4,367</b>	<b>-35.9%</b>	<b>-39.6%</b>	<b>-51.2%</b>	<b>-54.7%</b>

Note: Prices as of most recent available close, which could vary from the price date indicated above. This table shows movement in absolute share price and not total shareholder return. Results presented should not and cannot be viewed as an indicator of future performance.

Source: Factset, Quantum database.

# Motech (6244.TWO; Neutral): Strong track record, but rich valuation

Motech outperformed E-Ton by 7% in the past one month in our view, because: 1) It has the lowest leverage among stocks under our coverage, net debt/equity ratio of -10%, with NT\$1.3 bn net cash, 2) its business expansion has always been conservative, and it lags even newcomers such as Gintech in terms of total capacity. However, this also means that Motech has the least downpayment pressure for its long-term polysilicon supplier contracts and less capital requirement for its capex, and 3) it has been in the industry for more than 7 years, so it has a proven track record. By comparison, most competitors have been in the business for only 2-3 years.

## Rich valuation, limited margin expansion remain a concern

We maintain our Neutral rating on Motech as: 1) Motech is currently trading at 7.3X 2009E P/E and 6.4X 2010E, which are at 22% and 20% premium to Taiwan solar companies' average trading multiples of 6.2X and 5.6X, respectively, 2) we continue to expect at least a 6-month delay in its AE Polysilicon project as the complexity of the FBR technology and relative inexperience of the AE polysilicon team will pose significant challenges to the mass production ramp-up schedule, 3) we expect spot price to be still significantly higher than long-term contract prices in the near term, as a result we remain cautious about Motech's near-term margin expansion capability as the company guided percentage of long-term supply contracts to be around 50% in 2009E, albeit an improvement from this year's 33%.

## Revise up shipment forecast, lower ASP assumptions

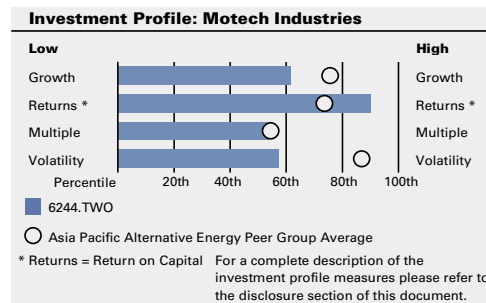
We lower our ASP assumptions for 2009E and 2010E following our global team's cautious stance on the solar sector. We revised our ASP decline in 2009E for Motech from 12% to 15%. We revise upwards our shipment forecast for Motech by 9% in 2009E and 8% in 2010E as Motech's China facility has begun shipping solar cells earlier than we expected. The company has guided that the capacity at this facility to reach 140 MW by end-2009 from 60 MW currently. As a result, for FY2009E/FY2010E, we revise upwards our EPS by 10.5% and 0.3% to NT\$14.15 and NT\$16.38, respectively.

## Valuation

Our 12-month target price of NT\$104 is based on PEG valuation with 4-year EPS CAGR (2008E-2012E) of 12.2% and PEG assumption of 0.6X. We use 2008 as the base year in order to avoid exaggerated growth numbers caused by a low base effect in 2007. The stock currently trades at 7.3X 2009E P/E and 6.4X 2010E vs. global average of 13.5X and 7.1X, respectively.

## Key risks

Downside risks are worse-than-expected ASP and margin erosion, the upside risk is better-than-expected execution for its AE Polysilicon project.

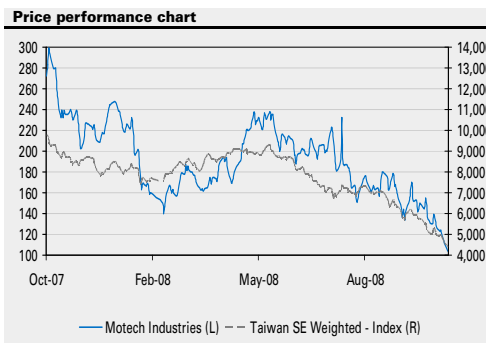


Key data	Current
Price (NT\$)	104.00
12 month price target (NT\$)	104.00
Market cap (NT\$ mn / US\$ mn)	21,424.0 / 640.7
Foreign ownership (%)	16.0

	12/07	12/08E	12/09E	12/10E
<b>EPS (NT\$) New</b>	<b>7.63</b>	<b>10.66</b>	<b>14.15</b>	<b>16.38</b>
EPS revision (%)	0.0	12.3	10.5	0.3
EPS growth (%)	(24.0)	39.7	32.8	15.7
<b>EPS (dil) (NT\$) New</b>	<b>7.63</b>	<b>10.66</b>	<b>14.15</b>	<b>16.38</b>
P/E (X)	13.6	9.8	7.3	6.4
P/B (X)	1.9	1.8	1.6	1.4
EV/EBITDA (X)	21.5	6.6	5.5	4.7
Dividend yield (%)	5.6	5.7	7.6	8.8
ROE (%)	18.7	19.0	27.2	27.7

Share price performance (%)	3 month	6 month	12 month
Absolute	(50.2)	(40.3)	(63.6)
Rel. to Taiwan SE Weighted Index	(23.1)	13.7	(26.9)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 10/23/2008 close.



Share price performance (%)	3 month	6 month	12 month
Absolute	(44.4)	(49.7)	(65.9)
Rel. to Taiwan SE Weighted Index	(7.9)	3.1	(24.8)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 10/27/2008 close.

