China / Hong Kong Industry Focus

China Renewable Sector

Refer to important disclosures at the end of this report

DBS Group Research. Equity　　15 Jan 2024

Finding opportunities in a year of consolidation

- **Early stages of solar industry consolidation as oversupply persists**
- **Exit of weaker players will help stabilize solar ASP**
- **Government policies to accelerate market consolidation as a major share price catalyst**
- **Flat Glass Group (6865 HK) as sector top pick given relatively less competitive industry landscape**

Early stages of industry consolidation as oversupply persists. China's renewable sector is facing slowing demand growth and rapid increases in production capacity, especially in solar. We expect installation demand growth to moderate significantly in 2024/25. For solar, the rapid increase in polysilicon production has led to falling prices throughout the value chain. Besides overcapacity, solar module makers are facing an added risk of technological disruption. Stiff competition should also continue to cap wind turbine ASP.

Exit of weaker players may help stabilize ASP. We expect product ASP to be the main share price driver in 2024/25. However, ASP is only likely to rebound upon a substantial change in the oversupply situation. While in early stages, government policies such as the development in industrial clusters may intensify competition, especially among solar players. We may start to see weaker solar players exit in 1H24, and the pace could accelerate in 2H24. Key signs of an inflection point in solar component ASP include cancellation/delay of expansion plans, asset sales, debt defaults, and/or bankruptcy of weaker players.

Solar glass – a silver lining. We have turned more cautious on the solar midstream names. However, in our view, solar glass names have been unfairly punished by the recent sell-off. The solar glass segment is less competitive compared to upstream and midstream solar. Flat Glass Group (FGG) is our preferred solar name to participate in long-term solar installation growth.

HSI: 16,216

ANALYSTS
Patricia Yeung +852 36684189 patricia_yeung@dbs.com
Ian Chui +852 36684174 ianchui@dbs.com

Recommendation & valuation

Company Name		Price Local$	Target Price Local$	Recom	Mkt Cap US$m	PE 24F x
Flat Glass (6865 HK)	HKD	14.72	23.00	BUY	10,304	9.1
Flat Glass-A (601865 CH)	CNY	27.21	37.00	BUY	8,544	18.3
LONGI (601012 CH)	CNY	21.84	22.00	HOLD	23,067	11.0
TCL Zhonghuan (002129 CH)	CNY	14.69	23.00	BUY	8,235	8.1
Goldwind S&T (2208 HK)	HKD	3.09	3.70	HOLD	5,660	4.6
Goldwind S&T-A (002202 CH)	CNY	7.66	8.10	HOLD	4,184	12.4
Daqo New Energy (DQ US)	USD	22.88	24.00	HOLD	1,789	5.1
GCL Technology (3800 HK)	HKD	1.12	1.20	HOLD	3,858	4.7
Tongwei (600438 CH)	CNY	25.68	24.00	HOLD	16,130	8.9
JinkoSolar Holding (JKS US)	USD	30.39	37.00	HOLD	1,567	3.9
JA Solar Technology (002459 CH)	CNY	19.05	25.00	HOLD	8,814	6.7
Canadian Solar (CSIQ US)	USD	22.34	21.00	HOLD	1,444	6.4
Ming Yang Smart Energy (601615 CH)	CNY	11.34	15.20	HOLD	3,647	5.3

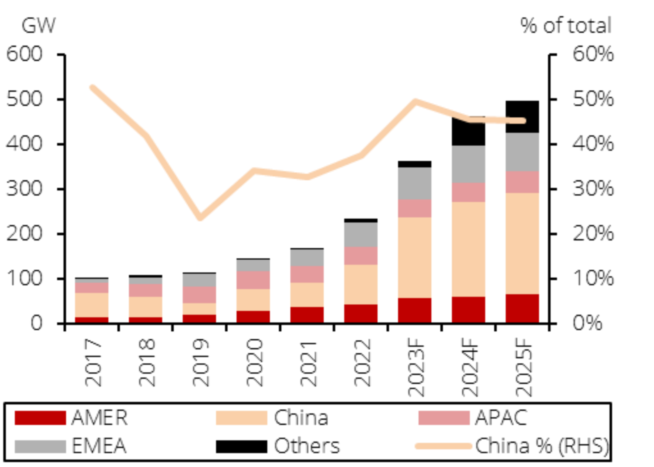
Source: Thomson Reuters, DBS Bank (Hong Kong) Limited ("DBS HK")

Demand growth slowing

Slower growth rate of solar shipments in 2024 expected. The rapid growth rate of solar installations in 2023 is unlikely to be repeated in 2024. This is because, firstly, we reckon installations in 2023 were boosted by projects delayed due to the COVID-19 impacts in 2022. Secondly, the falling polysilicon raw material cost triggered a decline in average selling prices (ASP) throughout the solar value chain; cheaper module costs boosted solar farm IRRs in 2023, which attracted installations throughout the year.

In 11M23, China added 163.88GW of new solar installations, up c.149.4% y-o-y. We reckon that at the current pace, China could achieve solar installations of c.180GW for the full year of 2023, up c.106% y-o-y. Looking ahead, we expect the pace of new solar installations in China to stay robust but nowhere near the growth rate seen in 2023. We forecast China would add c.210GW/225GW of solar capacity in 2024/25, or c.17%/7% y-o-y growth. For global new installations, we expect c.460GW/497GW in 2024/25, up c.27%/8% y-o-y. China is expected to account for c.46% of global new solar installations in 2024 (2023: c.50%). Other significant markets include the US (+14% y-o-y), European Union (+7%), and India (+18%).

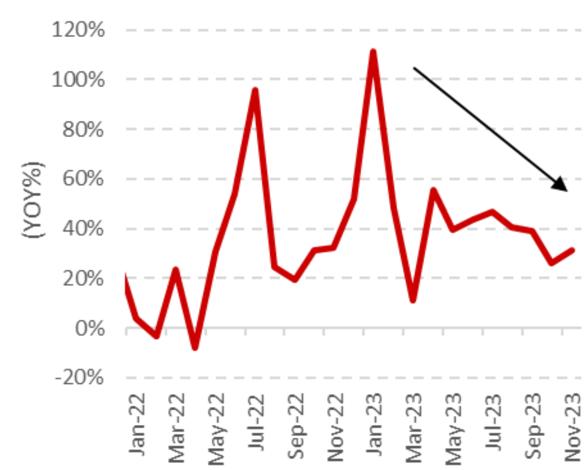
Solar installations by region



Source: BNEF, DBS HK estimate

We see several key risks which could slow the pace of solar installations globally. First, there could be a shortage of qualified labour, particularly in the US. Second, the growth of solar generation capacity may exceed the absorption capability of the electric grid. This could potentially lead to curtailment. Third, there may be uncertainty in the land usage policy for solar, especially in agricultural and/or ecologically sensitive areas. Fourth there could be trade frictions. Finally, a possible supply glut in the overseas markets could well exceed demand in 2024. According to a report from Reuters, there could be an oversupply of up to c.45GW in modules in EU warehouses as of Aug 2023. The glut was largely driven by higher imports from China and slowdown in the granting of permits in Europe. We also observed a slowdown in China's solar cell exports in 2H2023.

