



## China Solar Power

### Weak fundamentals encumbered by massive installations in 2017

	Ticker	Rec	Mkt cap		Price	EPS growth (%)		ROE (%)		PER (x)		PBR (x)	
			(USD mn)	Ccy		2017E	2018E	2017E	2018E	2017E	2018E	2017E	2018E
Xinyi Solar	968 HK	Buy	2,178	HKD	2.29	12%	14%	30%	28%	7.0	6.1	1.9	1.6
GCL New Energy	451 HK	Buy	868	HKD	0.36	83%	27%	8%	9%	10.6	8.3	0.8	0.7
Singyes	750	NR	342	HKD	3.03	-15%	9%	12%	11%	4.6	4.2	0.5	0.4

Source: Bloomberg, Company data, CSCI Research estimates

- Due to massive investments under loose supervision, most recent industry updates suggest that new grid connections could reach 40GW in 2017, beating previous estimates of 20-30GW. And while it would boost sales volume for China's solar manufacturers, it would be detrimental to solar farm operators, in our view.
- We see two major risks for solar farm operators: 1) new utility-scale installations might not yet be entitled for subsidy due to quota deficits or have difficulties connecting to the grids, and 2) projects already with quota granted would see potential further delay in subsidy payments. Having said that, solar developments in China would be constrained over the coming few years if the aforementioned issues are not resolved.
- We have revised down our 17E/18E earnings estimates for GNE (451 HK) by 63%/64% on the back of higher financing costs due to delayed subsidies and lowered our DCF-based PT to HKD0.44 (from HKD0.53). Nonetheless, we will maintain our Buy rating on GNE, whilst monitoring closely on further project sale for the asset-light transition.

**New grid connections could reach 40GW in 2017, beating previous expectations of 20-30GW.** While solar additions have reached 11.1GW in 5M17, most recent industry updates reported 13GW additions in June, with total additions amounting to 24GW in 1H17, whilst 2H17 could see another 15GW on the back of Top Runner, Poverty Alleviation and DG projects. Particularly, DG projects could reach 14GW in 2017 and utility-scale installations have remained resilient despite the quota deficits.

**Persistent quota deficits might arouse enormous losses on industry investments.** The massive installations under loose supervisions have resulted in projects unable to connect to the grids or unentitled for subsidy due to the persistent quota deficits. 16 provinces had excess installations with 14GW quota deficits as of end-2016; and while the 12GW additional quota would help, the 10GW+ utility-scale additions in 2017 would fall short of the subsidy quota.

**Unsolved renewable fund burden would lengthen subsidy delays and limit further installation.** Over half of the cumulative solar capacity as of Jun-17 would be waiting for the inclusion into subsidy catalogues beyond the 7<sup>th</sup> batch, which is likely to be released soon. Yet the ultimate problem is that the current annual renewable fund collection could only cover the subsidy demand of the first six batches, thus leaving a vast majority of solar projects uncovered. Therefore, regardless the ambiguous solar capacity target by 2020, we see limited room for further developments unless the quota and subsidy issues have been fundamentally resolved.

**Maintain BUY on GNE (451 HK) and eyes on execution of asset-light transition.** We have revised down our 17E/18E revenue estimates by 41%/30% to factor in the PCB disposal and slashed our earnings estimates by 63%/64% on higher financing costs confronted by the delayed subsidies. Our DCF-based TP is lowered to HKD0.44 (from HKD0.53), implying 23% potential upside. After its first move to sell 68% stake of 130MW projects on 30-Jun, execution of further project sales would be the prime catalyst in driving earnings growth going forward, relieving market concerns of rising gearing and tight cash flow.

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## Weak industry fundamentals encumbered by massive installations in 2017

China would see another strong or even a relatively more robust year with 30GW+ new grid connections in 2017, beating street expectations; and while it would boost sales volumes for Chinese solar manufacturers, we believe it would be detrimental for the solar farm operators. The massive investments in solar power under loose supervisions have resulted in projects becoming unable to connect to the grids or not being entitled to receive subsidies due to the persistent quota deficits. Meanwhile, the situation is not any better for those projects that have already been granted with the quota, as we suspect there will be further delays in subsidy payments on the back of deteriorating renewable fund deficits. Sequentially, we think the room for further solar developments would be limited during the 13<sup>th</sup> five-year period until these critical issues have been fundamentally resolved.

### Persistent quota deficits for projects commenced since 2016

#### **New grid connections might reach 40GW in 2017, beating expectations**

New grid connections this year are most likely to exceed 30GW and could even reach 40GW, which would beat street's expectations of 20-30GW. While additions have already reached 11.1GW in 5M17 (vs. 11.3GW in 5M16), most recent updates from National Renewable Energy Center suggest June connections of 13GW (vs. 11.3GW in Jun-16), with total additions amounting to 24GW in 1H17. Moreover, it expects another 15GW to be added in 2H17 on the back of Top Runner, Poverty Alleviation and DG projects; more specifically, DG projects are estimated to reach 14GW in 2017 with 7GW installed in 1H17. Such strong installations have beaten our forecast of 16-18GW, as we were conservative in our estimates of the DG projects and expected more rational utility-scale installations given the problem of quota deficits.