**Exhibit 30: Motech summary financials**

Profit model (NT\$ mn)	12/07	12/08E	12/09E	12/10E	Balance sheet (NT\$ mn)	12/07	12/08E	12/09E	12/10E
<b>Total revenue</b>	<b>15,675.5</b>	<b>24,884.3</b>	<b>33,989.9</b>	<b>39,003.4</b>	Cash & equivalents	5,357.6	4,362.3	5,184.0	4,481.3
Cost of goods sold	(12,170.3)	(20,161.4)	(27,213.9)	(30,932.1)	Accounts receivable	1,122.2	2,113.5	2,886.8	3,312.6
SG&A	(398.0)	(523.4)	(577.8)	(615.7)	Inventory	2,955.2	3,749.7	5,121.8	5,877.2
R&D	(194.3)	(330.3)	(509.8)	(611.8)	Other current assets	893.6	914.4	935.2	956.0
Other operating profit/(expense)	0.0	0.0	0.0	0.0	<b>Total current assets</b>	<b>10,328.6</b>	<b>11,139.9</b>	<b>14,127.8</b>	<b>14,627.2</b>
<b>EBITDA</b>	<b>2,912.9</b>	<b>3,869.2</b>	<b>5,688.3</b>	<b>6,843.8</b>	Net PP&E	3,020.2	4,720.8	5,569.0	7,547.0
Depreciation & amortization	(492.6)	(878.1)	(1,152.9)	(1,695.4)	Net intangibles	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>2,420.3</b>	<b>2,991.2</b>	<b>4,535.4</b>	<b>5,148.4</b>	Total investments	0.0	0.0	0.0	0.0
Interest income	245.3	120.8	119.3	120.8	Other long-term assets	4,319.6	4,329.8	4,340.1	4,350.3
Interest expense	(92.0)	(133.4)	(148.4)	(148.4)	<b>Total assets</b>	<b>17,668.4</b>	<b>20,190.5</b>	<b>24,036.8</b>	<b>26,524.4</b>
Income/(loss) from uncons. subs.	0.0	0.0	0.0	0.0	Accounts payable	572.1	983.0	1,325.3	1,524.4
Others	(115.9)	(231.4)	0.0	0.0	Short-term debt	806.8	1,151.1	1,424.8	1,424.8
<b>Pretax profits</b>	<b>2,457.6</b>	<b>2,747.1</b>	<b>4,506.3</b>	<b>5,120.8</b>	Other current liabilities	564.4	564.4	564.4	564.4
Income tax	(15.9)	(90.4)	(226.6)	(101.9)	<b>Total current liabilities</b>	<b>1,943.3</b>	<b>2,698.5</b>	<b>3,314.6</b>	<b>3,513.6</b>
Minorities	0.0	0.0	0.0	0.0	Long-term debt	2,141.1	2,867.4	3,593.7	3,593.7
<b>Net income pre-preferred dividends</b>	<b>2,441.7</b>	<b>2,656.7</b>	<b>4,279.7</b>	<b>5,018.9</b>	Other long-term liabilities	139.2	139.2	139.2	139.2
Preferred dividends	0.0	0.0	0.0	0.0	Total long-term liabilities	2,280.3	3,006.6	3,732.9	3,732.9
<b>Net income (pre-exceptionals)</b>	<b>2,441.7</b>	<b>2,656.7</b>	<b>4,279.7</b>	<b>5,018.9</b>	<b>Total liabilities</b>	<b>4,223.6</b>	<b>5,705.2</b>	<b>7,047.5</b>	<b>7,246.6</b>
Post-tax exceptionals	(660.5)	0.0	0.0	0.0	<b>Preferred shares</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Net income</b>	<b>1,781.2</b>	<b>2,656.7</b>	<b>4,279.7</b>	<b>5,018.9</b>	<b>Total common equity</b>	<b>13,444.8</b>	<b>14,485.4</b>	<b>16,989.4</b>	<b>19,277.8</b>
EPS (basic, pre-exception) (NT\$)	10.46	10.66	14.15	16.38	Minority interest	0.0	0.0	0.0	0.0
EPS (basic, post-exception) (NT\$)	7.63	10.66	14.15	16.38	<b>Total liabilities &amp; equity</b>	<b>17,668.4</b>	<b>20,190.5</b>	<b>24,036.8</b>	<b>26,524.4</b>
EPS (diluted, post-exception) (NT\$)	7.63	10.66	14.15	16.38	<b>BVPS (NT\$)</b>	<b>54.37</b>	<b>57.99</b>	<b>67.08</b>	<b>75.11</b>
DPS (NT\$)	5.84	5.95	7.90	9.13					
Dividend payout ratio (%)	76.5	55.8	55.8	55.8					
Free cash flow yield (%)	(2.3)	(1.8)	5.0	6.3					
<b>Growth &amp; margins (%)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Ratios</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
Sales growth	91.1	58.7	36.6	14.8	ROE (%)	18.7	19.0	27.2	27.7
EBITDA growth	23.2	32.8	47.0	20.3	ROA (%)	13.3	14.0	19.4	19.9
EBIT growth	10.7	23.6	51.6	13.5	ROACE (%)	26.1	21.2	27.8	27.5
Net income growth	4.9	49.2	61.1	17.3	Inventory days	63.6	60.7	59.5	64.9
EPS growth	(24.0)	39.7	32.8	15.7	Receivables days	25.7	23.7	26.8	29.0
Gross margin	22.4	19.0	19.9	20.7	Payable days	13.5	14.1	15.5	16.8
EBITDA margin	18.6	15.5	16.7	17.5	Net debt/equity (%)	(17.9)	(2.4)	(1.0)	2.8
EBIT margin	15.4	12.0	13.3	13.2	Interest cover - EBIT (X)	NM	236.6	155.8	186.4
<b>Cash flow statement (NT\$ mn)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Valuation</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
Net income pre-preferred dividends	2,441.7	2,656.7	4,279.7	5,018.9	P/E (analyst) (X)	13.6	9.8	7.3	6.4
D&A add-back	492.6	878.1	1,152.9	1,695.4	P/B (X)	1.9	1.8	1.6	1.4
Minorities interests add-back	0.0	0.0	0.0	0.0	EV/EBITDA (X)	21.5	6.6	5.5	4.7
Net (inc)/dec working capital	(1,283.2)	(1,374.8)	(1,803.1)	(982.2)	Dividend yield (%)	5.6	5.7	7.6	8.8
Other operating cash flow	(2,340.7)	(31.0)	(31.0)	(31.0)					
<b>Cash flow from operations</b>	<b>(689.6)</b>	<b>2,129.0</b>	<b>3,598.5</b>	<b>5,701.1</b>					
Capital expenditures	(934.2)	(2,578.7)	(2,001.0)	(3,673.4)					
Acquisitions	0.0	0.0	0.0	0.0					
Divestitures	0.0	0.0	0.0	0.0					
Others	(409.4)	0.0	0.0	0.0					
<b>Cash flow from investments</b>	<b>(1,343.6)</b>	<b>(2,578.7)</b>	<b>(2,001.0)</b>	<b>(3,673.4)</b>					
Dividends paid (common & pref)	(1,382.8)	(1,361.9)	(1,481.8)	(2,387.1)					
Inc/(dec) in debt	398.7	1,000.0	1,000.0	0.0					
Common stock issuance (repurchase)	6,862.9	0.0	0.0	0.0					
Other financing cash flows	(157.0)	(183.6)	(293.9)	(343.3)					
<b>Cash flow from financing</b>	<b>5,721.8</b>	<b>(545.5)</b>	<b>(775.7)</b>	<b>(2,730.4)</b>					
<b>Total cash flow</b>	<b>3,688.6</b>	<b>(995.3)</b>	<b>821.7</b>	<b>(702.7)</b>					

Note: Last actual year may include reported and estimated data.  
Source: Company data, Goldman Sachs Research estimates.

## SAS (5483.TWO; Neutral): More aggressive, don't lose focus

In our view, SAS has become more aggressive in its business expansion plans on three fronts: 1) capacity expansion: we expect SAS's year-end capacity to reach 280 MW, 580 MW, 1,000 MW and 1,280 MW for 2008E/2009E/2010E/2011E, respectively, 2) securing long-term supplier contracts: SAS has secured total 3 GW equivalent of polysilicon supply for the next 6 years and locked in over NT\$100 bn long-term sales contracts, 3) vertical integration: SAS announced its vertical integration strategy of investing €30 mn in polysilicon producer SilFab in Italy for an 18% stake; NT\$100 mn in cell maker Sunrise Global Solar Energy in Taiwan for a 10% stake; and ¥600 mn in spherical solar cell maker Clean Venture 21 in Japan for a 10% stake.