China solar cell exports YOY% growth

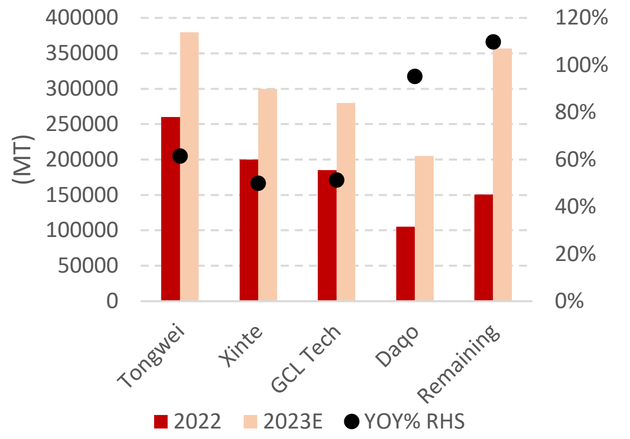


Source: China General Administration of Customs via CEIC

Rapid upstream solar supply growth

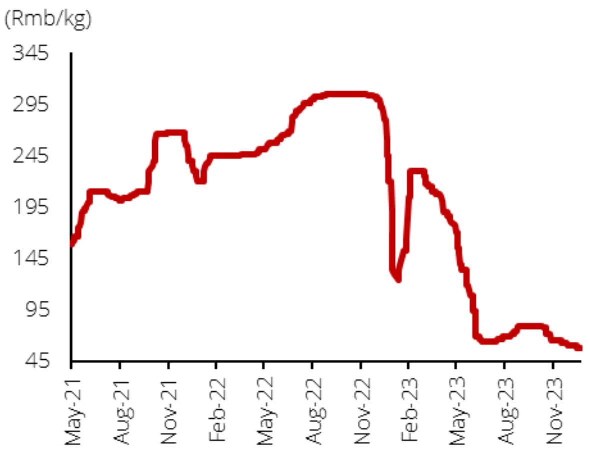
Polysilicon prices under pressure. Polysilicon prices reached c.Rmb59/kg in Dec 2023, down c.80% from the 2022 high of Rmb300/kg on the back of increased supplies. Lower polysilicon raw material costs are transmitting throughout the solar value chain. Data from the China Silicon Industry Association (CSIA) showed c.652,000 metric tonnes (MT) of polysilicon production in 1H23, up 91% y-o-y. BNEF estimated that year-end 2023 polysilicon capacity would increase to c.1.5m MT, up 69% y-o-y. The current polysilicon production capacity could translate into c.570GW of module production, which exceeds our 2024 global solar installation demand forecast of c.460GW by c.24%.

Polysilicon capacity comparisons



Source: Company filings, BNEF

Polysilicon price



Source: Shandong Longzhong Information Technology Co., Ltd. via CEIC

We estimate the top four players to account for c.83%/79% of FY22/23 market share, with plans to achieve c.50%-95% y-o-y capacity expansion by the end of 2023. Smaller players are estimated to increase capacity even faster, by 110% y-o-y. As of the time of writing, not all major polysilicon firms had disclosed their 2024 capacity expansion plans. GCL Technology and Daqo are set to expand by 43% and 49%, respectively.

Such a fast pace of expansion is not sustainable, as a supply glut has driven a decline in ASP. We reckon China's polysilicon industry is in the early stage of a shakeout. But larger incumbent polysilicon players are better positioned to weather the downturn, thanks to several reasons, which are outlined below.

First, incumbent players such as Tongwei, Xinte, GCL, and Daqo should remain profitable, given their low production costs at c.Rmb40-50/kg. In terms of the price outlook, large players expect the polysilicon ASP to range between Rmb65-70/kg in 2024. Smaller, newer players' production costs are above Rmb60/kg, mostly due to a low product yield. With polysilicon prices staying near production cost, newer, less efficient polysilicon players face a difficult operating environment.

Second, growing adoption of N-type modules will require higher quality polysilicon raw material. From our channel checks, we understand that higher purity raw polysilicon could command up to an Rmb10 premium, which translates into an ASP of c.Rmb70/kg. While the premium could narrow, incumbent players should continue to benefit from this theme, thanks to accumulated R&D results and operational efficiency. This could translate into a better reputation in the eyes of wafer/module customers, and thus market share gains at the expense of smaller players. .

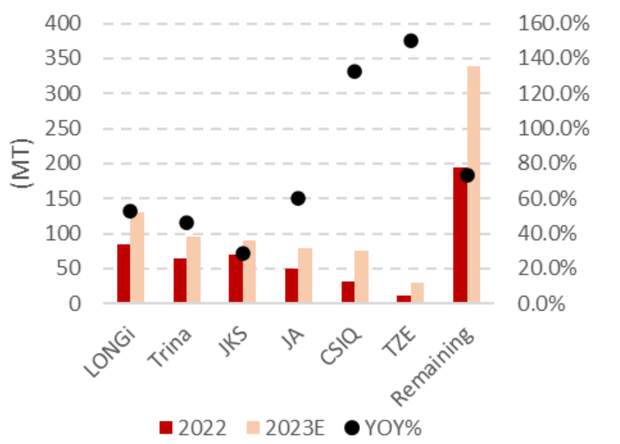
Third, downstream module customers are also increasingly seeking to reduce their carbon footprints. Specifically, several large module makers have pledged to reduce scope 3 carbon emissions, which arise from activities not owned or controlled by the reporting organisation. Given >50% of solar module costs arise from raw materials, reducing (scope 3) carbon emissions from polysilicon is an obvious choice. GCL's granular polysilicon that is produced with the fluidised bed reactor (FBR) process stands out in this context. Granular silicon can be produced with >70% less carbon emissions compared to the traditional Siemens process. This could be an attractive product feature for downstream players in the long term.