#### **Massive utility-scale solar installations due to loose local supervisions**

Although NEA has delegated the task of individual solar project approval to the local governments since 2014, it controls the overall national installation by assigning annual quota (年度规模指标) to each province, and solar projects must receive this quota to be eligible for FiT subsidies from the MoF. Initially, the installation quota was assigned prior to project construction commencement. However, it has led to insufficient installations in 2015 (15GW installation vs. 23GW quota) and aroused the problem of quota re-selling. Thus, sequentially, the local governments have adopted the "first installed, first approved (先建先得)" measures, but massive installations have taken place due to heated industry investments together with loose local supervision, which has urged NEA to open applications for additional quota (增补指标) in Dec-2016.

#### **Persistent quota deficits for projects commenced operation since 2016**

Concerning utility-scale projects, China's new installations in 2015-16 of 44GW have already exhausted the two-year annual quota of 36GW (*details see Figure 1*), indicating a notable proportion of grid-connected capacities not yet qualified for their FiT subsidy (DG projects are free from quota restrictions). If excluding the counterbalance between provinces, 16 provinces have had excess installations with entire quota deficits amounting to 14GW as of end-2016; 1Q17 added 4.8GW utility-scale projects with 3.4GW still located in provinces that are already falling short of the annual FiT quota, therefore, the overall quota deficits have further expanded to 17GW.

The 11.5GW additional quota would help improve the situation but could not solve the problem, particularly considering the 10GW+ additions in 2017; moreover, it is worthy to note that the additional quota in 2016 was not the same as the case in 2015, whereby the 2017 quota has been overdrawn (*more on the additional quota, please see our Feb report titled "China Solar Power 2017 outlook"*). Provincial wise, Xinjiang and Gansu have incurred a total of 4GW quota deficits as of Mar-2017, but are unlikely to receive any additional quota in the near term due to their 30% curtailments in 2016, while Shaanxi, Shandong and Henan would still have over 1GW uncovered capacity even with the additional quota.

More recently, the local authority of Shanxi requested the grid companies to arrange power dispatch for all installed projects, but also clarified that projects without quota would only receive the benchmark thermal tariff, which only accounts for 30-40% of the total solar feed-in-tariff. While Shanxi is the first province to officially recognise the problem encountered by local solar operators due to quota deficits, the situation is tougher in several other provinces as there are installed capacities being rejected to connect to the grids, i.e. in the Northwest areas and in Northern Hebei.

**Figure 1: Grid-connected capacity vs. installation quota by provinces (GW)**

	Grid-connected, Mar-2017			2015 Quota			2016 Quota			Ground-mounted installation			Remaining quota	
	Total	Utility	DG	Total (1)	Original	Addition	Total	Utility (2)	Addition (3)	2015-16 Quota (4)=(1)+(2)	2015-16 install (5)	1Q17 install (6)	as of end-2016 (7)=(4)-(5)	as of Mar-2017 (7)-(6)
I Xinjiang	8.6	8.6	-	2.8	1.8	1.0	-	-	-	2.8	5.4	0.0	(2.6)	(2.7)
I Gansu	7.0	6.9	0.1	0.6	0.5	0.1	0.1	-	-	0.6	1.6	0.1	(1.0)	(1.1)
I Qinghai	6.9	6.9	0.0	1.4	1.0	0.4	1.5	1.0	0.5	2.4	2.7	0.1	(0.3)	(0.4)
I Inner Mongolia	6.6	6.6	0.0	1.5	0.8	0.7	2.1	0.6	-	2.1	3.5	0.2	(1.4)	(1.6)
I Ningxia	5.3	5.1	0.2	1.4	1.0	0.4	1.8	0.8	1.0	2.2	2.9	-	(0.7)	(0.7)
II Hebei	4.9	4.4	0.6	1.9	1.2	0.7	3.3	1.0	1.0	2.9	2.8	0.3	0.1	(0.2)
II Shaanxi	3.9	3.7	0.2	0.8	0.8	-	1.5	0.8	0.5	1.6	2.7	0.5	(1.1)	(1.6)
II Shanxi	3.1	2.9	0.2	0.7	0.7	-	3.3	0.7	0.5	1.4	2.4	0.1	(1.1)	(1.1)
II Yunnan	2.1	2.1	0.0	1.0	0.6	0.4	1.1	-	1.0	1.0	1.8	-	(0.8)	(0.8)
II Sichuan	1.0	0.9	0.1	0.6	0.6	-	0.4	0.4	-	1.0	0.9	-	0.2	0.2
II Jilin	0.6	0.5	0.1	0.5	0.3	0.2	0.7	0.3	-	0.8	0.5	0.0	0.4	0.3
II Tianjin	0.6	0.5	0.1	-	-	-	-	-	-	-	0.4	-	(0.4)	(0.4)
II Liaoning	0.6	0.4	0.2	0.3	0.3	-	0.5	0.5	-	0.8	0.3	0.0	0.5	0.5
II Beijing	0.2	0.1	0.2	-	-	-	-	-	-	-	0.1	-	(0.1)	(0.1)
II Heilongjiang	0.2	0.1	0.1	0.3	0.3	-	0.5	0.3	0.2	0.6	0.1	-	0.5	0.5
III Jiangsu	6.1	4.1	2.0	1.2	1.0	0.2	1.2	1.2	-	2.4	2.0	0.4	0.4	0.0
III Shandong	5.0	3.4	1.6	1.2	0.8	0.4	3.1	-	1.0	1.2	3.1	0.1	(2.0)	(2.1)
III Anhui	4.5	3.4	1.2	1.3	1.0	0.3	3.1	1.0	0.5	2.3	2.4	0.7	(0.1)	(0.8)
III Zhejiang	4.4	1.9	2.5	1.2	1.0	0.2	1.4	1.0	0.4	2.2	1.3	0.6	0.9	0.3
III Henan	3.9	3.4	0.5	0.6	0.6	-	1.6	0.5	1.0	1.1	2.4	0.9	(1.3)	(2.2)
III Jiangxi	2.8	2.1	0.6	0.6	0.6	-	2.0	0.4	1.0	1.0	1.6	0.4	(0.6)	(1.0)
III Hubei	2.0	1.8	0.3	0.7	0.5	0.2	1.9	0.6	1.0	1.3	1.6	0.1	(0.3)	(0.5)
III Guangdong	1.8	0.8	1.0	0.9	0.9	-	1.0	0.5	0.5	1.4	0.7	0.1	0.7	0.6
III Guizhou	0.5	0.5	-	0.4	0.2	0.2	0.8	0.3	0.5	0.7	0.5	-	0.2	0.2
III Hunan	0.4	0.1	0.4	0.4	0.4	-	1.3	0.3	1.0	0.7	-	0.1	0.7	0.7
III Fujian	0.4	0.2	0.2	0.4	0.4	-	0.2	0.2	-	0.6	0.1	0.1	0.5	0.4
III Shanghai	0.4	0.0	0.4	-	-	-	-	-	-	-	-	-	-	-
III Tibet	0.4	0.4	-	-	-	-	-	-	-	-	0.2	0.1	(0.2)	(0.2)
III Hainan	0.3	0.2	0.1	0.2	0.2	-	-	-	-	0.2	0.1	-	0.1	0.1
III Guangxi	0.2	0.1	0.1	0.4	0.4	-	0.2	0.2	-	0.6	0.1	0.0	0.5	0.5
III Chongqing	0.0	-	0.0	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>84.6</b>	<b>71.9</b>	<b>12.7</b>	<b>23.1</b>	<b>17.8</b>	<b>5.3</b>	<b>34.8</b>	<b>12.6</b>	<b>11.5</b>	<b>35.7</b>	<b>44.1</b>	<b>4.8</b>	<b>(8.3)</b>	<b>(13.1)</b>

