

China Renewable Sector (Solar)

Refer to important disclosures at the end of this report

DBS Group Research . Equity

26 Apr 2022

Polysilicon supply ramp up solves key constraint on solar installations

HSI: 19,935

- **New polysilicon supply ramping up in 2H22-2023, removing key overhang on solar value chain**
- **Solid demand for solar components despite high prices with China's 2M22 new installations up 234%**
- **Omicron disruption to production minimal; Government issued directive to unplug transport network**
- **Normalized solar value chain pricing to benefit solar installations and sales volume of solar components. Top picks: [LONGi](#) and [Flat Glass](#)**

Resolution of polysilicon bottleneck in sight.

High polysilicon prices have been cited by various solar chain participants as the most important constraint to new installations. A decrease in polysilicon prices should help return the entire solar value chain to more rational pricing. This should remove a key overhang on new solar installations.

New polysilicon capacity ramping up in 2H22-2023.

Major polysilicon producers in China could add 534,000 tonnes of capacity in 2022, up >69% from 2021. With a visible near-term capacity ramp-up, we reckon polysilicon supply tightness should ease in earnest starting 3Q22 and into 2023. Polysilicon production volume could rise c.40% to c.300GW equivalent, more than sufficient to meet our c.246GW forecast of new solar installations globally in 2022. Our channel checks indicate COVID-19 Omicron infections in China had minimal impact on polysilicon production. While logistics had been clogged by pandemic controls, China's top-level government agencies are actively troubleshooting these blockages.

Rational solar value chain pricing removes overhang on installations. With new polysilicon supply coming to the market, we expect polysilicon prices could soften by c.15% below US\$30/kg starting 3Q22. Resolution of the polysilicon bottleneck should benefit overall solar installations, helping demand and sales of solar component manufacturers. Our top picks are LONGi (601012.CH) and Flat Glass (6865.HK, 601865.CH).

ANALYST

Patricia Yeung +852 36684189 patricia_yeung@dbs.com
Ilan Chui +852 36684174 ilanchui@dbs.com

Recommendation & valuation

Company Name	Currency	Price Local\$	Target Price Local\$	Recom	Mkt Cap US\$m
Flat Glass Group 'H' (6865 HK)	HKD	23.75	45.00	BUY	10,361
Longi Green En.Tech.'A' (601012 CH)	CNY	57.17	95.00	BUY	47,599

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



Live more, Bank less

Resolution of polysilicon bottleneck in sight

Polysilicon is one of the most important precursors in the solar value chain, accounting for 87% of COGS for wafers. This translates to roughly 31%-35% of COGS for modules. In 2021, tightened demand-supply led to surging polysilicon prices, which were passed along the solar value chain. High polysilicon prices have been cited by various solar chain participants as the most important constraint to new installations. Our studies indicate a resolution of the supply bottleneck could arrive as early as 3Q22. A decrease in polysilicon prices should help the entire solar value chain return to more rational pricing. This should remove a key overhang on new solar installations.

Supply-demand tightness drove polysilicon price spike.

Polysilicon prices have spiked as high as US\$37.4/kg in Dec 21, up c.497% from the low price of US\$6.27/kg reached during the depths of the COVID-19 crisis in May-20. The latest price of c.US\$34.2/kg is c.9% from the peak. The price spike was due to a tightening of the demand-supply relationship. Polysilicon production growth lagged new solar installations in 2021, as new polysilicon plants can take up to 18-24 months to come online. On the demand side, global new solar installations had grown 28% y-o-y to an estimated c.185GW in 2021. On the supply side, polysilicon production rose c.25% y-o-y to an estimated 588,500 metric tonnes in 2021, or 214GW. This assumes 2.73 grams of polysilicon per watt. Supply tightness was further exacerbated by China's power curbs in 3Q21 which temporarily disrupted the supply of silicon metal. The power curbs were resolved with the Chinese government introducing measures to improve coal fuel supply to thermal power generation companies. Polysilicon is formed by purifying silicon metal. Looking ahead, BNEF estimates polysilicon production to rise c.39% y-o-y to c.818,000 tonnes in 2022 or c.300GW equivalent. This should be sufficient and/or exceed our forecast of c.246GW of new solar installations globally in 2022.