For our ASP outlook, we reckon polysilicon prices will likely stay low, near Rmb60-65/kg, in 1H24. In our bear case, we estimate polysilicon prices could fall near to the production cost of the top 4 players, near Rmb45/kg, or c.25% downside. Depending on the pace of the shakeout, we may see a rebound in 2H24 at the earliest.

Module firms face both overcapacity and technological disruption risks.

Module overcapacity even more acute. With lower raw material costs, midstream players (wafer, cell, and module) face increased competition. According to BNEF data, module production capacity could increase by 65% y-o-y to reach c.838GW in 2023– which translated into >80% above forecasted installation demand. The pace of midstream capacity expansion was faster than we anticipated. We estimate the market share of the top module makers we track has shrunk slightly y-o-y to c.60% from c.62% as of the end of 2023. This was largely due to the c.74% y-o-y increase in the capacity of smaller players.

Module maker capacity comparisons



Source: Company filings, BNEF

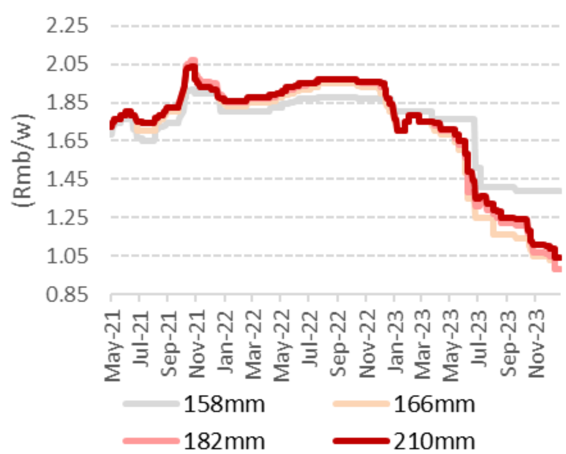
Intense competition could put a lid on midstream ASP. Given the low barriers to entry for solar midstream, we reckon wafer, cell, and module ASP should remain capped. In terms of business strategy, solar midstream firms are increasingly facing a trade-off between profitability and sales volume.

Wafer makers under our coverage, including both LONGi and TCL Zhonghuan (TZE), have cut their wafer ASPs. As of Dec 2023, wafer prices dropped 55%-62% y-o-y. Cell prices largely followed wafer prices and were down 38%-63% y-o-y. Module prices had dropped c.43%-46% y-o-y to Rmb0.98-1.04/watt. The drop in ASP had negatively impacted the 3Q23 results of both LONGi and TZE.

In module segment, we see diverging sales strategies. On one hand, LONGi is starting to prioritise its margins at the expense of sales volume, cutting its FY23 sales volume target. On the other hand, Jinko Solar (JKS) raised the top end of its full-year sales volume guidance for 2023 by c.7% to 75GW. On the other hand, Jinko Solar (JKS) continues to pursue an aggressive sales strategy, focusing on TOPCon modules, which presents a difficult operating environment for all but the largest, most vertically integrated players.

We expect module ASP to continue to stay near Rmb1/watt in 1H24. Given low barriers to entry, we reckon module prices should largely follow the trajectory of polysilicon raw material prices. Should polysilicon prices fall by as much as our bear case estimate, module prices could also fall by 25% to Rmb0.75/w. We may see an inflection point in module prices in 2H24, depending on the pace of the module sector shakeout.

Module ASP by size



Source: Shandong Longzhong Information Technology vis CEIC

Similar to upstream polysilicon players, the price war will probably force a shakeout among module makers. Vertical integration will be increasingly important for module firms going forward. We estimate that module assembly step is barely profitable or even loss-making. Most module firms derive the most value from ingot pulling, wafer slicing, and the production of solar cells. Thus, more vertically integrated firms have better control over their costs. Oversupply has led to substantial uncertainty regarding competition in 2024. Thus, solar equipment firms under our coverage have yet to confirm their 2024 capacity expansion plans.

Technology disruption - an added key risk factor for module players. The adoption of N-type modules, led by TOPCon, is occurring more rapidly than we have expected. In its latest update, GCL Tech reported that its customers have already incorporated around 60%-70% of granular silicon in their N-type ingot pulling raw material mix. Furthermore, GCL Tech anticipates N-type products to dominate the market by 2H24. Given this divergence, we would prefer module makers with larger TOPCon exposure, which would enjoy broader customer base, namely JA Solar, Jinko Solar, and Canadian Solar.

However, the lifespan of TOPCon as the mainstream technology may be shorter than we expect. Heterojunction (HJT) module may emerge as a contender to TOPCon as soon as 2025. According to CPIA estimates, HJT modules have power conversion efficiency (PCE) ratios of c.25%, similar to TOPCon. HJT cells are also easier to manufacture with fewer steps compared to TOPCon. The main drawback of HJT cells is the relatively higher silver paste consumption. However, researchers have been working on solutions to reduce silver consumption, such as silver-coated copper paste. Breakthroughs in this area could speed up HJT adoption.

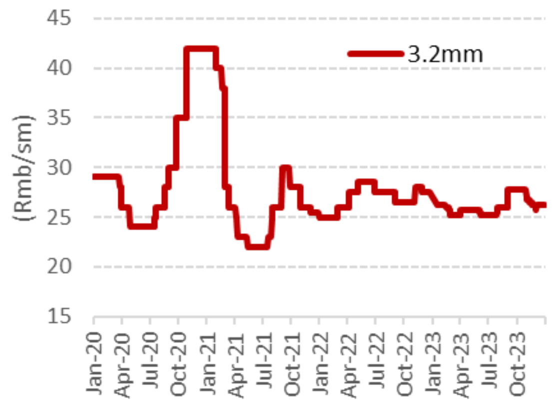
Back Contact (BC) modules could also emerge as a contender to TOPCon. To our understanding, BC is less of a new technology but more of a new design architecture. The key innovation of the BC module is removing busbars from the front of the cell. This results in higher power conversion efficiency, as there is no shading material. The secondary effect is increased aesthetics, which could be attractive for distributed solar applications. The BC design architecture can be adapted to various cell technologies. Currently, LONGi is the only mainstream module maker focusing on BC with its HPBC module. HPBC boasts similar or even slightly higher PCE than TOPCon. However, HPBC is based on P-type cells. Given indications of the strong popularity of N-type cells, we reckon it is too early to tell whether HPBC would gain as wide an adoption as TOPCon.