Note: 2016 total quota also includes 10.7GW Top Runner and Poverty Alleviation projects. Source: NEA, CSCI Research

## Delay of subsidy receivables might see further extension

### After getting quota, wait for the inclusion into subsidy catalogue

The 7<sup>th</sup> batch of subsidy catalogue (补贴目录) was open for application in Mar-2017 with submission deadline on 30-Jun; as the eligible projects must connect to the grid by end of Mar-2016, there would be roughly 34GW wind and 17GW solar projects included. To recall, the 1<sup>st</sup>-5<sup>th</sup> batches were approved during 2012 to 2014, covering projects connected to grid by Aug-2013, and only 6GW solar capacity was included; the 6<sup>th</sup> batch which was approved in Sep-2016 covers projects connected to the grid during Sep-2013 to Feb-2015, and it also has a larger proportion of wind power projects (32GW wind + 20GW solar). On the contrary, beyond the 7<sup>th</sup> batch and based on the grid-connected capacity as of end of Mar-2017, there are 51GW uncovered capacities and the composition mix would be reversed to c.30% wind power and c.70% solar power (for details, please see Figure 2).

As solar installations have skyrocketed since the cut-off date of eligible projects for the 7<sup>th</sup> batch, a large proportion of the exiting solar power projects have to continue to wait for subsequent catalogues to be announced. The 27GW new grid connections during Apr-Dec 2016 accounted for 78% of 2016's full-year additions (35GW) and 35% of the cumulative solar capacity as of end-2016; at this time, projects installed after Mar-2016 have been waiting for the catalogue inclusion for over one year (projects in

the 7<sup>th</sup> batch have waited for 1-2 years). Taking into account the 24GW additions in 1H17, there would be 58GW projects waiting for subsequent catalogues beyond the 7<sup>th</sup> batch, accounting for over half of the cumulative capacity as of Jun-17.

**Figure 2: Subsidy catalogues and estimated annual subsidy requirements**

	Solar	Wind	Total	Solar %	Wind %
<b>Grid-connected capacity (GW)</b>					
Mar-15 (1)	33.1	101.1	134.2	25%	75%
Dec-15	42.8	129.3	172.1	25%	75%
Mar-16 (2)	50.3	134.7	185.0	27%	73%
Dec-16	77.4	148.7	226.1	34%	66%
Mar-17 (3)	84.6	151.4	236.0	36%	64%
<b>Subsidy catalogue coverage (GW)</b>					
1st-5th batches	6.4	73.9	80.3	8%	92%
6th batch	19.5	31.7	51.2	38%	62%
7th batch est. (2)-(1)	17.2	33.6	50.8	34%	66%
Remaining est. (3)-(2)	34.3	16.7	51.0	67%	33%
<b>Estimated avg. subsidy (Rmb/kWh)</b>					
1st-5th batches	0.68	0.24			
6th batch	0.60	0.23			
7th batch and remaining	0.57	0.22			
<b>Annual subsidy requirements (Rmb mn)</b>					
1st-5th batches	4,787	31,925	36,712	13%	87%
6th batch	12,870	13,124	25,994	50%	50%
7th batch and remaining	32,291	19,919	52,209	62%	38%