Solar grade polysilicon – average price (US\$/kg)



Source: BNEF

New polysilicon capacity ramping up in 2H22-2023.

According to BNEF, global commissioned polysilicon production capacity rose 14% y-o-y to c.768,800 tonnes/year in 2021. Starting in 2H22, major polysilicon producers will begin to ramp up their new capacity. We compiled announcements by major China-based polysilicon players GCL Poly, Tongwei, Daqo, and Xinte. These four players together account for >56% of 2021 global polysilicon production capacity according to BNEF. By end of 2022, these players could add 534,000 tonnes to nameplate capacity. If fully commissioned, this represents an increase of at least 69% y-o-y from 2021.

GCL Poly (3800.HK) is planning to add up to 230,000 tonnes/year in granular silicon capacity starting in 2H22. This consists of 100,000 tonnes in Sichuan (commencing production in 3Q22), 30,000 tonnes in Jiangsu (3Q22), and 100,000 tonnes in Inner Mongolia (4Q22). Tongwei (600438.CH) is planning to add 170,000 tonnes in 2022. This consists of 50,000 tonnes in Inner Mongolia and 120,000 tons in Sichuan. Xinte Energy (1799.HK) has announced plans to add 134,000 tonnes to its capacity in 2022. Xinte expects to complete the renovation of its existing facilities in 1H22, which could add c.34,000 tonnes of capacity. In Inner Mongolia, Xinte is also constructing a 100,000-tonne polysilicon project which is targeted to become operational in 2H22.

Looking further ahead, Xinte plans to add up to 200,000 tonnes at its Xinjiang project in phases between 2023-24.

China Renewable Sector (Solar)

Daqo New Energy (DQ.US) commenced construction of a 100,000-tonne polysilicon project in Inner Mongolia, with completion targeted in 3Q23. With visible near-term capacity ramp-ups, we reckon the polysilicon supply tightness should ease in earnest starting in 3Q22 and into 2023. This should lead polysilicon prices to soften c.15% to <US\$30/kg. All else equal, COGS savings from 15% lower polysilicon prices could drive 9ppts/4ppts gross margin expansion for wafer/modules.

Demand for solar in Europe should remain firm in view of the Ukraine-Russia conflict. The European Union is actively looking to reduce dependency on Russian fossil fuels. On 20 April, the European Commission said it was studying plans for the EU to achieve 45% share of renewable energy by 2030, up from the previously proposed 40%. Our most recent forecast for EMEA solar installations is c.43GW in 2022. Given the increased urgency to diversify its energy mix, we reckon there could be 5-10% upside to this figure.

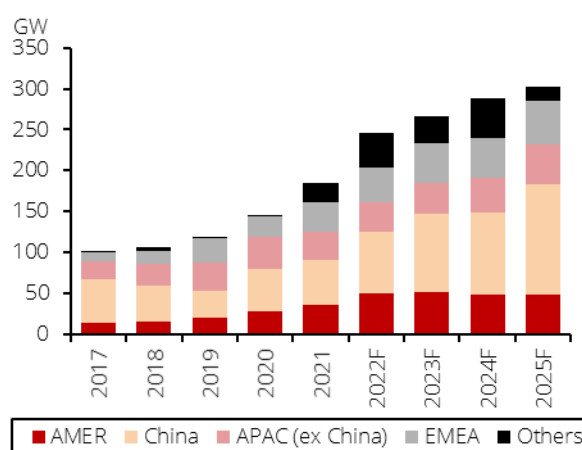
Expansion plans of selected polysilicon makers