Solar glass: Don't throw the baby out with the bathwater. We would prefer less competitive segments of the solar value chain such as solar glass. First, solar glass players such as Flat Glass (FGG) and Xinyi Solar (XYS) have c.22%-23% market share each. The solar glass market is essentially a duopoly, which implies a more stable competitive environment. Furthermore, their competitive positions are getting stronger.

From our channel checks, we understand that a soft credit environment in China has increased the difficulty for smaller solar glass makers to borrow for CAPEX. We reckon this could slow the industry-wide capacity expansion, thus helping the market shares of FGG and XYS, translating to better pricing power.

Using figures from Sublime China Information, we estimate that, as of Dec 2023, there were 110,400 tonnes of solar glass capacity under construction in China. However, compared with figures from Jan 2023, we estimate that c.44,700 tonnes or c.40% of plans have been delayed. We estimate solar glass ASP would stay near the current levels of Rmb26/sm for FY24/25.

Solar glass price



Source: Sublime China Information

Note: 3.2mm product

Second, unlike solar modules, the solar glass industry is not subjected to rapid cycles of technological change. Most innovations in solar glass involve making thinner products and/or enhancing light transmission. Thus, there is substantially less technology uncertainty for solar glass.

On the cost side, our channel checks also indicate that soda ash costs are set to decrease thanks to increased supplies. With gas prices declining to pre-Ukraine conflict levels, fuel cost savings could also help increase the gross margin of solar glass makers. Thus, we reckon solar glass is a better way to access the opportunities presented by the growing number of solar installations.

What are the catalysts?

Catalyst: ASP recovery on the back of market consolidation. The share prices of solar component makers largely follow the trend of their respective product ASPs. In our view, ASP is unlikely to rebound unless a significant change in the oversupply situation occurs. An increase in ASP could act as a share price catalyst. We see two main paths/scenarios in which the oversupply situation in China can be resolved.

First, there would need to be a failure and/or exit by a major incumbent player. However, we believe the probability of this scenario is quite low, as the largest players across both polysilicon and solar midstream have relatively low gearing levels. In our second, more probable scenario, we anticipate a gradual exit of smaller players. Smaller players have higher costs and weaker balance sheets. Our channel checks from multiple sources indicate that Chinese banks' appetite to extend credit to the solar sector has weakened. Refinancing pressure and/or cash outflows may exacerbate the closures of weaker players.

Consolidation via M&As not likely. We do not rule out mergers and acquisitions as a way for the industry to consolidate. However, from our channel checks we understand that M&As should be relatively rare. This is because solar firms (especially module makers) prefer to develop their own up-to-date factories rather than acquire technologically obsolete plants from competitors.

Do not rule out government policy as a catalyst. We analyse probable government policy on three levels. The top level of China's central government is well-aware of the oversupply problem throughout the renewable value chain. In the Central Economic Work Conference held in Dec-2023, "overcapacity in some sectors" was mentioned as a key challenge in 2024.

The ministerial level was in fact the earliest in calling for attention to solar manufacturing overcapacity. As early as Aug-22, the Ministry of Industry & Information Technology (MIIT) issued a notice to call for stabilization of expectations between upstream and downstream entities in the solar value chain. The notice encouraged establishment of coordination mechanisms such as strategic alliances, long-term contracts, etc.

On the provincial level, we have seen provincial governments proposing "industrial clusters" of solar manufacturing capacity. Industrial clusters refer to using urban planning to concentrate various segments of the solar value chain near each other. For example, Baotou in Inner Mongolia is becoming a polysilicon and ingot/wafer hub. The main advantage of this policy is lower transportation costs. However, this also intensifies the competition among solar firms located within a region. Intensifying competition may speed up the exit of weaker players. Aside from Inner Mongolia, the provinces that have announced proposals of solar industrial clustering include Henan, Jiangxi, Shanxi, and Zhejiang. In our view, industrial clustering is incrementally favorable to vertically integrated firms compared to specialized firms.

Regarding timing of the catalysts, we expect a trickle of news about small players exiting the solar market in 1H24. Some items we would watch out for include delays/cancellations of capacity expansion plans, asset sales of production lines, debt default and/or bankruptcy. The frequency of such news flows could accelerate in 2H24. In fact, we have already seen early indications of inexperienced players exiting the market. In 3Q23, Royal Group, a dairy enterprise, looked to dispose its module manufacturing assets. Signs of an accelerating industry consolidation may help stabilize product ASPs, which in turn may help share prices to re-rate positively.

Deglobalisation and overseas expansion plans of Chinese solar firms.

Stiff competition in the domestic China solar market is driving module makers to expand overseas. 1H23 filings of JA Solar and Jinko Solar show export markets have c.4-5ppts higher gross margins compared to c.8-16% in China.

From our channel checks, several module firms have expressed interests in the US market, citing high module ASP and attractive subsidies offered under the Inflation Reduction Act (IRA). We observe that module firms are attempting to access the US market via two main avenues: 1) By directly constructing module production facilities in the US, and 2) developing factories in ASEAN countries such as Vietnam and Malaysia - factories in the ASEAN then import polysilicon raw material from outside China (i.e. USA or Europe). Since modules produced from the ASEAN factories are free from Xinjiang-related controversies, they can be exported to the US market with a much lower risk of trade frictions.

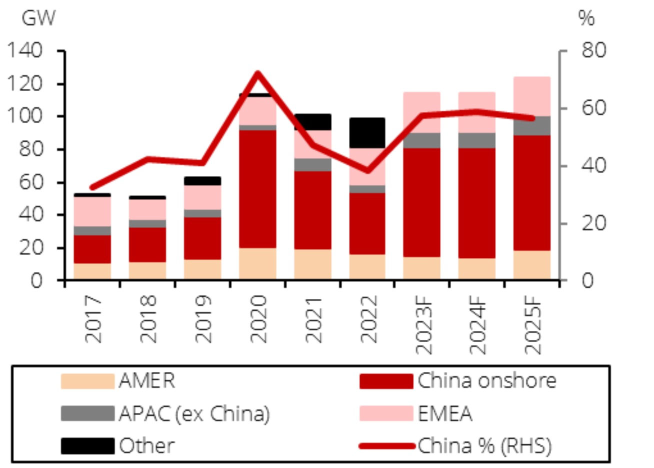
In the longer term, Saudi Arabia has been identified as a particularly attractive location thanks to low energy costs, friendly international relations with China, strong domestic demand, and its geographic proximity to European markets. Among upstream players, GCL Technology is the pioneer seeking to build production facilities overseas. In Dec 2023, GCL's top leadership met with Saudi government representatives to discuss strategic cooperation. GCL plans to develop a total of c.120,000 MT of FBR granular polysilicon production capacity in Saudi Arabia over two phases. Currently, GCL has c.400,000MT of capacity in China. Upon completion of the Saudi facilities, we estimate c.23% of GCL's total polysilicon capacity could be located outside of China. For wafer players, TCL Zhonghuan (TZE) signed an agreement with its Saudi partner Vision Industries to jointly develop 20GW of wafer production facilities.