### Lacking near-term catalysts, possible sharp margin contraction

We maintain our Neutral rating on SAS as: 1) we like SAS's capacity expansion plan, which will narrow its gap of installed capacity with leading Chinese wafer makers such as LDK Solar, 2) we are also positive on SAS's move to secure more polysilicon material, which will reduce its exposure to OEM, 3) however, we do not see any strong catalysts to prompt outperformance of the stock in the near term and we are cautious on SAS's venture with SilFab and Sunrise as we believe the risk/reward is less appealing considering the oversupply concern, and 4) we expect wafer makers' gross margins to come down more than cell makers' in term of magnitude once ASP drops across the solar value chain as the wafer makers currently enjoy much higher gross margins.

### Reduce earnings, target price on a more cautious outlook

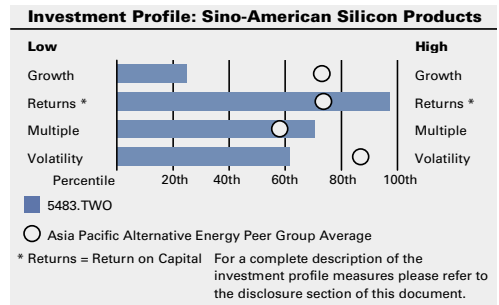
We lower our ASP assumptions for 2009E and 2010E following our global team's cautious view on the solar sector. For FY2009E/FY2010E, we revise downwards our EPS for SAS by 7.6% and 25.7% to NT\$12.72, and NT\$12.76, respectively, and lower our target price by 51% to NT\$78.

### Valuation

Our 12-month target price of NT\$78 is based on PEG valuation with 4-year EPS CAGR (2008E-2010E) of 10.2% and PEG assumption of 0.6X. We use 2008 as the base year in order to avoid exaggerated growth numbers caused by a low base effect in 2007. The stock currently trades at 5.7X 2009E P/E and 5.7X 2010E vs. global average of 13.5X and 7.1X, respectively.

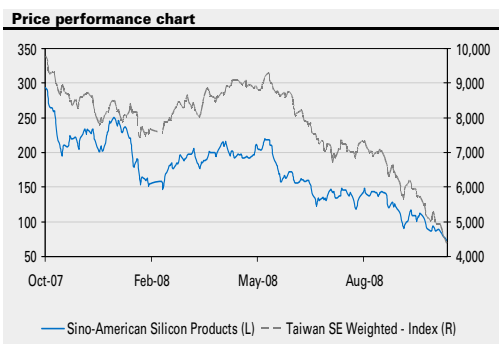
### Key risks

Downside risks: Worse-than-expected ASP and margin erosion.  
Upside risks: Better-than-expected execution of its vertical integration strategy.



Key data	Current
Price (NT\$)	73.10
12 month price target (NT\$)	78.00
Market cap (NT\$ mn / US\$ mn)	14,546.9 / 434.1
Foreign ownership (%)	8.0

	12/07	12/08E	12/09E	12/10E
<b>EPS (NT\$) New</b>	<b>6.55</b>	<b>9.81</b>	<b>12.72</b>	<b>12.76</b>
EPS revision (%)	0.0	(14.9)	(7.6)	(25.7)
EPS growth (%)	64.7	49.7	29.6	0.3
<b>EPS (dil) (NT\$) New</b>	<b>6.55</b>	<b>9.81</b>	<b>12.72</b>	<b>12.76</b>
P/E (X)	11.2	7.5	5.7	5.7
P/B (X)	2.5	2.3	1.7	1.4
EV/EBITDA (X)	20.3	6.5	5.5	5.3
Dividend yield (%)	3.9	1.4	1.4	1.4
ROE (%)	32.6	32.9	35.6	27.6



Share price performance (%)	3 month	6 month	12 month
Absolute	(50.0)	(61.9)	(75.7)
Rel. to Taiwan SE Weighted Index	(17.2)	(22.0)	(46.4)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 10/27/2008 close.