Company	Date	Location	Capacity (tonnes/y)
GCL Poly	3Q22	Jiangsu	30,000
GCL Poly	3Q22	Sichuan	100,000
GCL Poly	4Q22	Inner Mongolia	100,000
Tongwei	2H22	Inner Mongolia	50,000
Tongwei	2H22	Sichuan	120,000
Xinte	1H22	Upgrade of existing capacity	34,000
Xinte	2H22	Inner Mongolia	100,000
Xinte	2023-24	Xinjiang	200,000
Daqo	3Q23	Inner Mongolia	100,000

Source: Daqo New Energy, GCL Poly, Tongwei, Xinte

Solid demand for solar components. Solar component manufacturers have observed strong demand for their products from within China and overseas. Module maker Jinko Solar (JKS.US) has expressed confidence in global solar installations, highlighting strong demand from Europe and India. JKS sees 2022 global new solar installations reaching c.250GW, exceeding our current forecast of c.246GW. Flat Glass Group (FGG 6865.HK, 601865.CH) also echoed such upbeat observations. The company had earlier made a voluntary announcement indicating strong orders for its solar glass products in 2M22, particularly for distributed solar applications. In the latest results briefing, FGG disclosed it currently holds only c.7%-10% of inventory, indicating fast product turnover. Government statistics corroborate the optimism regarding solar component demand. New solar installations in China are off to a good start in 2022, despite high polysilicon prices. In 2M22, NEA reported 10.86GW of new solar installations in China, up 234% y-o-y. Strong demand is also observed in overseas markets. General Administration of China (GACC) statistics show the export value of solar cells from China surging 100.8% y-o-y in 2021.

New global solar installations



Source: BNEF, CPIA, DBS calculations

Omicron disruption to production minimal. Since Mar-22, China has been battling a spike in COVID-19 Omicron variant infections. However, our channel checks with solar component manufacturers indicate the latest wave of infections minimally impacted production. Several factors helped mitigate the situation. First, the spread of the virus is concentrated in Shanghai. Provinces with major polysilicon production capacity such as Sichuan, Xinjiang, and Inner Mongolia each have recorded <50 confirmed daily cases in the past two weeks. Second, solar component companies have implemented “closed-loop” management at their plants to maintain production. Under such arrangements, workers sleep, live, and work on factory premises, and thereby avoid getting infected from outside.

Logistics a wildcard but policy support emerging. While solar component production was minimally affected by Omicron, the transportation of goods remains challenging. Our channels checks indicate deliveries have been delayed as

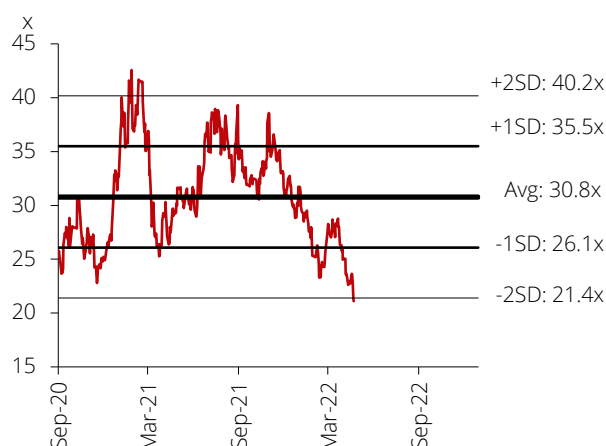
China Renewable Sector (Solar)

truck transport was constrained by pandemic control measures. The Port of Shanghai remains congested, which mostly impacts export markets. Solar component manufacturers had to redirect their export orders to other ports. In response, China's officials have pledged to disentangle the transport network. On 11 April, the State Council issued a directive on freight transport, forbidding the shutdown of highways, railway stations, and airports without permission. Similar announcements were made by other government agencies including the NDRC, Ministry of Commerce (MOFCOM), Civil Aviation Administration, and the National Railway Administration. Further easing of pandemic restrictions on the transport sector should help solar components reach their destinations, thereby facilitating installations. Historically, most solar installations are completed near the end of the calendar year. We expect the temporary disruption to truck transport to be resolved in 2H22. Therefore, we maintain our latest solar installation forecast of c.75GW for China in 2022, up 36% y-o-y.