Current low-price status quo for wind turbine remains.

Wind installations also moderating. China's 11M23 new wind installations reached c.41.39GW, up 83.8% y-o-y. This represented c.63% of our full-year installation target of c.66GW (11M22: c.60%) for 2023. We reckon the current pace is on track compared to historical seasonality patterns of wind installations. The rapid growth rate in 2023 is again largely attributable to the need to catch-up on projects delayed during COVID-19 in 2022. Such rapid growth is not expected to be repeated in 2024/25.

Looking ahead, we currently pencilled in c.67GW/70GW of new wind installations in China for FY24/25, or 2%/4% y-o-y growth. For onshore wind, we estimate China would add c.54-55GW p.a. in 2024-25, or a c.4%/2% y-o-y decline. Onshore installations are largely attributable to the completion of desert renewable bases. For offshore wind, we estimate China would add c.12GW/16GW in 2024-25, or 42%/33% y-o-y growth. With China's offshore wind reaching grid parity in 2022, we estimate China's new installations will be roughly split into c.80%/20% between onshore/offshore. We estimate China would account for c.58%/57% of FY24/25 global wind installations. Given a slowdown in China, we forecast global new wind installation growth of c.0%/8% in FY24/25 to 114GW/124GW. Key risks to our view include regulatory/permit delays, supply chain disruptions, and land usage issues.

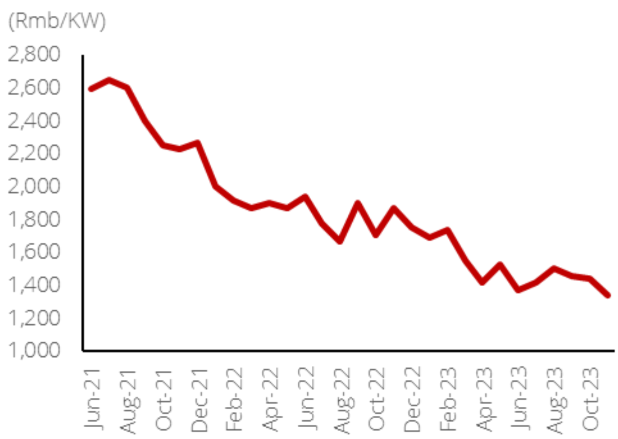
Wind installations by region



Source: National Energy Administration, BNEF, GWEC, DBS HK estimate

Wind: Downtrend in turbine ASP continues. We note that the growing installations did not translate to higher profitability for wind turbine makers, given stiff competition. The wind turbine price war shows no signs of abating, with onshore turbine auction prices as low as c. Rmb1,360/KW in Nov 2023, down c.30% y-o-y. There are signs that the decline in onshore wind turbine prices have slowed but there could be further downside for offshore prices. Faced with falling turbine ASP, turbine makers under our coverage such as Goldwind (2208.HK) delivered lacklustre profitability, with 9M23 gross margin compressing 5ppt y-o-y. Goldwind is attempting to reverse the margin compression by improving its product mix. As of Sep 2023, about 45% of Goldwind's external order mix comprised higher margin 6MW+ models. However, Goldwind's peers are also ramping up their large diameter turbine capabilities, and we reckon this could eat into the profitability of Goldwind's 6MW+ models.

Wind turbine ASP in China

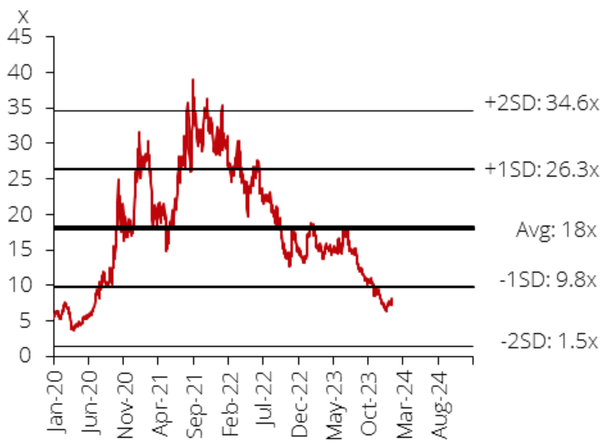


Source: 风电之音, compiled by DBS HK

Stock recommendations

Top pick: Flat Glass Group (FGG 6865.HK) with H/A target prices HK$23/Rmb37. Flat Glass Group (FGG) should be helped by largely stable solar glass ASP. Gross margin may stabilize and expand thanks to lower fuel and soda ash costs. Furthermore, FGG has secured >70% self-sufficiency for its quartzite sand supply. In our view, FGG has been unfairly punished by the recent sell off. The solar glass market is largely unaffected by a price war. Pricing is also more rational relative to other solar components thanks to FGG's position as one part of the duopoly. FGG is our preferred solar stock pick. The company's H-share price is trading at an attractive c.9x FY24F P/E. >1SD below the average of c.18x since 2020. We recommend BUY on FGG's H/A shares with target prices of HK$23/Rmb37 Our H/A target prices are pegged to target P/E of 14x/25x, which is 0.5 SD below the long-term average.

Flat Glass Group (6865 HK) H-share PE chart

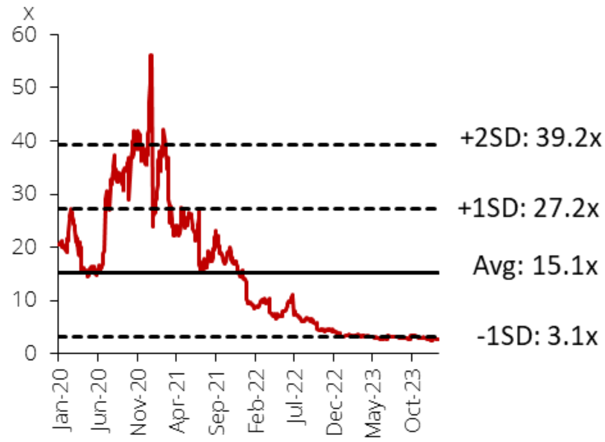


Source: Thomson Reuters, DBS HK

Polysilicon players

We have HOLD recommendations on Tongwei, GCL Tech, and Daqo New Energy. Weak polysilicon prices remain as the most important headwind to share price performance of polysilicon manufacturers under our coverage.