Source: NEA, CEC, CSCI Research Estimates

Note: assume avg. utilization of 1,100 and 1,800 for solar and wind

### Annual renewable funds might only cover subsidy of the 1<sup>st</sup>-6<sup>th</sup> batches

According to news reports, the deficits in Renewable Energy Fund reached c.Rmb60bn as at end-2016 and have been expanding given the accumulating capacities. Based on the current renewable fund surcharge of RMB0.019/kWh, renewable fund collection would be c.Rmb75-80bn this year, subject to power demand and the collection rate; and though it could cover the annual subsidy demand from projects included in the 1<sup>st</sup>-6<sup>th</sup> batches, it would fall short of demand from the other operating projects, let alone other subsidised projects and delayed subsidy payables. In April 2017, the NEA, MoF and NDRC have jointly notified the clearing of renewable subsidies of projects included in the first six batches, and commanded the grid companies to submit final reports by the end of August.

**Figure 3: Renewable energy funds, 2011-2016**

	2011	2012	2013	2014	2015	2016
<b>Power consumption (bn kWh)</b>	<b>4,702</b>	<b>4,966</b>	<b>5,342</b>	<b>5,639</b>	<b>5,693</b>	<b>5,920</b>
YoY growth (%)	12%	6%	8%	6%	1%	4%
Primary sector	101	100	103	101	104	108
Secondary sector	3,528	3,672	3,933	4,177	4,144	4,211
Tertiary sector	510	569	627	667	717	796
Residential & Commercial	562	623	679	694	729	805
<b>Renewable fund surcharge (Rmb/kWh)</b>						
Primary sector	-	-	-	-	-	-
Secondary sector	0.004	0.008	0.008	0.015	0.015	0.019
Tertiary sector	0.004	0.008	0.008	0.015	0.015	0.019
Residential & Commercial	0.004	0.008	0.008	0.008	0.008	0.008
<b>Est. renewable funds (Rmb bn)</b>	<b>18.40</b>	<b>38.92</b>	<b>41.92</b>	<b>78.21</b>	<b>78.74</b>	<b>101.57</b>
Collection rate (%)	48%	50%	71%	63%	65%	75%
<b>Actual fund collection (Rmb bn)</b>	<b>8.86</b>	<b>19.61</b>	<b>29.80</b>	<b>49.14</b>	<b>51.49</b>	<b>76.11</b>

Source: NEA, CEC, CSCI Research Estimates

## Limited room for 2018-2020 before achieving grid-parity

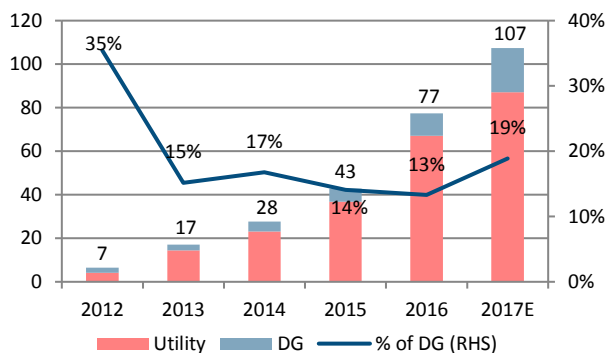
### Disparity between Central and local governments' development plan

The national 13<sup>th</sup> FYP sets a minimum solar installation target at 110GW in 2020, and merely adding up the specific targets set for key provinces in the plan would increase the target to approximately 130GW. In May 2017, the NEA circulated a supplementary notice for provinces to submit their development plan of renewable power for the 13<sup>th</sup> Five-Year period, and the document specifically spelt out that the individual local government would be liable for the subsidy requirements of any excess installations beyond the national quota; and according to recent news reports, 27 provinces have submitted their plans with designed solar capacity amounting to a total of 145GW in 2020; but without further response from the NEA, we find the policies very ambiguous in terms of the installation amounts applicable to receive subsidies from the Central government at the current stage.

### Squeezing room for solar due to subsidy burdens and power surplus

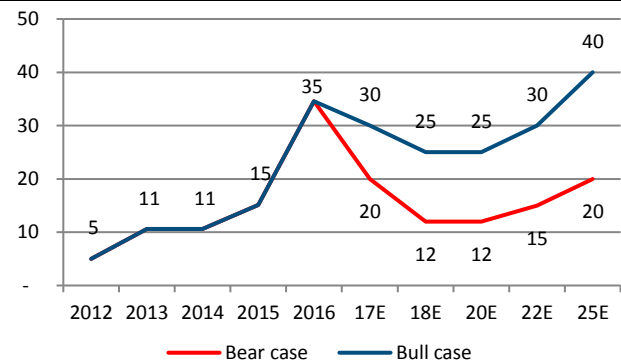
Based on the base-case 30GW additions in 2017, grid-connected solar capacity would reach almost 110GW by the end of this year, therefore, the annual installations between now and until 2020 will be only around 8-13GW, representing the lower end of the previous industry forecasts. We suspect that currently the room for solar power developments post 2017 will be limited, as there are various issues need to be addressed; the quota and subsidy deficits analysed above are most critical, as existing operators might suffer significant investment losses and must deal with tight cash flow, whilst there seems to be no short-term resolutions to the renewable fund deficits; meanwhile, there might be land and financing difficulties for new projects and the broader context in China is notable power surplus.