We like LONGi (601012.CH) and Flat Glass (6865.HK, 601865.CH). With new polysilicon supply coming to the market, a key bottleneck for solar installations is removed. As downstream solar operators expand their generation capacity in 2H22-23, demand for solar components should benefit. This should help drive the sales volume of solar component manufacturers such as LONGi and Flat Glass.

Maintain BUY on LONGi with target price of Rmb95. LONGi's pricing power remains intact, as evidenced by the company's price hikes for its various wafer models since mid-Jan. In late Mar-22, the company raised ASPs across all its wafer products by 1.8%-1.9%. LONGi planned to expand its solar/wafer module production capacity to 105GW/65GW at end-2021, up 24%/30% y-o-y. The resolution of the polysilicon bottleneck should help LONGi ramp up the utilization rate of its new production capacity, driving sales volume growth. Currently, LONGi's shares trade at c.21x FY22 PE, near 2SD below the historical average of c.31x since Sep-2020. Our target price of Rmb95 is based on a target PEG of 1.2x.

LONGi PE valuation

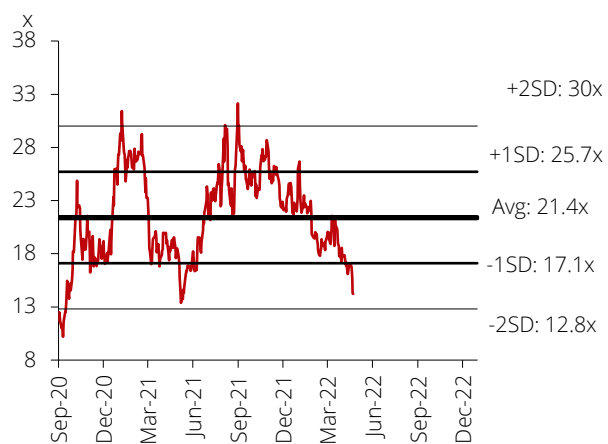


Source: Thomson Reuters, DBS HK

Maintain BUY on Flat Glass Group H-shares (6865.HK) and HOLD on A-shares (601865.CH). FGG should also benefit from solid demand. FGG H-shares currently trades at c.17x FY22 PE, more than 1SD below the historical average of c.21.5x since Sep-20. FGG plans to achieve 20,600 tons/day of glass production capacity by end-2022, up 68% y-o-y. Resolution of the polysilicon bottleneck should help drive demand for modules, of which FGG's solar glass is a key component. We recommend BUY on FGG H-shares and HOLD on A-shares. Based on a target PEG of 1x, we derive a TP of HK\$45.0 for FGG's H-shares. Our A-share TP is Rmb53.

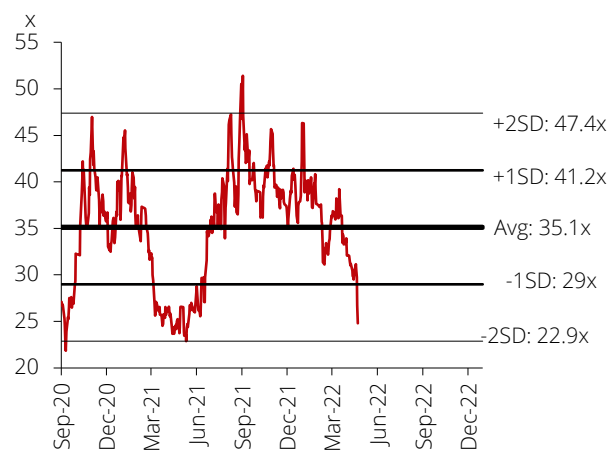
China Renewable Sector (Solar)

Flat Glass – H-share PE valuation



Source: Thomson Reuters, DBS HK

Flat Glass – A-share PE valuation



Source: Thomson Reuters, DBS HK

DBS HK recommendations are based on an Absolute Total Return* Rating system, defined as follows:

STRONG BUY (>20% total return over the next 3 months, with identifiable share price catalysts within this time frame)

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: 26 Apr 2022 19:15:38 (HKT)

Dissemination Date: 26 Apr 2022 19:39:51 (HKT)

Sources for all charts and tables are DBS HK unless otherwise specified.