Sector PE of China based polysilicon companies.



Source: Bloomberg Finance LP, DBS HK

Simple average P/E of Tongwei, Daqo New Energy, GCL Technology, Xinte

Maintain HOLD on Tongwei (600438 CH) with target price of Rmb24. Tongwei is expanding is capacity rapidly despite the solar downcycle. Upon completion of its current plan by 2026, Tongwei is set achieve c.900,000 MT of polysilicon and c.130-150GW of cells/modules respectively. We estimate Tongwei's gearing (net debt/total equity) of c.41% as of Sep-2023. The gearing is elevated considering the solar down cycle. However, Tongwei has among the lowest polysilicon production costs near c.Rmb40/kg so the company should remain profitable. We are cautious on the counter as Tongwei is expanding in the cell and module segments which are seeing narrowing profitability. We maintain HOLD on the counter with TP of Rmb24. Our target price is pegged to target FY24F P/E of 8.3x, near 1SD below the average of since 2020.

GCL Technology (3800 HK) has unique attributes, but no catalyst seen yet, maintain HOLD with TP of HK$1.2. GCL Tech is the leading polysilicon firm using fluidized bed reactor (FBR) technology. After the recent asset disposal, the company will have completely exited production using the Siemens process. There is currently some debate whether the quality of GCL's granular polysilicon is fit for N-type cell production. However, FBR technology consumes less electricity compared to the older Siemens process. FBR polysilicon also has production costs as low as c.Rmb40-45/kg. Furthermore, GCL is the only known firm with plans to expand overseas, looking to build plants in Saudi Arabia.

We maintain HOLD on GCL with TP of HK$1.2. Our target price is pegged to target FY24F P/E of 4x, 1SD below average since 2021. GCL's gearing (net debt/total equity) remains low at c.11.5% in Jun-2023. Therefore, the company is relatively better positioned compared to smaller, higher-cost, and less conservatively financed competitors in a down cycle.

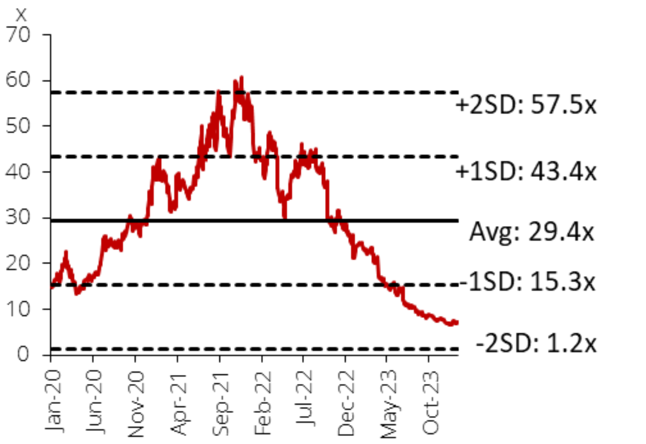
Daqo New Energy (DQ US) may benefit from continued buybacks, but overhangs remain; maintain HOLD with US$24 TP. Daqo is planning to achieve c.305,000 MT of polysilicon production capacity (+49%) in 2024. The company has production cost of c. Rmb48/kg and should remain profitable. Daqo is unique among polysilicon players, with its strong net cash position of >US$30/share and free from interest-bearing debts. Furthermore, Daqo is considering extending its US$700m share buyback program. We like Daqo's efforts to return cash to shareholders. However, Daqo has significant production facilities (130,000 MT) in Xinjiang which is sensitive and/or an overhang to investors. So, we recommend HOLD on the counter with TP of US$24. Our target price is pegged to target P/E of 5.5x on FY24F EPS, which is near its 5-year average.

Midstream: Wafer/Module Players

Module is the most competitive among all the solar equipment segments. We have HOLD calls on most vertically integrated module players given weak ASPs. We recommend BUY on TCL Zhonghuan (TZE) as the company is more of a wafer manufacturer with a unique exposure to the trend of N-type adoption.

We cut our EPS estimates for solar equipment makers under our coverage for FY24/25. This mostly reflects our lower wafer and module ASP assumptions. We also cut our FY24/25 gross margin assumptions to reflect stiff competition. Solar equipment names we cover are trading at >1 standard deviation below their respective historical P/E ratios since 2020. Given the oversupply situation outlined above, we reckon the current valuation is quite reasonable. Downside risk for the share price should largely arise from lower earnings rather than further P/E multiple compression.

Sector PE of China based solar midstream companies.



Source: Bloomberg Finance LP, DBS HK

Simple average P/E of LONGi, TCL Zhonghuan, JA Solar, Jinko Solar, Canadian Solar, Trina Solar

Uncertainty clouds prospects as LONGi (601012.CH) bucks TOPCon adoption, HOLD with Rmb22 TP. LONGi's main product, 182mm modules, saw ASP decline by 63% y-o-y in Dec 2023. Thus, we adjust our FY24/25 module ASP assumption downwards by 29%/20%. Furthermore, LONGi's latest HPBC module is a P-type product. We are uncertain about HPBC's prospects of gaining mainstream adoption, as the majority of LONGi's competitors are pushing N-type (TOPCon) products. LONGi has c.30GW of planned TOPCon capacity, but this is a relatively small proportion (c.23%) to total end-2023 module capacity of 130GW. Thus, we are cautious and maintain HOLD on LONGi with target price of Rmb22. Our target price is based on target P/E of c.11x, 1.5 SD (previous 1SD) below the average since 2020 of c.25x. We assign a lower valuation multiple to reflect higher technology adoption risk. However, LONGi has a strong balance sheet with net cash position which should help the company ride out the downcycle.