**Exhibit 31: SAS summary financials**

<b>Profit model (NT\$ mn)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Balance sheet (NT\$ mn)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
<b>Total revenue</b>	<b>6,718.3</b>	<b>9,419.6</b>	<b>12,737.9</b>	<b>14,125.1</b>	Cash & equivalents	681.4	2,742.9	1,607.0	2,622.4
Cost of goods sold	(4,259.3)	(6,229.4)	(9,037.8)	(10,351.7)	Accounts receivable	1,347.0	1,649.5	1,895.0	1,934.0
SG&A	(52.6)	(198.6)	(150.2)	(166.6)	Inventory	1,046.5	1,241.7	1,743.1	1,826.5
R&D	(217.7)	(426.3)	(391.9)	(434.6)	Other current assets	118.4	479.0	360.2	367.7
Other operating profit/(expense)	(46.4)	(68.3)	(56.6)	(62.7)	<b>Total current assets</b>	<b>3,193.3</b>	<b>6,113.1</b>	<b>5,605.4</b>	<b>6,750.5</b>
<b>EBITDA</b>	<b>2,142.3</b>	<b>2,497.0</b>	<b>3,101.5</b>	<b>3,109.5</b>	Net PP&E	3,134.3	3,535.2	4,079.6	5,224.0
Depreciation & amortization	(378.0)	(495.1)	(455.6)	(455.6)	Net intangibles	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>1,764.4</b>	<b>2,001.9</b>	<b>2,645.9</b>	<b>2,653.9</b>	Total investments	0.0	0.0	0.0	0.0
Interest income	16.1	12.9	22.0	31.4	Other long-term assets	2,456.1	3,500.0	4,300.0	4,300.0
Interest expense	(21.4)	(63.6)	(89.2)	(96.8)	<b>Total assets</b>	<b>10,717.5</b>	<b>17,112.2</b>	<b>18,229.0</b>	<b>20,798.6</b>
Income/(loss) from uncons. subs.	0.0	0.0	0.0	0.0	Accounts payable	753.7	840.9	1,362.0	1,427.1
Others	338.3	277.4	400.0	400.0	Short-term debt	917.2	1,837.9	3,188.8	3,535.2
<b>Pretax profits</b>	<b>2,097.3</b>	<b>2,228.6</b>	<b>2,978.8</b>	<b>2,988.6</b>	Other current liabilities	622.5	3,063.6	1,310.0	1,337.0
Income tax	(291.6)	(171.4)	(297.9)	(298.9)	<b>Total current liabilities</b>	<b>2,293.4</b>	<b>5,742.3</b>	<b>5,860.8</b>	<b>6,299.3</b>
Minorities	0.0	0.0	0.0	0.0	Long-term debt	0.0	1,883.6	0.0	0.0
<b>Net income pre-preferred dividends</b>	<b>1,805.7</b>	<b>2,057.1</b>	<b>2,680.9</b>	<b>2,689.7</b>	Other long-term liabilities	2,298.9	3,100.0	3,700.0	3,700.0
Preferred dividends	0.0	0.0	0.0	0.0	Total long-term liabilities	2,298.9	4,983.6	3,700.0	3,700.0
<b>Net income (pre-exceptionals)</b>	<b>1,805.7</b>	<b>2,057.1</b>	<b>2,680.9</b>	<b>2,689.7</b>	<b>Total liabilities</b>	<b>4,592.3</b>	<b>10,726.0</b>	<b>9,560.8</b>	<b>9,999.3</b>
Post-tax exceptionals	0.0	0.0	0.0	0.0	<b>Preferred shares</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Net income</b>	<b>1,805.7</b>	<b>2,057.1</b>	<b>2,680.9</b>	<b>2,689.7</b>	<b>Total common equity</b>	<b>6,125.2</b>	<b>6,386.3</b>	<b>8,668.2</b>	<b>10,799.3</b>
EPS (basic, pre-except) (NT\$)	8.27	9.81	12.72	12.76	Minority interest	0.0	0.0	0.0	0.0
EPS (basic, post-except) (NT\$)	6.55	9.81	12.72	12.76	<b>Total liabilities &amp; equity</b>	<b>10,717.5</b>	<b>17,112.2</b>	<b>18,229.0</b>	<b>20,798.6</b>
EPS (diluted, post-except) (NT\$)	6.55	9.81	12.72	12.76	<b>BVPS (NT\$)</b>	<b>29.21</b>	<b>32.01</b>	<b>43.45</b>	<b>54.13</b>
DPS (NT\$)	2.85	1.00	1.00	1.00					
Dividend payout ratio (%)	43.4	10.2	7.9	7.8					
Free cash flow yield (%)	1.1	20.2	(0.4)	7.6					
<b>Growth &amp; margins (%)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Ratios</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
Sales growth	58.2	40.2	35.2	10.9	ROE (%)	32.6	32.9	35.6	27.6
EBITDA growth	101.8	16.6	24.2	0.3	ROA (%)	21.0	14.8	15.2	13.8
EBIT growth	99.5	13.5	32.2	0.3	ROACE (%)	32.5	30.7	31.1	25.0
Net income growth	102.9	13.9	30.3	0.3	Inventory days	77.3	67.0	60.3	62.9
EPS growth	64.7	49.7	29.6	0.3	Receivables days	60.3	58.1	50.8	49.5
Gross margin	36.6	33.9	29.0	26.7	Payable days	48.8	46.7	44.5	49.2
EBITDA margin	31.9	26.5	24.3	22.0	Net debt/equity (%)	3.8	15.3	18.2	8.5
EBIT margin	26.3	21.3	20.8	18.8	Interest cover - EBIT (X)	333.4	39.5	39.4	40.6
<b>Cash flow statement (NT\$ mn)</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>	<b>Valuation</b>	<b>12/07</b>	<b>12/08E</b>	<b>12/09E</b>	<b>12/10E</b>
Net income pre-preferred dividends	1,805.7	2,057.1	2,680.9	2,689.7	P/E (analyst) (X)	11.2	7.5	5.7	5.7
D&A add-back	378.0	495.1	455.6	455.6	P/B (X)	2.5	2.3	1.7	1.4
Minorities interests add-back	0.0	0.0	0.0	0.0	EV/EBITDA (X)	20.3	6.5	5.5	5.3
Net (inc)/dec working capital	(223.7)	1,669.9	(1,860.6)	(37.7)	Dividend yield (%)	3.9	1.4	1.4	1.4
Other operating cash flow	(215.4)	(188.0)	(280.0)	(280.0)					
<b>Cash flow from operations</b>	<b>1,744.6</b>	<b>4,034.2</b>	<b>995.8</b>	<b>2,827.6</b>					
Capital expenditures	(1,275.8)	(896.0)	(1,000.0)	(1,600.0)					
Acquisitions	0.0	0.0	0.0	0.0					
Divestitures	0.0	0.0	0.0	0.0					
Others	(2,430.2)	(2,886.1)	(800.4)	(0.4)					
<b>Cash flow from investments</b>	<b>(3,706.0)</b>	<b>(3,782.1)</b>	<b>(1,800.4)</b>	<b>(1,600.4)</b>					
Dividends paid (common & pref)	(596.8)	(199.5)	(199.5)	(199.5)					
Inc/(dec) in debt	286.7	2,804.3	(532.7)	346.4					
Common stock issuance (repurchase)	(47.3)	(1,596.5)	(199.5)	(359.1)					
Other financing cash flows	2,201.8	801.1	600.0	0.0					
<b>Cash flow from financing</b>	<b>1,844.4</b>	<b>1,809.4</b>	<b>(331.7)</b>	<b>(212.3)</b>					
<b>Total cash flow</b>	<b>(117.0)</b>	<b>2,061.5</b>	<b>(1,136.3)</b>	<b>1,015.0</b>					

Note: Last actual year may include reported and estimated data.  
Source: Company data, Goldman Sachs Research estimates.

## Taiwan solar sector: Generally overcrowded and low margin

In this section, we provide an analysis of the Taiwan solar industry along the value chain, from upstream polysilicon producers to downstream module makers.

### Polysilicon producers slated to emerge in 2010

Polysilicon production is at the top of the solar value chain and presents the highest barriers to entry and the longest project lead time (1.5- 2 years). At present, no Taiwanese companies produce polysilicon as none possesses the required technological expertise and because of the potential for global oversupply from 2010E.

However, some companies are willing to enter the field attracted by the substantial margins in the segment. Two polysilicon projects in Taiwan are slated to start production in 2010, using the more expensive, yet more proven, Siemens process.

1. Top Green Energy Technologies, or TGE, is scheduled to start production in 1Q2010 with initial capacity of 1,500 tons. TGE is affiliated with solar module maker Powercom.
2. Taiwan Polysilicon, 66% owned by Lee Chang Yung Chemical, is scheduled to start production in 2Q2010 with initial capacity of 3,000 tons.

Besides the technical hurdles, the timing of these projects remains a risk. If polysilicon oversupply happens in 2010E, which we consider likely based on our global supply and demand forecasts, polysilicon prices would likely decline drastically, perhaps even below breakeven prices for these new polysilicon plants. We do not expect more plants being constructed in Taiwan because it may be too late to enter the business in the light of the risk of potential oversupply in 2010.

**Exhibit 32: Comparison of solar-grade silicon processing technologies**

Method	Description	Purity	Advantages	Disadvantages	Cost
Siemens process	Metallurgical-grade silicon(99%) is converted to trichlorosilane/silane, which is gasified; fumes of gas are blown over high-purity poly-Si rods at 1150 C; gas decomposes and deposits pure poly-Si on the rods	9N	Established and proven technology; produces high purity poly-Si	Extremely energy-intensive; high production cost	\$35-50/kg
Fluidized bed reactor (FBR)	Silane/trichlorosilane gas produced from metallurgical-grade silicon is passed at high velocity through chambers containing polysilicon granules causing the gas to decompose to silicon and hydrogen and then deposit on the Si granules	6-7N	Less energy consumption; higher deposition rate and greater process efficiency	Complicated process, only MEMC and REC are ready for mass production	\$15-30/kg
Upgraded metallurgical silicon (UMG)	Directional solidification of metallurgical-grade silicon to concentrate and isolate impurities in molten region and cut-off.	5N	Cheaper and high scalability; shorter lead time for plant construction	Lower purity, typically are blended with higher purity poly-Si for solar use	\$10-20/kg

Note: 6.5N is the minimum for solar multi-cell use, 9N and above can be used for solar mono-cell and semi requires at least 11N.