**Figure 4: China's cumulative solar installation (GW)**



Source: NEA, CSCI Research Estimates

**Figure 5: Annual installation forecasts, 2012-2025E**



Source: NEA, CPIA, CSCI Research Estimates

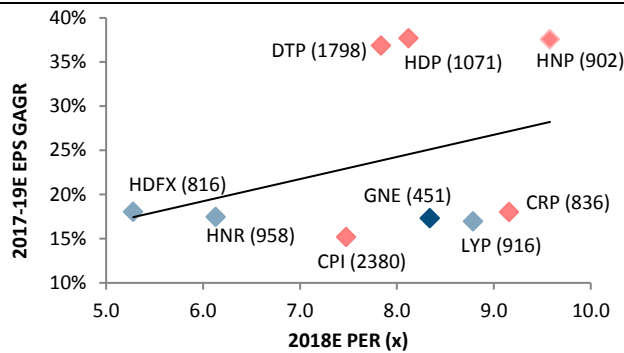
**Figure 6: China's power dynamics and five-year developments, 2005-2016**

	2005	2010	2015	2016	2020E	FYP CAGR growth (%)		
						2006-10	2011-15	2016-20E
<b>Power consumption (bn kWh)</b>	2,479	4,200	5,693	5,920	6,800-7,200	11.1%	6.3%	3.6%-4.8%
<b>Power generation (bn kWh)</b>	2,500	4,228	5,694	5,990		11.1%	6.1%	
- Thermal	2,047	3,417	4,187	4,289		10.8%	4.1%	
- Hydro	397	687	1,112	1,181		11.6%	10.1%	
- Nuclear	53	75	171	213		7.1%	18.1%	
- Wind	-	49	185	241		-	30.3%	
- Solar	-	0.1	39	66		-	216.4%	
<b>Grid-connected capacity (GW)</b>	517	966	1,525	1,646	2,000	13.3%	9.6%	5.6%
- Thermal	391	710	1,006	1,054	1,228	12.6%	7.2%	4.1%
- Hydro	117	216	320	332	340	13.0%	8.1%	1.2%
- Nuclear	-	11	27	34	58	-	20.2%	16.4%
- Wind	0.2	30	131	149	210	162.2%	34.6%	9.9%
- Solar	-	0	42	77	130	-	190.2%	25.2%

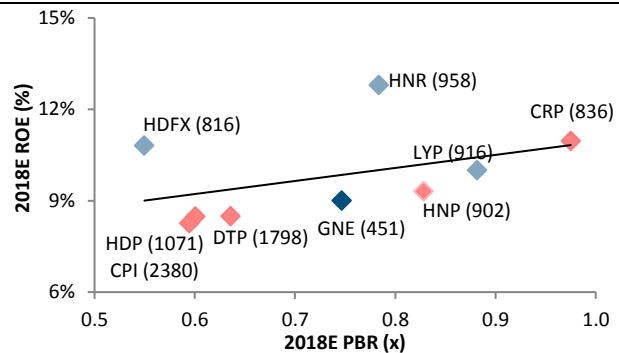
Source: NEA, CEC, CSCI Research Estimates