GENERAL DISCLOSURE/DISCLAIMER

This report is prepared by DBS Bank (Hong Kong) Limited ("DBS HK"). This report is solely intended for the clients of DBS Bank Ltd., DBS HK, DBS Vickers (Hong Kong) Limited ("DBSV HK"), and DBS Vickers Securities (Singapore) Pte Ltd. ("DBSVS"), its respective connected and associated corporations and affiliates only and no part of this document may be (i) copied, photocopied or duplicated in any form or by any means or (ii) redistributed without the prior written consent of DBS HK.

The research set out in this report is based on information obtained from sources believed to be reliable, but we (which collectively refers to DBS Bank Ltd., DBS HK, DBSV HK, DBSVS, its respective connected and associated corporations, affiliates and their respective directors, officers, employees and agents (collectively, the "DBS Group") have not conducted due diligence on any of the companies, verified any information or sources or taken into account any other factors which we may consider to be relevant or appropriate in preparing the research. Accordingly, we do not make any representation or warranty as to the accuracy, completeness or correctness of the research set out in this report. Opinions expressed are subject to change without notice. This research is prepared for general circulation. Any recommendation contained in this document does not have regard to the specific investment objectives, financial situation and the particular needs of any specific addressee. This document is for the information of addressees only and is not to be taken in substitution for the exercise of judgement by addressees, who should obtain separate independent legal or financial advice. The DBS Group accepts no liability whatsoever for any direct, indirect and/or consequential loss (including any claims for loss of profit) arising from any use of and/or reliance upon this document and/or further communication given in relation to this document. This document is not to be construed as an offer or a solicitation of an offer to buy or sell any securities. The DBS Group, along with its affiliates and/or persons associated with any of them may from time to time have interests in the securities mentioned in this document. The DBS Group, may have positions in, and may effect transactions in securities mentioned herein and may also perform or seek to perform broking, investment banking and other banking services for these companies.

Any valuations, opinions, estimates, forecasts, ratings or risk assessments herein constitutes a judgment as of the date of this report, and there can be no assurance that future results or events will be consistent with any such valuations, opinions, estimates, forecasts, ratings or risk assessments. The information in this document is subject to change without notice, its accuracy is not guaranteed, it may be incomplete or condensed, it may not contain all material information concerning the company (or companies) referred to in this report and the DBS Group is under no obligation to update the information in this report.

This publication has not been reviewed or authorized by any regulatory authority in Singapore, Hong Kong or elsewhere. There is no planned schedule or frequency for updating research publication relating to any issuer.

The valuations, opinions, estimates, forecasts, ratings or risk assessments described in this report were based upon a number of estimates and assumptions and are inherently subject to significant uncertainties and contingencies. It can be expected that one or more of the estimates on which the valuations, opinions, estimates, forecasts, ratings or risk assessments were based will not materialize or will vary significantly from actual results. Therefore, the inclusion of the valuations, opinions, estimates, forecasts, ratings or risk assessments described herein IS NOT TO BE RELIED UPON as a representation and/or warranty by the DBS Group (and/or any persons associated with the aforesaid entities), that:

- (a) such valuations, opinions, estimates, forecasts, ratings or risk assessments or their underlying assumptions will be achieved, and
- (b) there is any assurance that future results or events will be consistent with any such valuations, opinions, estimates, forecasts, ratings or risk assessments stated therein.