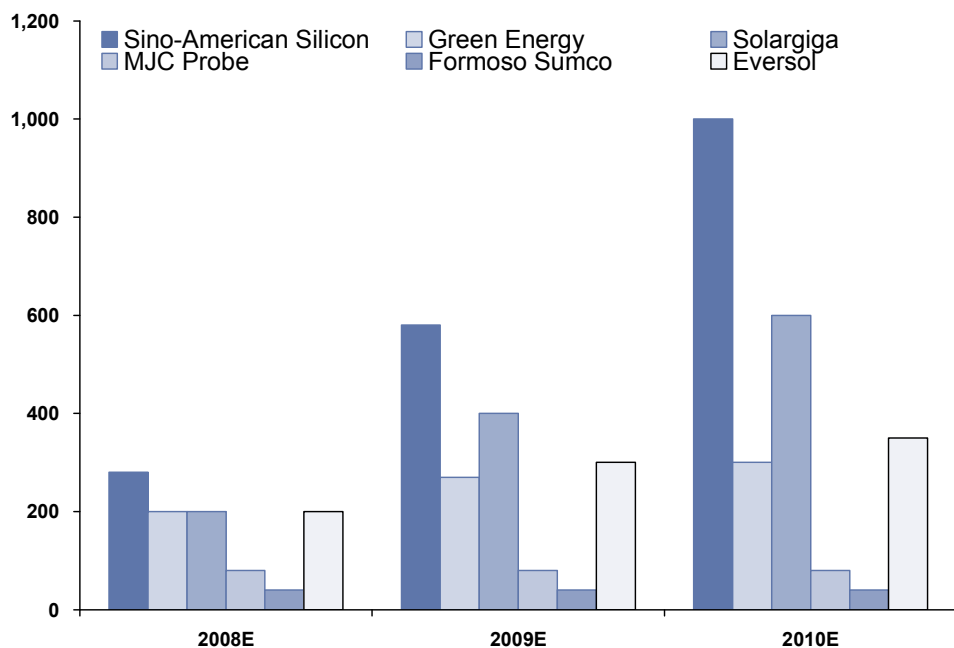
Source: Goldman Sachs Research estimates, PHOTON International.

### Ingot growing and wafer slicing: SAS leads in Taiwan

Ingot growing and wafer slicing is relatively less crowded than the solar cell sector. The major players in Taiwan are Sino-American Silicon (SAS), Green Energy Technology, and Eversol (not listed), which is affiliated with Gintech. In our view, SAS will strengthen its leadership position in this sector in the next two years. With scheduled ramp up of its SSC2 plant in Hsinchu in 2009, and construction of a new plant in China, SAS expects its capacity to expand considerably to 1 GW in 2010 and 1.28 GW in 2011 from the current 280 MW. As the most established solar wafer company in Taiwan, we also expect SAS to lead technological innovation such as nano-structured solar wafer.

We estimate total wafer capacity in Taiwan to amount to only 50% or so of cell capacity in 2009E, falling to 40% in 2010E. As such, we believe there remains room for expansion in the wafer sector, as: 1) most cell makers prefer a local partner as it eases product quality control and feedback, and lower logistics cost; 2) the wafer sector is still comparatively less crowded, so competition is likely to be less intense, even with polysilicon oversupply from 2010; and 3) gross margins in the wafer market are around 30%, much higher than cell-makers' 15%-20%.

**Exhibit 33: SAS likely to lead capacity expansion in Taiwan's solar wafer sector**



Note: Declared capacity in MW

Source: Company data, Goldman Sachs Research estimates.

### Solar cell sector getting crowded, consolidation imminent

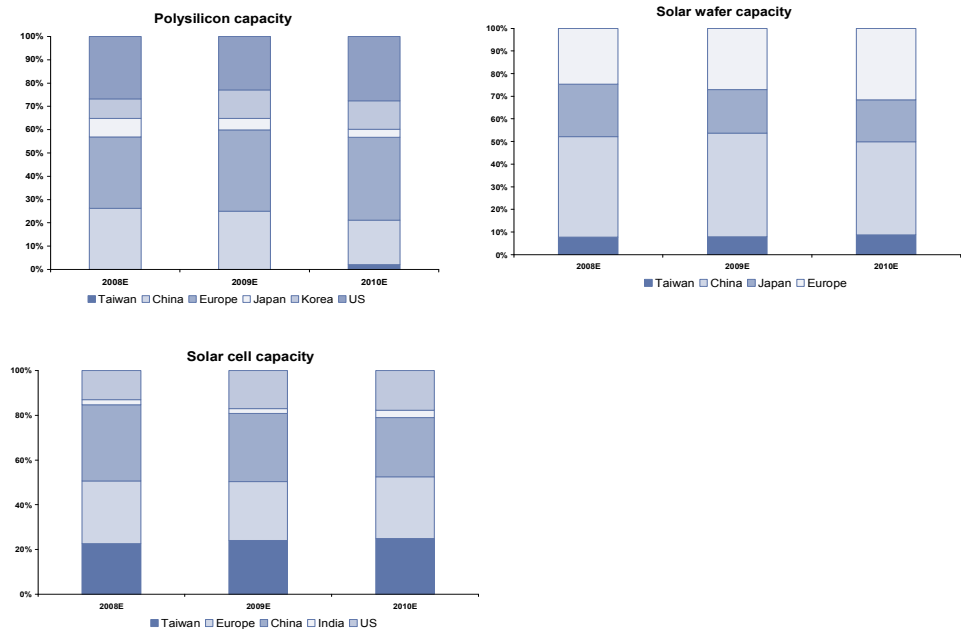
The solar cell sector has become the preferred entry point to the solar space for most Taiwan companies because: 1) the barrier to entry is lower than for upstream wafer and polysilicon production; 2) most of the Taiwan companies can leverage their experience in semiconductor and electronic components manufacturing; and 3) margins are still reasonable compared with solar modules.

Although margins along the value chain will be squeezed in the event of oversupply, we believe the solar cell sector will face the most intense competition in the industry. We forecast total solar cell capacity in Taiwan to reach more than 5 GW by 2010E and to account for 22% of global capacity.

In our view, the solar cell sector offers most opportunities for consolidation as: 1) of the 45 solar cell companies that we tracked in our global supply/demand model, only 7 will have capacity of more than 800 MW by 2010E, including two in Taiwan—Gintech and Motech; 2) bar a few companies—such as First Solar and Sunpower that have proprietary technologies—most solar cell companies rely on turnkey technology and compete on their ability to secure cheap polysilicon material. This will change drastically once polysilicon is readily available.

In our view, two types of companies will emerge intact from consolidation: 1) companies with sufficient economies of scale to leverage cost reduction and with sufficiently strong balance sheets to weather the storm; and 2) companies with proprietary technologies that either capture an ASP premium or have significantly lower cost per watt of generation capacity.