Note: 2020 solar target of 130GW = 110GW base + targets of key provinces

## Valuation: industry headwinds inhibit re-rating

**Figure 7: China power generators: PER vs. EPS CAGR**


Source: Bloomberg, CSCI Research

**Figure 8: China power generators: PBR vs. ROE**


Source: Bloomberg, CSCI Research

**Figure 9: Peer valuation**

Company	Ticker	Close (Local\$)	Mkt cap (USD mn)	EPS Growth		PER (x)		PBR (x)		ROE (%)		Yield (%)		Net Gear (%)	
				FY17E	FY18E	FY17E	FY18E	FY17E	FY18E	FY17E	FY18E	FY17E	FY18E	FY17E	FY18E
<b>Solar Power</b>															
GCL Poly	3800 HK	0.9	2,096	-9%	3%	7.5	7.3	0.6	0.6	9%	9%	0.0%	0.0%	131%	140%
Xinyi Solar	968 HK	2.3	2,178	12%	14%	7.0	6.1	1.9	1.6	30%	28%	6.4%	6.9%	67%	62%
GCLNE	451 HK	0.4	868	83%	27%	10.6	8.3	0.8	0.7	8%	9%	0.0%	0.0%	430%	496%
Singyes	750 HK	3.0	324	-15%	9%	4.6	4.2	0.5	0.4	12%	11%	1.9%	1.9%	83%	73%
<b>Average</b>				<b>18%</b>	<b>14%</b>	<b>7.4</b>	<b>6.5</b>	<b>1.0</b>	<b>0.8</b>	<b>15%</b>	<b>14%</b>	<b>2.1%</b>	<b>2.2%</b>	<b>178%</b>	<b>193%</b>
<b>Wind Power</b>															
Longyuan	916 HK	5.6	5,736	17%	14%	10.0	8.8	1.0	0.9	10%	10%	2.0%	2.2%	176%	166%
Goldwind	2208 HK	8.5	5,528	7%	9%	8.2	7.6	1.2	1.1	15%	15%	2.7%	3.5%	79%	84%
HN Renew	958 HK	2.4	3,195	7%	17%	7.2	6.1	0.9	0.8	12%	13%	1.9%	2.4%	202%	189%
Datang Renew	1798 HK	0.9	867	174%	37%	10.7	7.8	0.5	0.5	5%	6%	2.4%	3.3%	354%	381%
<b>Average</b>				<b>51%</b>	<b>19%</b>	<b>9.0</b>	<b>7.6</b>	<b>0.9</b>	<b>0.8</b>	<b>10%</b>	<b>11%</b>	<b>2.3%</b>	<b>2.9%</b>	<b>203%</b>	<b>205%</b>
<b>Thermal Power</b>															
Huaneng Power	902 HK	5.5	14,413	-50%	76%	16.8	9.6	0.9	0.8	5%	9%	2.8%	5.4%	250%	224%
CR Power	836 HK	15.3	9,418	-20%	28%	11.8	9.2	1.0	1.0	9%	11%	5.6%	5.7%	127%	124%
Datang Power	991 HK	2.5	7,469	-37%	77%	13.9	7.8	0.7	0.6	5%	8%	1.0%	4.9%	221%	199%
Huadian Power	1071 HK	3.3	6,247	-43%	91%	15.5	8.1	0.6	0.6	5%	8%	2.2%	4.8%	202%	188%
China Power	2380 HK	2.8	2,592	-21%	25%	9.4	7.5	0.6	0.6	7%	8%	4.3%	6.1%	158%	171%
<b>Average</b>				<b>-34%</b>	<b>59%</b>	<b>13.5</b>	<b>8.4</b>	<b>0.8</b>	<b>0.7</b>	<b>6%</b>	<b>9%</b>	<b>3.2%</b>	<b>5.4%</b>	<b>192%</b>	<b>181%</b>
<b>Renewable Energy</b>															
Huadian Fuxin	816 HK	1.8	1,928	6%	20%	6.3	5.3	0.6	0.5	10%	11%	3.4%	4.3%	304%	288%
Jingneng CE	579 HK	2.3	1,990	12%	8%	6.0	5.6	0.8	0.7	13%	13%	3.8%	4.3%	119%	103%
CGN New Energy	1811 HK	1.2	632	-7%	17%	8.6	7.3	0.8	0.7	9%	10%	1.9%	2.9%	230%	198%
Suntien	956 HK	1.7	790	30%	14%	7.5	6.6	0.6	0.6	9%	9%	5.2%	5.9%	187%	204%
Concord	182 HK	0.3	356	22%	17%	4.2	3.6	0.5	0.4	11%	11%	4.4%	4.4%	81%	97%
<b>Average</b>				<b>13%</b>	<b>15%</b>	<b>6.5</b>	<b>5.7</b>	<b>0.7</b>	<b>0.6</b>	<b>10%</b>	<b>11%</b>	<b>3.7%</b>	<b>4.4%</b>	<b>184%</b>	<b>178%</b>
<b>Nuclear</b>															
CGN Power	1816 HK	2.2	12,754	12%	11%	10.4	9.4	1.3	1.2	13%	14%	3.0%	3.3%	204%	192%
<b>Hydro Power</b>															
Yangtze Power	600900 C	14.9	48,680	-3%	-2%	16.3	16.6	2.4	2.3	15%	14%	4.4%	4.4%	80%	68%
SDIC Power	600886 C	8.0	8,000	6%	6%	13.1	12.3	1.7	1.5	13%	13%	2.8%	2.9%	375%	340%
Guiguan Power	600236 C	5.4	4,813	-4%	3%	13.1	12.7	2.0	1.7	18%	15%	3.2%	3.2%	-	-
Chuantou Energy	600674 C	9.6	6,259	-1%	-1%	12.1	12.2	1.8	1.7	16%	14%	2.9%	2.9%	18%	15%
Qianyuan Power	002039 C	15.9	720	95%	9%	19.3	17.7	2.2	2.1	11%	12%	0.0%	0.0%	-	-
<b>Average</b>				<b>18%</b>	<b>3%</b>	<b>14.8</b>	<b>14.3</b>	<b>2.0</b>	<b>1.9</b>	<b>15%</b>	<b>14%</b>	<b>2.6%</b>	<b>2.7%</b>	<b>158%</b>	<b>141%</b>

 Date as of 18<sup>th</sup> July, 2017

Source: CSCI Research Estimates, Bloomberg



Equity Research | China | Solar Power

## Withstanding industry headwinds

- **Confronted by industry headwinds, extension of subsidy receivables which is already delayed by more than two years would weigh on GNE's cash flow and increase its financing needs.**
- **However, GNE's solar farm build-out and asset-light transition proceeded as scheduled; particularly, it made the first move to sell 68% stake of the 130MW projects in Jinhu and Wanhai on 30-Jun.**
- **We have revised down our 17E/18E revenue estimates by 41%/30% to factor in the PCB disposal and trimmed our 17E/18E earnings further by 63%/64% respectively on higher financing costs. Our DCF-based TP is lowered to HKD0.44 (from HKD0.53), implying 23% potential upside. We reiterate our BUY rating, monitoring closely on execution of further project sales.**

**Cash flow to become tight withstanding the industry headwinds.** While we believe GNE will be immune from quota deficits considering its steady development history, further delay in subsidy payout would weigh on its cash flow and increase its financing needs. Considering GNE's 3.1GW grid-connected capacity as of end-2016, c.600MW was included in the first six batches and 1.4-1.6GW has applied for the 7<sup>th</sup> batch; collection of the subsidy receivables for the 6<sup>th</sup> batch was slower than expected and as the 7<sup>th</sup> batch is in process, subsidy payout has already been delayed by over two years. But on the bright side, with multiple documents released since April, we find the Central government has been adopting measures to rectify market orders and resolve the quota and subsidy issues.