Please contact the primary analyst for valuation methodologies and assumptions associated with the covered companies or price targets. Any assumptions made in this report that refers to commodities, are for the purposes of making forecasts for the company (or companies) mentioned herein. They are not to be construed as recommendations to trade in the physical commodity or in the futures contract relating to the commodity referred to in this report.

DBS Vickers Securities (USA) Inc ("DBSVUSA"), a US-registered broker-dealer, does not have its own investment banking or research department, has not participated in any public offering of securities as a manager or co-manager or in any other investment banking transaction in the past twelve months and does not engage in market-making.

Neither DBS Bank Ltd nor DBS HK market makes in equity securities of the issuer(s) or company(ies) mentioned in this Research Report.

ANALYST CERTIFICATION

The research analyst(s) primarily responsible for the content of this research report, in part or in whole, certifies that the views about the companies and their securities expressed in this report accurately reflect his/her personal views. The analyst(s) also certifies that no part of his/her compensation was, is, or will be, directly or indirectly, related to specific recommendations or views expressed in the report. The research analyst (s) primarily responsible for the content of this research report, in part or in whole, certifies that he or his associate¹ does not serve as an officer of the issuer or the new listing applicant (which includes in the case of a real estate investment trust, an officer of the management company of the real estate investment trust; and in the case of any other entity, an officer or its equivalent counterparty of the entity who is responsible for the management of the issuer or the new listing applicant) and the research analyst(s) primarily responsible for the content of this research report or his associate does not have financial interests² in relation to an issuer or a new listing applicant that the analyst reviews. DBS Group has procedures in place to eliminate, avoid and manage any potential conflicts of interests that may arise in connection with the production of research reports. The research analyst(s) responsible for this report operates as part of a separate and independent team to the investment banking function of the DBS Group and procedures are in place to ensure that confidential information held by either the research or investment banking function is handled appropriately. There is no direct link of DBS Group's compensation to any specific investment banking function of the DBS Group.


COMPANY-SPECIFIC / REGULATORY DISCLOSURES

1. DBS Bank Ltd, DBS HK, DBSVS or their subsidiaries and/or other affiliates have a proprietary position in Flat Glass Group Co Ltd (6865 HK) recommended in this report as of 22 Apr 2022.
2. **Compensation for investment banking services:**
DBSVUSA does not have its own investment banking or research department, nor has it participated in any public offering of securities as a manager or co-manager or in any other investment banking transaction in the past twelve months. Any US persons wishing to obtain further information, including any clarification on disclosures in this disclaimer, or to effect a transaction in any security discussed in this document should contact DBSVUSA exclusively.
3. **Disclosure of previous investment recommendation produced:**
DBS Bank Ltd, DBSVS, DBS HK, their subsidiaries and/or other affiliates of DBSVUSA may have published other investment recommendations in respect of the same securities / instruments recommended in this research report during the preceding 12 months. Please contact the primary analyst listed on page 1 of this report to view previous investment recommendations published by DBS Bank Ltd, DBS HK, DBSVS, their subsidiaries and/or other affiliates of DBSVUSA in the preceding 12 months.

¹ An associate is defined as (i) the spouse, or any minor child (natural or adopted) or minor step-child, of the analyst; (ii) the trustee of a trust of which the analyst, his spouse, minor child (natural or adopted) or minor step-child, is a beneficiary or discretionary object; or (iii) another person accustomed or obliged to act in accordance with the directions or instructions of the analyst.

² Financial interest is defined as interests that are commonly known financial interest, such as investment in the securities in respect of an issuer or a new listing applicant, or financial accommodation arrangement between the issuer or the new listing applicant and the firm or analysis. This term does not include commercial lending conducted at arm's length, or investments in any collective investment scheme other than an issuer or new listing applicant notwithstanding the fact that the scheme has investments in securities in respect of an issuer or a new listing applicant.