**Exhibit 34: Global solar sector capacity distribution**



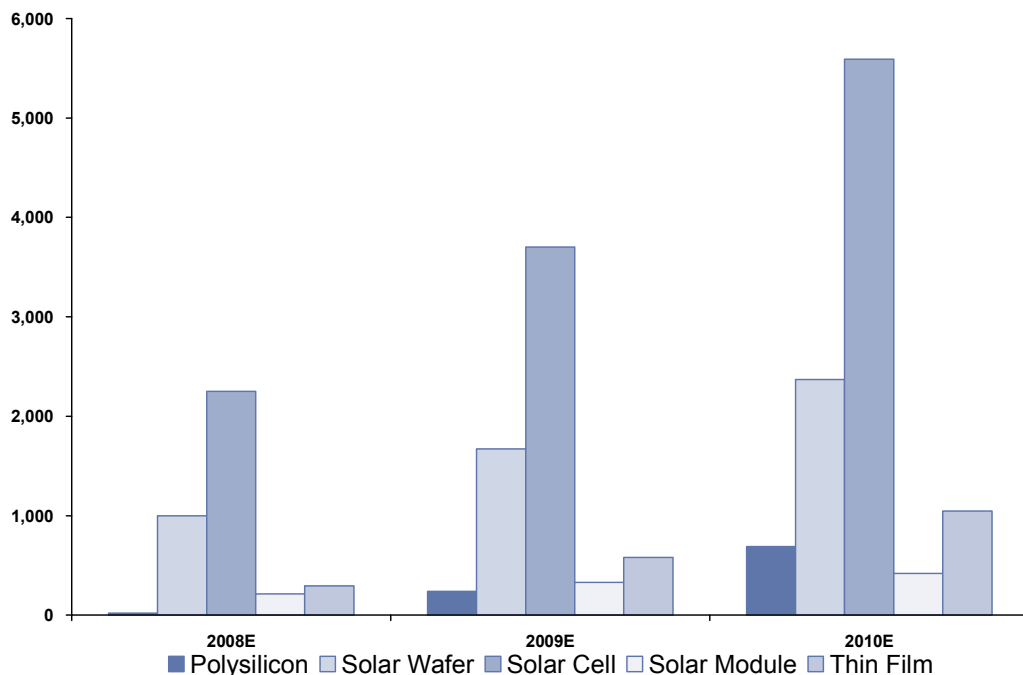
Source: Company data, Gao Hua Securities Research estimates, Goldman Sachs Research estimates.

### Thin margins limit interest in solar module expansion

Gross margins for module makers in Taiwan are 5%-7%, given the low barriers to entry in this sector. In our view, the margins are too thin to attract any significant investment interest, so we do not expect any significant increase in module capacity in Taiwan in the near term. On the other hand, since margins are already at the bottom, in our view, any further decline is unlikely regardless of the supply/demand situation. Tynsolar (3562.TWO) is the leader in this sector with annual capacity of 80 MW in 2008, which it expects to increase to 120 MW in 2009E.

We also believe the European module makers' proximity to end markets and the Chinese module makers' lower labor costs put Taiwanese module makers at a competitive disadvantage.

**Exhibit 35: Cell capacity expansion is faster in solar modules than for other segments**  
 Taiwan solar sector's declared capacity (in MW)



Source: Company data, Goldman Sachs Research estimates.

**Thin film attracting interest in Taiwan: too early to make a call**

Thin film has been attracting increasing interest in Taiwan due to an ongoing shortage of polysilicon and as technological expertise gained from the TFT LCD industry is readily available. Most thin film solar start-ups in Taiwan choose the mature amorphous silicon (a-Si) technology. There are three major equipment turn-key solutions for a-Si thin film solar—ULVAC, Oerlikon and Applied Materials. All thin film projects in Taiwan are still in the stages of equipment move-in and pilot production, and we think it is too early to gauge which may emerge to challenge crystalline solar cell makers. However, NexPower based on ULVAC, Sun Well Solar based on Oerlikon and Green Energy based on Applied Materials appear to be first in line to start production among their respective turnkey solutions in Taiwan and should provide good indicators for these three major turnkey solutions.

**Exhibit 36: Thin film solar technologies' comparison**

Most thin film solar companies in Taiwan are based on a-Si technology

Technology	Description	Efficiency	Taiwan companies
<b>Amorphous Silicon (a-Si)</b>	a-Si is deposited on the glass substrate using PECVD. It's the most mature thin film technology to date. With Tandem process, the conversion efficiency can be boosted by another 2%.	6-10%	NexPower, AURIA Solar, Green Energy, Sun Well, Kemos, etc
<b>Cadmium Telluride (CdTe)</b>	CdTe is an efficient light absorbing material and its easier to deposit, more suitable for large scale production. Possible draw back is the perception of the toxicity of CdTe. First Solar is the only major producer of CdTe solar cells.	8-10%	N/A
<b>Copper Indium Gallium DiSelenideb (CIGS)</b>	CIGS are semiconductor composites with high optical absorption efficiency, which leads to high conversion efficiency. It can also be printed on flexible substrate.	12-14%	Solartech, NanoWin
<b>Dye-sensitized</b>	Titanium oxide crystals of nanometer dimensions are coated with light-absorbing dye molecules and immersed in an electrolyte solution, which is sandwiched between two glass plates or embedded in plastic to form solar cells.	3-6%	Everlight

Source: IEK IT IS, Goldman Sachs Research estimates.

Cost has been the key competitive advantage for thin film solar. According to Solarbuzz, the lowest monocrystalline module price globally is US\$4.3/W, and the lowest thin film module price is US\$3.47/W in September 2008. To generate the same amount of electricity, about twice the solar panel area is required for a thin film module than for crystalline modules. This makes thin film modules competitive for large solar power plants, but less competitive for roof-top applications where space is generally limited. In our view, thin film's cost advantage would come under threat if polysilicon prices drop below US\$57/kg level from their current average of US\$150/kg.

**Exhibit 37: Cost comparison between crystalline and thin film modules**

Polysilicon prices need to drop to US\$57/kg for crystalline to match thin film's module price

Polysilicon price	\$150/kg	\$57/kg
<b>Crystalline module price</b>	<b>\$4.4</b>	<b>\$3.3</b>
Crystalline solar cell ASP	\$3.0	\$1.9
Crystalline solar wafer cost	\$2.5	\$1.4
Polysilicon cost	\$1.8	\$0.7
<b>Thin film module price</b>	<b>\$3.3</b>	
<b>Assumptions</b>		
Poly cost as % of wafer cost	70%	

Source: Solarbuzz, Goldman Sachs Research estimates.

Typical capex for a 40 MW amorphous thin film solar cell production line is euro50-80 mn or euro1.25-2/W, according to our estimates. Typical capex for a crystalline solar cell production line of 50 MW is about euro12-18 mn, or euro0.24-0.36/W. Thin film's higher capex cost than crystalline and its longer lead time (generally 3 months) for turnkey production lines limit its production ramp-up, in our view.