**Solar farm build-out and asset-light transition proceeded as scheduled.** The guided 1.5-2.0GW new installations in 2017 are highly achievable, in our view, given the c.1GW domestic projects under construction at end-2016 together with 610MW Top Runner and Property Alleviation projects. Particularly, its first overseas project, the 83MW utility-scale solar farms in North Carolina, in the U.S. has commenced operation in May. Meanwhile, GNE has been negotiating with financial institutions to convert its existing subsidiary solar projects into JVs for early cash recycle and deleveraging. Also, on 30-Jun, GNE announced its first sale of 68% stake of the 130MW projects in Jinhu and Wanhai to Zhongmin New Energy Investment Group. Regarding the 1.0-1.5GW conversion target this year, we will factor in the transition impacts after further progress has been made.

**Slashed earnings estimates, awaiting execution of further project sales, maintain BUY.** We have revised down our 17E/18E revenue estimates by 41%/30% to factor in the PCB disposal and slashed our earnings estimates further by 63%/64% respectively on higher financing costs confronted by the delayed subsidies. Execution of further project sales would be the prime catalysts driving earnings growth going forward, relieving market concerns of rising gearing and tight cash flow. Our DCF-based TP is lowered to HKD0.44 (from HKD0.53), translating into 12x forward PER and 23% potential upside, maintain BUY.

## GCL New Energy (451 HK)

### Buy

(unchanged)

<b>Price Target</b>	<b>HK\$0.44</b>
(Revision)	(-17%)
(upside)	(24%)

EPS	2017E	2018E
revision	(-70%)	(-65%)

Close price	HKD 0.36
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Market cap.	HKD 6.77bn
-------------	------------

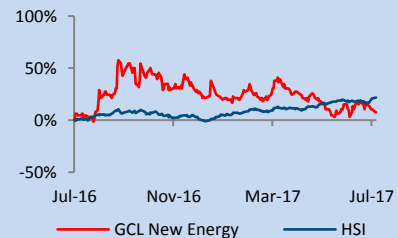
Free float	30.9%
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52-week range	HKD 0.32– 0.55
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3-mth ave. T/O	HKD 4.38mn
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*Price as of 18 July 2017*

### Stock rel HSI performance (%)


**ZHU Kexin**
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**Income statement (RMB mn)**

Year end: Dec	2015	2016	2017E	2018E	2019E
<b>Revenue</b>	<b>688</b>	<b>2,246</b>	<b>3,636</b>	<b>4,786</b>	<b>5,693</b>
COGS	(192)	(676)	(1,018)	(1,340)	(1,594)
Gross profit	496	1,571	2,618	3,446	4,099
Selling expenses	-	-	-	-	-
General and administrative	(283)	(371)	(454)	(598)	(712)
Other operating expenses	74	27	(22)	(10)	(10)
EBITDA	680	1,953	3,259	4,293	5,128
<b>Depreciation &amp; Amortization</b>	<b>(384)</b>	<b>(725)</b>	<b>(1,114)</b>	<b>(1,452)</b>	<b>(1,748)</b>
EBIT	297	1,228	2,145	2,840	3,380
<b>Other gain loss</b>	<b>82</b>	<b>(63)</b>	<b>27</b>	-	-
Net interest	(297)	(898)	(1,535)	(2,068)	(2,552)
JVs and associates	9	1	3	3	3
<b>Pretax profit</b>	<b>82</b>	<b>267</b>	<b>636</b>	<b>772</b>	<b>828</b>
Taxation	(6)	42	(45)	(54)	(58)
Minority interests	(0)	6	11	13	14
<b>Net profit</b>	<b>76</b>	<b>130</b>	<b>577</b>	<b>700</b>	<b>756</b>
Net profit (adjusted)	15	299	550	700	756
Basic EPS (Rmb cent)	0.54	1.61	2.95	3.76	4.06
Diluted EPS (Rmb cent)	0.32	1.61	2.95	3.76	4.06
DPS (HKD)	-	-	-	-	-