Maintain BUY on TCL Zhonghuan (002129.CH) but cut target price to Rmb 23. TCL Zhonghuan (TZE) has been a leader in producing N-type wafers. We reckon TZE's sales volume should stay strong on the dual trends of adopting larger format wafers and TOPCon. However, we cut our FY24/25 wafer ASP assumptions by c.15% to reflect the highly competitive environment. We also adjust our FY24 gross margin down by 0.6ppts. We recommend BUY on TZE with Rmb23 target price. Our target price is based on target P/E of 11.5x, 1.5 SD (previous: 1SD) below the long-term average of 20x. Current FY24F P/E of c.8x is near its historical low. We reckon TZE is a key beneficiary of higher N-type adoption and current pessimism is unjustified.

Downgrade JA Solar (002459 CH) to HOLD with TP of Rmb25. JA Solar is one of the more internationalized module makers, with c.52% of 9M23 sales from outside China. The company had 95GW of planned module capacity as of end-2023, of which 57GW (c.60%) is TOPCon. JA Solar is more geographically diversified and has good TOPCon capabilities compared to peers. However, weak module ASP will continue to cap the upside of the shares. Thus, we downgrade JA Solar to HOLD with target price of Rmb25. Our target price is based on target P/E of 8.7x, near 1.5SD below the average of 18.5x since 2020.

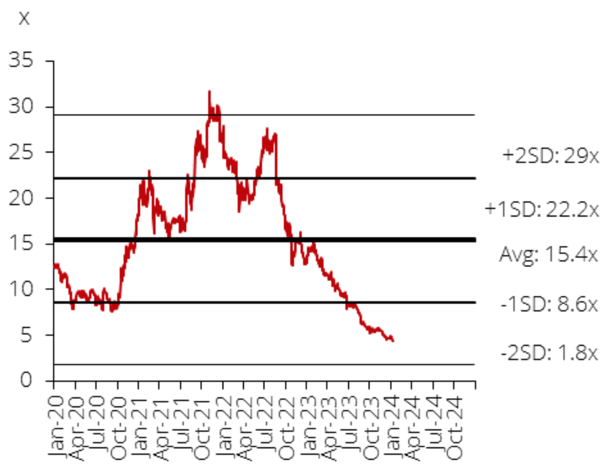
Maintain HOLD on Jinko Solar (JKS US) with TP of US$ 37. JKS is also one of the more internationalized module firms with c.60% of 3Q23 sales from outside of China. The company had planned 2023 module capacity of c.110GW, of which >75% are N-type. JKS is also developing 12GW of module production capacity outside of China. The company has expressed optimism regarding module sales volume, raising its shipment guidance throughout 2023. We are cautious on JKS given the company's lower-than-peer net margin of c.4%. Gearing is also higher the peer average at c.50%. WE recommend HOLD with target price of US$37. Our target price is pegged to target FY24F P/E of 4x, near 1SD below the average since 2020.

Downgrade Canadian Solar (CSIQ US) to HOLD with US$21 TP. CSIQ expects c.42-47GW of FY24 sales volume, or c.48% y-o-y growth. CSIQ's revenue is highly internationalized with >70% from outside of China. The company also differentiates itself from peers with its recurrent energy segment. However, module sales still account for c.80% of CSIQ's revenue. The company is not immune to weakening module prices. Given the relatively small proportion of non-module businesses, we reckon CSIQ's share price should largely follow module ASP. We maintain HOLD on the counter with US$21 TP. Our target price is based on target P/E of 6x, 1SD below historical average since 2020.

Wind players

Goldwind's core turbine business is barely profitable, HOLD with H/A target prices of HK$3.7/Rmb8.1. We estimate Goldwind to deliver c.26%/14% EPS growth in FY24/25F, rebounding off a low base in 2023. Growth should largely be driven by higher sales volume. For the wind turbine segment's gross margin, we pencilled in an assumption of c.6% for FY24/25F, lower than the recent five-year average of c.13.7%. Goldwind is now reliant on its wind power generation business which has high margins (GPM >60%) to generate profits. We maintain HOLD on Goldwind H/A shares with target prices lowered to lower TPs of HK$3.7/Rmb8.1. Our target prices are based on H/A target FY24F P/E of 5x/12x, 1.5SD below the average since 2020, (prev: 1SD). A lower target P/E is warranted given considering the challenging pricing environment. Falling turbine ASP could continue to cap the upside for the counter.

Goldwind (2208 HK) H-share PE chart



Source: Thomson Reuters, DBS HK

Downgrade MYSE (601615 CH) to HOLD with Rmb 15.2 TP. Mingyang Smart Energy's (MYSE) wind turbine generator (WTG) manufacturing segment historically higher-than-peer gross margin thanks to higher exposure to offshore wind. However, since subsidies offered for new offshore projects expired in 2022, MYSE's WTG business saw worsening profitability. Furthermore, MYSE only derives <5% of revenue from wind power generation. Thus, the counter compares unfavorably to Goldwind due to its even heavier exposure to wind turbine ASP fluctuations. We downgrade MYSE to HOLD with target price of Rmb15.2. Our target price is based on target P/E of 7.6x P/E, 2SD below average since 2020.