**Emerging Technologies: Still a distant dream**

A few companies in Taiwan are at the developing stage of emerging solar PV technologies, such as Visual Photonics (2455.TW), Arima EcoEnergy (2381.TW) and CompSolar's

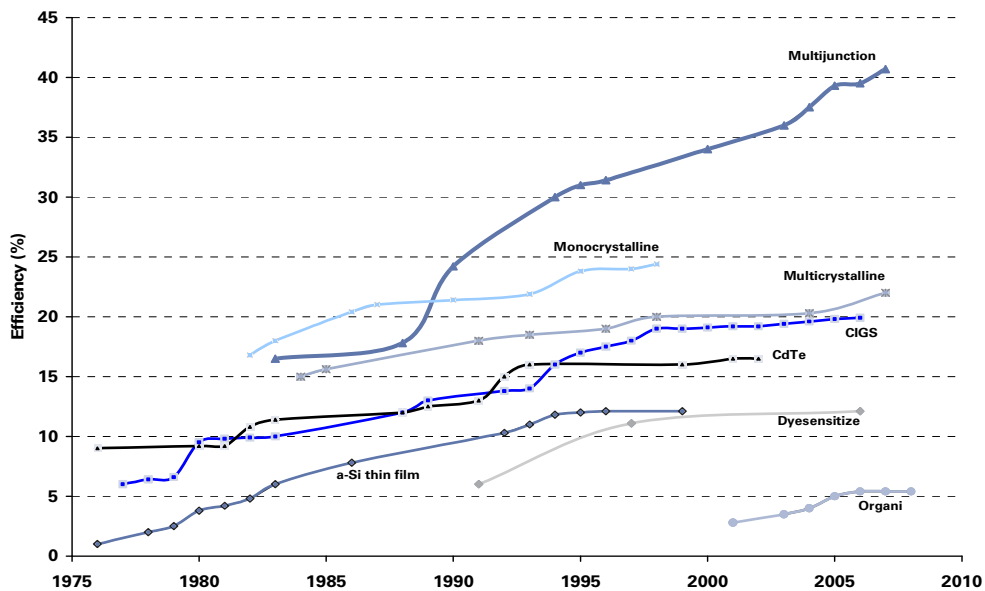
Concentrating PV projects and Everlight Chemical’s (1711.TW) Dye-sensitized solar cell. We believe these emerging technologies are still a long way from making any significant revenue contribution to these companies, let alone posing any serious threat to the mainstream solar cell technologies in the next 2-3 years.

**Concentrating PV:** Concentrating PV cells have been reaching increasingly impressive efficiencies. The record efficiency for a three-junction GaInP/GaInAs/Ge cell is 40.7%. In addition to efficiency, the tracking used for CPV uses relatively more electricity per installed kilowatt, compared with fixed flat plate. However, high manufacturing costs, reliability concerns and heat dissipation are the major hurdles that CPV needs to overcome to be competitive in the solar sector. For a typical CPV system from leading companies like Emcore (EMKR), cost is roughly US\$5/W for a 30% conversion efficiency and around US\$4/W for 40% conversion efficiency. In Taiwan, CPV companies are at the developmental stage or CPV operations represent only a small fraction of revenues. CompSolar is the only integrated CPV company in Taiwan, with others focused on only part of the CPV system such as Epi wafer used for cell manufacturing and cell assembly. In our view, there are at least 2-3 years before these CPV businesses grow large enough to attract equity market attention.

**Dye-sensitized solar cell:** There is no major player in Taiwan for the production of dye-sensitized solar cell. We believe specialty chemical companies are most likely to be future entrants into this sector when the technology becomes more mature. One potential company to watch for is Everlight Chemical, which is positioning itself as a one-stop shop for dye-sensitized solar cell (DSSC) material. It is current working with G24i, and reported stable 5.5% conversion efficiency based on material supplied to G24i. However, in our view, it will be a long way before DSSC will contribute any significant revenue to Everlight’s topline.

**Exhibit 38: Research cell conversion efficiency**

Research cell efficiency offers the road map for commercial production



Source: National Renewable Energy Laboratory (NREL), Goldman Sachs Research estimates.

### Equipment providers: Gallant Precision Machining

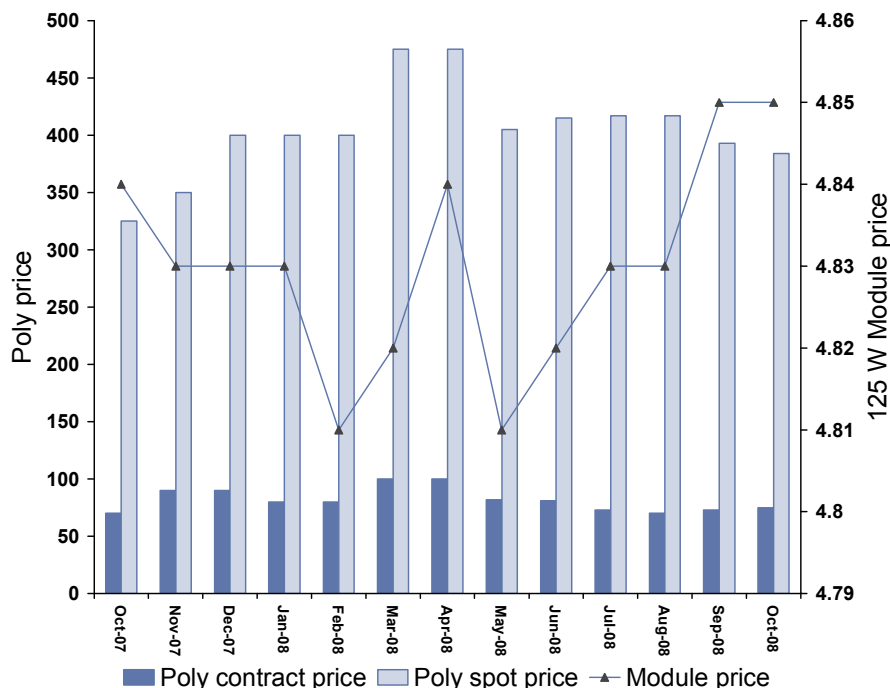
Gallant (5443.TWO) became the first Taiwan equipment maker to provide a complete turnkey solution for the crystalline solar cell production. Gallant expects to ship its first 30 MW line in 1H2009 with guaranteed conversion efficiency of 15% and above. Gallant will also begin offering a 50 MW line solution in 2009. We believe Gallant’s turnkey solution will be about 20%-30% cheaper than the current market price. The company expects to generate NT\$ 400 mn in revenue, or 8% of its estimated total sales in 2008 from solar cell equipment, rising to NT\$2.5 bn in 2009. Gallant is also offering to cut the turnkey line order lead time from 9-12 months offered by major overseas suppliers to 6 months. Currently 95% of equipment used in the Taiwan solar sector is imported from overseas, particularly from Centrotherm and Schmid in Germany.

### Polysilicon spot prices coming down, but still a long way to go

We note that the polysilicon spot price has gradually come down from a peak of US\$450/kg in April to around US\$380/kg currently. There is still plenty of room for the spot price to fall as it is still far higher than the long-term contract price, in our view. Meanwhile the module retail price has shown no sign of easing.