**Balance sheet (RMB mn)**

Year end: Dec	2015	2016	2017E	2018E	2019E
Cash	1,965	3,826	804	525	731
Short term investments	-	-	-	-	-
Accounts receivables	3,151	3,386	5,053	6,646	7,234
Inventory	167	-	-	-	-
Other current assets	1,273	3,526	2,395	2,395	2,395
<b>Total current assets</b>	<b>6,556</b>	<b>10,739</b>	<b>8,252</b>	<b>9,565</b>	<b>10,360</b>
PP&E	14,194	26,755	36,805	44,316	51,212
Intangible Assets	-	-	-	-	-
Associates and JVs	68	42	45	48	50
Other long term assets	2,685	3,942	4,129	4,150	4,174
<b>Total long term assets</b>	<b>16,947</b>	<b>30,739</b>	<b>40,979</b>	<b>48,514</b>	<b>55,436</b>
<b>TOTAL ASSETS</b>	<b>23,502</b>	<b>41,478</b>	<b>49,231</b>	<b>58,080</b>	<b>65,797</b>
Short term debt	5,521	5,624	6,070	8,758	9,622
Accounts payables	7,158	11,400	11,161	11,149	11,138
Other current liabilities	180	993	83	83	83
<b>Total current liabilities</b>	<b>12,858</b>	<b>18,017</b>	<b>17,314</b>	<b>19,991</b>	<b>20,844</b>
Long term debt	7,441	16,153	23,965	30,237	36,285
Deferred tax	22	29	29	29	29
Convertible bonds	733	858	858	-	-
<b>Other long term liabilities</b>	<b>7</b>	<b>0</b>	<b>-</b>	<b>0</b>	<b>(0)</b>
<b>Total long term liabilities</b>	<b>8,202</b>	<b>17,041</b>	<b>24,853</b>	<b>30,267</b>	<b>36,315</b>
<b>TOTAL LIABILITIES</b>	<b>21,060</b>	<b>35,059</b>	<b>42,167</b>	<b>50,257</b>	<b>57,159</b>
Shareholders' funds	2,441	6,373	7,007	7,753	8,554
Minority Interests	1	47	57	70	84
<b>TOTAL LIAB AND EQUITY</b>	<b>23,502</b>	<b>41,478</b>	<b>49,231</b>	<b>58,080</b>	<b>65,797</b>
Net cash / (debt)	(11,729)	(18,809)	(30,090)	(38,471)	(45,176)

Source: Company, CSC Research Estimates

**Cash flow statement (RMB mn)**

Year end: Dec	2015	2016	2017E	2018E	2019E
<b>EBIT</b>	<b>297</b>	<b>1,228</b>	<b>2,145</b>	<b>2,840</b>	<b>3,380</b>
Depreciation & amortisation	384	725	1,114	1,452	1,748
Net interest	297	898	1,535	2,068	2,552
Taxes paid	18	(34)	(45)	(54)	(58)
Changes in working capital	(778)	(1,629)	(2,075)	(1,604)	(599)
Others	(181)	(738)	(1,486)	(2,030)	(2,514)
<b>Cash flow from operations</b>	<b>35</b>	<b>450</b>	<b>1,189</b>	<b>2,673</b>	<b>4,510</b>
Capex	(8,021)	(8,476)	(11,160)	(8,960)	(8,640)
Acquisitions	(163)	49	-	-	-
Disposals	-	-	248	-	-
Others	(996)	(1,288)	25	15	13
<b>Cash flow from investing</b>	<b>(9,181)</b>	<b>(9,714)</b>	<b>(10,887)</b>	<b>(8,945)</b>	<b>(8,627)</b>
Dividends	-	-	-	-	-
Issue of shares	-	1,941	-	-	-
Change in debt	10,876	8,665	8,258	8,102	6,912
Others	(397)	548	(1,583)	(2,109)	(2,588)
<b>Cash flow from financing</b>	<b>10,479</b>	<b>11,155</b>	<b>6,675</b>	<b>5,993</b>	<b>4,324</b>
<b>Change in cash</b>	<b>1,334</b>	<b>1,890</b>	<b>(3,023)</b>	<b>(279)</b>	<b>206</b>
Free cash flow	(7,986)	(8,025)	(9,971)	(6,287)	(4,130)

**Key ratios**

Year end: Dec	2015	2016	2017E	2018E	2019E
<b>Operating ratios</b>					
EBIT margin (%)	43.1	54.7	59.0	59.3	59.4
EBITDA margin (%)	98.9	86.9	89.6	89.7	90.1
Effective tax rate (%)	7.6	(15.8)	7.0	7.0	7.0
Revenue growth (%)	(26.1)	226.5	61.9	31.6	19.0
Net income growth (%)	114.6	1,847.8	83.8	27.4	8.0
EPS growth (%)	na	na	83.4	27.4	8.0
DPS growth (%)	-	-	-	-	-
<b>Efficiency ratios</b>					
ROE (%)	3.1	2.0	8.2	9.0	8.8
ROCE (%)	2.8	5.2	6.7	7.5	7.5
Asset turnover (x)	0.0	0.1	0.1	0.1	0.1
Op cash / EBIT (x)	0.1	0.4	0.6	0.9	1.3
Depreciation / CAPEX (x)	(0.0)	(0.1)	(0.1)	(0.2)	(0.2)
Accounts receivable days	955.6	531.1	423.5	446.1	444.9
Accounts payable days	9,489.5	4,994.7	4,041.5	3,036.7	2,550.1
<b>Leverage ratios</b>					
Net gearing (%)	480.5	295.1	429.5	496.2	528.1
Net debt / EBITDA (x)	17.2	9.6	9.2	9.0	8.8
Interest cover (x)	1.0	1.4	1.4	1.4	1.3
Current ratio (x)	0.5	0.6	0.5	0.5	0.5
<b>Valuation</b>					
PER (x)	98.0	19.5	10.6	8.3	7.7
EV/EBITDA (x)	24.6	13.0	11.3	10.5	10.1
PBR (x)	1.8	0.9	0.8	0.7	0.7
Dividend yield (x)	-	-	-	-	-





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## Company Rating Definition

The Benchmark: Hong Kong Hang Seng Index; Time Horizon: 12 months

<b>Buy</b>	12-month absolute total return: >=10%
<b>Hold</b>	12-month absolute total return: >-10% but <10%
<b>Sell</b>	12-month absolute total return: <=-10%

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