Peers valuation

Company Name	Code	Currency	Price Local$	Fiscal Yr	PE 23F x	PE 24F x	PEG 24F x	P/Bk 23F x	P/Bk 24F x	ROE 23F %	ROE 24F %	FY23-25 Earnings CAGR %	Net gearing %	Latest reported Gross margin %	Latest reported Net margin %
Solar Glass															
Changzhou Almaden Stk. 'A'	002623 CH	CNY	26.64	Dec	49.3	29.6	0.4	1.6	1.5	3.3	5.3	58.0	Cash	7.3	2.6
Flat Glass Group 'H'*	6865 HK	HKD	14.72	Dec	11.6	9.1	0.3	1.8	1.5	16.7	18.1	24.4	49.8	21.3	13.8
Flat Glass Group 'A'*	601865 CH	CNY	27.21	Dec	23.3	18.3	0.7	3.6	3.0	16.7	18.1	24.4	49.8	21.3	13.8
Csg Holding 'A'	000012 CH	CNY	5.63	Dec	8.4	7.4	0.6	1.2	1.1	13.6	14.4	10.6	26.3	26.6	13.4
Xinyi Solar Holdings	968 HK	HKD	4.05	Dec	9.1	6.7	0.2	1.1	1.0	12.5	15.7	28.6	12.2	29.8	18.6
Triumph New Energy 'H'	1108 HK	HKD	4.51	Dec	7.9	5.0	0.1	0.6	0.5	7.5	10.8	62.7	75.2	11.1	8.1
Triumph New Energy 'A'	600876 CH	CNY	13.98	Dec	21.7	13.3	0.2	2.0	1.7	8.7	12.6	52.6	75.2	11.1	8.1
Average					13.7	10.0	0.3	1.7	1.5	12.6	14.9	33.9	48.1	20.2	12.6
Solar - Polysilicon															
Daqo New Energy Adr 1:5	DQ US	USD	22.88	Dec	3.8	5.1	(0.2)	0.3	0.3	9.2	5.2	7.7	Cash	74.0	39.5
Gcl Technology Holdings	3800 HK	HKD	1.12	Dec	3.6	4.7	(0.2)	0.6	0.5	16.4	12.4	8.3	6.6	48.7	44.6
Tongwei 'A'	600438 CH	CNY	25.68	Dec	6.6	8.9	(0.3)	1.6	1.4	25.8	17.3	(3.4)	1.6	37.5	18.1
Xinte Energy Co.'H'	1799 HK	HKD	9.84	Dec	2.3	4.0	(0.1)	0.3	0.3	15.6	7.8	(4.2)	57.0	55.6	35.7
					4.1	5.7	(0.2)	0.7	0.6	16.8	10.7	2.1	21.7	53.9	34.5
Other solar component															
Sungrow Power Supply 'A'	300274 CH	CNY	87.14	Dec	13.9	11.8	0.7	4.7	3.4	36.4	30.6	18.8	28.8	23.2	8.9
Suzhou Maxwell Technologies 'A	300751 CH	CNY	123.00	Dec	31.1	18.7	0.3	4.5	3.8	15.5	21.5	50.2	Cash	36.9	20.8
					22.5	15.3	0.5	4.6	3.6	26.0	26.0	34.5	28.8	30.1	14.9
Module and wafer															
Longi Green En.Tech.'A'*	601012 CH	CNY	21.84	Dec	9.6	11.0	(0.9)	2.2	1.9	24.9	18.4	(1.6)	Cash	14.2	11.5
Trina Solar 'A'	688599 CH	CNY	27.60	Dec	8.5	7.2	0.4	1.9	1.6	21.8	21.0	19.8	61.1	12.4	4.3
Jinkosolar Holding Adr 1:4	JKS US	USD	30.39	Dec	2.7	3.9	(0.1)	0.5	0.4	20.9	15.2	(24.3)	146.1	14.8	0.7
Ja Solar Technology 'A'	002459 CH	CNY	19.05	Dec	7.1	6.7	1.2	1.8	1.4	25.4	21.2	15.0	17.5	14.2	7.6
Canadian Solar	CSIQ US	USD	22.34	Dec	5.8	6.4	(0.7)	0.5	0.5	10.8	9.4	8.5	81.3	16.9	3.3
Tcl Zhonghuan 'A'*	002129 CH	CNY	14.69	Dec	7.4	8.1	(0.9)	1.3	1.1	19.3	14.8	1.5	64.3	14.8	10.2
					6.9	7.2	(0.2)	1.3	1.1	20.5	16.6	3.1	74.1	14.5	6.3
Wind upstream manufacturer															
Ming Yang Smart Energy 'A'	601615 CH	CNY	11.34	Dec	6.4	5.3	0.3	0.8	0.7	13.2	13.9	20.6	16.9	18.9	11.2
Concord New Energy Group	182 HK	HKD	0.64	Dec	4.8	4.5	0.6	0.6	0.6	12.1	12.0	8.3	128.0	42.9	32.5
Goldwind S&T 'H'*	2208 HK	HKD	3.09	Dec	5.8	4.6	0.2	0.3	0.3	5.3	6.4	19.8	56.3	17.0	4.8
Goldwind S&T 'A'*	002202 CH	CNY	7.66	Dec	15.6	12.4	0.5	0.8	0.8	5.3	6.4	19.8	56.3	17.0	4.8
Vestas Windsystems	VWS DC	DKK	198.04	Dec	780.8	45.9	0.0	8.6	7.1	0.43	15.98	578.9	Cash	(1.9)	(10.9)
					162.7	14.5	0.3	2.2	1.9	7.3	11.0	129.5	64.4	18.8	8.5

 # FY24: FY25; FY25: FY26

*Source: Thomson Reuters, *DBS HK*

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BUY (>15% total return over the next 12 months for small caps, >10% for large caps)
HOLD (-10% to +15% total return over the next 12 months for small caps, -10% to +10% for large caps)
FULLY VALUED (negative total return, i.e., > -10% over the next 12 months)
SELL (negative total return of > -20% over the next 3 months, with identifiable share price catalysts within this time frame)

**Share price appreciation + dividends*

Completed Date: 15 Jan 2024 18:15:38 (HKT)
Dissemination Date: 15 Jan 2024 19:34:51 (HKT)

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DBS Bank (Hong Kong) Limited

13th Floor One Island East, 18 Westlands Road, Quarry Bay, Hong Kong

Tel: (852) 3668-4181, Fax: (852) 2521-1812

DBS Regional Research Offices

HONG KONG
DBS Bank (Hong Kong) Ltd
Contact: Dennis Lam
13th Floor One Island East,
18 Westlands Road, Quarry Bay, Hong Kong
Tel: 852 3668 4181
Fax: 852 2521 1812
e-mail: dbsvhk@dbs.com

SINGAPORE
DBS Bank Ltd
Contact: Andy Sim
12 Marina Boulevard,
Marina Bay Financial Centre Tower 3
Singapore 018982
Tel: 65 6878 8888
e-mail: groupresearch@dbs.com
Company Regn. No. 196800306E

INDONESIA
PT DBS Vickers Sekuritas (Indonesia)
Contact: Maynard Priajaya Arif
DBS Bank Tower
Ciputra World 1, 32/F
Jl. Prof. Dr. Satrio Kav. 3-5
Jakarta 12940, Indonesia
Tel: 62 21 3003 4900
Fax: 6221 3003 4943
e-mail: indonesiaresearch@dbs.com

THAILAND
DBS Vickers Securities (Thailand) Co Ltd
Contact: Chanpen Sirithanarattanakul
989 Siam Piwat Tower Building,
9th, 14th-15th Floor
Rama 1 Road, Pathumwan,
Bangkok Thailand 10330
Tel. 66 2 857 7831
Fax: 66 2 658 1269
e-mail: research@th.dbs.com
Company Regn. No 0105539127012
Securities and Exchange Commission, Thailand