**Exhibit 39: Polysilicon spot price is gradually coming down**

Polysilicon price is in US\$/kg and module price is in US\$/W



Note: Poly long-term contract prices are prices scheduled for delivery in 2 years

Source: Solarbuzz, Photon Consulting, Goldman Sachs Research estimates.

**Exhibit 40: Taiwan solar sector at a glance**

	Ticker	Market cap US \$ mil	Capacity in MW			Location	Note
			2008E	2009E	2010E		
<b>Polysilicon</b>							
AE Polysilicon	Not listed	N/A	0	240	240	U.S.A	Motech
Taiwan Polysilicon : Fu-Chiu	Not listed	N/A	0	0	300	PingTung	Lee Chang Yung Chemical (66%)
TGE:Top Green Energy	Not listed	N/A	0	0	150	Yilan	Powercom's subsidiary
			<b>0</b>	<b>240</b>	<b>690</b>		
<b>Ingot&amp;wafer</b>							
Sino-American Silicon	5483.TWO	998	280	580	1,000	Hsinchu	
Green Energy	3519.TW	621	200	270	300	Taipei	
Solargiga	0757.HK	782	200	400	600	China	Wafer Works (6182.TWO)'s subsidiary
MJC Probe	6223.TWO	166	80	80	80	Hsinchu	Wafer slicing OEM
Formoso Sumco	3532.TW	2,084	40	40	40	Taipei	
Eversol	Not listed	N/A	200	300	350	Taipei	
			<b>1,000</b>	<b>1,670</b>	<b>2,370</b>		
<b>Solar cell-Crystalline</b>							
Motech	6244.TWO	1,390	460	600	860	Taipei	
Gintech	3514.TW	1,104	660	870	1,290	Taipei	
E-Ton	3452.TWO	911	300	440	630	Tainan	
Neo Solar Power	3576.TWO	472	210	510	600	Hsinchu	
Mosel Vitelic	2342.TW	762	160	320	640	Hsinchu	
Solartech Energy Corp	3561.TWO	221	72	192	372	Taoyuan	
UNITECH	2367.TW	255	30	80	130	Yilan	
DelSolar	3599.TWO	458	120	150	300	Hsinchu	
Sunrise Global Solar Energy	Not listed	N/A	30	180	240	Yilan	Mono crystalline focus
TGE	Not listed	N/A	60	120	180	Miaulih	
Big Sun	3566.TWO	90	90	120	150	Hsinchu	
Tainergy	Not listed	N/A	60	120	200	Taipei	
			<b>2,252</b>	<b>3,702</b>	<b>5,592</b>		
<b>Solar cell- Thin film</b>							
NexPower	Not listed	N/A	38	60	200	Hsinchu	ULVAC
Sun Well Solar	Not listed	N/A	46	120	225	Taipei	Oerlikon
AURIA SOLAR	Not listed	N/A	30	60	120	Tainan	Oerlikon, E-Ton 23.9%. Lite-on 23.9%
Green Energy	3519.TW	621	30	50	120	Taipei	Applied
Ritek	2349.TW	359	30	90	120	Hsinchu	CIGS(Scheuten)
Kenmos PV	Not listed	N/A	10	20	30	Tainan	NanoPV
Chi Mei Opto	3009.TW	6,000	0	30	30	Hsinchu	ULVAC
Sinoar Solar	Not listed	N/A	50	50	50	Miaulih	Chronar (EPV)
Formosun Solar Corp	Not listed	N/A	6	11	18	Hsinchu	EPV Solar
Solartech Energy Corp	Not listed	N/A	30	30	60	Hsinchu	CIGS: Centrotherm
NanoWin	Not listed	N/A	0	25	25	Tainan	CIGS
Sunner Solar	Not listed	N/A	25	35	50	Sindian	ULVAC
			<b>294</b>	<b>581</b>	<b>1,048</b>		
<b>PV Module</b>							
Tynsolar	3562.TWO	96	80	120	120	Miaulih	
Apollo Solar Energy co.	Not listed	N/A	60	60	60	Taoyuan	
Powercom	3043.TW	145	45	60	120	Chung Ho	
Lucky Power	Not listed	N/A	30	90	120	Taoyuan	
a2peak power co.	Not listed	N/A	N/A	N/A	N/A	Taoyuan	
Ever Bright	Not listed	N/A	N/A	N/A	N/A	Hsinchu	
Shane Pu	Not listed	N/A	N/A	N/A	N/A	Tainan	
			<b>215</b>	<b>330</b>	<b>420</b>		
<b>Concetrating PV</b>							
Visual Photonics	2455.TW	160	N/A	N/A	N/A	Taoyuan	Epi wafer
Everphoton Energy	Not listed	N/A	N/A	N/A	N/A	Taipei	
Arima EcoEnergy	2381.TW	164	1	20	40	Taoyuan	Integrated
Delta Electronics	2308.TW	5,461	N/A	N/A	N/A	Hsinchu	CPV cell assemblies
CompSolar	Not listed	N/A	45	180	180	Hsinchu	Integrated
<b>Dye-sensitized Solar Cell</b>							
Everlight Chemical	1711.TW	218	N/A	N/A	N/A	Taipei	
<b>Equipment</b>							
Gallant Precision Machining	5443.TWO	91	N/A	N/A	N/A	Hsinchu	Crystalline solar cell turn-key line

Source: Company data, Goldman Sachs Research estimates.

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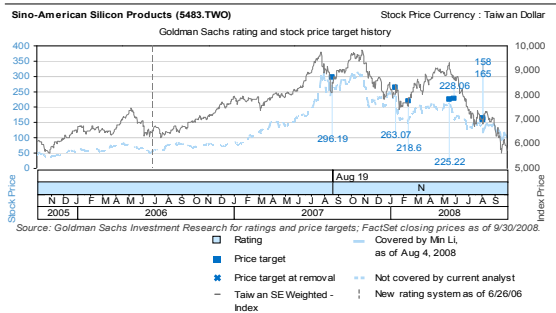
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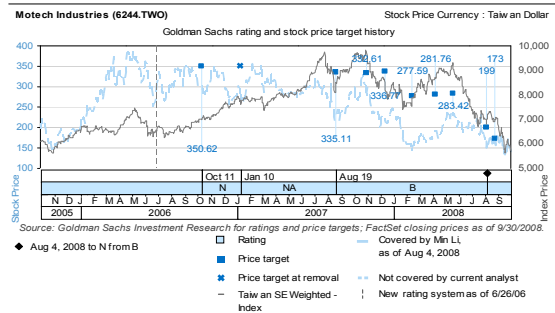
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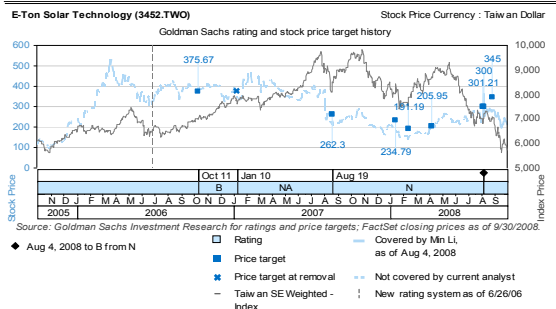
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