RESTRICTIONS ON DISTRIBUTION

<p>General</p>	<p>This report is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation.</p>
<p>Australia</p>	<p>This report is being distributed in Australia by DBS Bank Ltd, DBSVS or DBSV HK. DBS Bank Ltd holds Australian Financial Services Licence no. 475946.</p> <p>DBS Bank Ltd, DBSVS and DBSV HK are exempted from the requirement to hold an Australian Financial Services Licence under the Corporation Act 2001 ("CA") in respect of financial services provided to the recipients. Both DBS Bank Ltd and DBSVS are regulated by the Monetary Authority of Singapore under the laws of Singapore, and DBSV HK is regulated by the Hong Kong Securities and Futures Commission under the laws of Hong Kong, which differ from Australian laws.</p> <p>Distribution of this report is intended only for "wholesale investors" within the meaning of the CA.</p>
<p>Hong Kong</p>	<p>This report is being distributed in Hong Kong by DBS Bank Ltd, DBS Bank (Hong Kong) Limited and DBS Vickers (Hong Kong) Limited, all of which are registered with or licensed by the Hong Kong Securities and Futures Commission to carry out the regulated activity of advising on securities. DBS Bank Ltd., Hong Kong Branch is a limited liability company incorporated in Singapore.</p>
<p>Indonesia</p>	<p>This report is being distributed in Indonesia by PT DBS Vickers Sekuritas Indonesia.</p>
<p>Malaysia</p>	<p>This report is distributed in Malaysia by AllianceDBS Research Sdn Bhd ("ADBSR"). Recipients of this report, received from ADBSR are to contact the undersigned at 603-2604 3333 in respect of any matters arising from or in connection with this report. In addition to the General Disclosure/Disclaimer found at the preceding page, recipients of this report are advised that ADBSR (the preparer of this report), its holding company Alliance Investment Bank Berhad, their respective connected and associated corporations, affiliates, their directors, officers, employees, agents and parties related or associated with any of them may have positions in, and may effect transactions in the securities mentioned herein and may also perform or seek to perform broking, investment banking/corporate advisory and other services for the subject companies. They may also have received compensation and/or seek to obtain compensation for broking, investment banking/corporate advisory and other services from the subject companies.</p> <div style="text-align: right;">  Wong Ming Tek, Executive Director, ADBSR </div>
<p>Singapore</p>	<p>This report is distributed in Singapore by DBS Bank Ltd (Company Regn. No. 196800306E) or DBSVS (Company Regn No. 198600294G), both of which are Exempt Financial Advisers as defined in the Financial Advisers Act and regulated by the Monetary Authority of Singapore. DBS Bank Ltd and/or DBSVS, may distribute reports produced by its respective foreign entities, affiliates or other foreign research houses pursuant to an arrangement under Regulation 32C of the Financial Advisers Regulations. Where the report is distributed in Singapore to a person who is not an Accredited Investor, Expert Investor or an Institutional Investor, DBS Bank Ltd accepts legal responsibility for the contents of the report to such persons only to the extent required by law. Singapore recipients should contact DBS Bank Ltd at 6878 8888 for matters arising from, or in connection with the report.</p>
<p>Thailand</p>	<p>This report is being distributed in Thailand by DBS Vickers Securities (Thailand) Co Ltd.</p> <p>For any query regarding the materials herein, please contact [Chanpen Sirithanarattanaku] at [research@th.dbs.com]</p>
<p>United Kingdom</p>	<p>This report is produced by DBS HK which is regulated by the Hong Kong Monetary Authority</p> <p>This report is disseminated in the United Kingdom by DBS Vickers Securities (UK) Ltd ("DBSVUK"). DBSVUK is authorised and regulated by the Financial Conduct Authority in the United Kingdom.</p> <p>In respect of the United Kingdom, this report is solely intended for the clients of DBSVUK, its respective connected and associated corporations and affiliates only and no part of this document may be (i) copied, photocopied or duplicated in any form or by any means or (ii) redistributed without the prior written consent of DBSVUK. This communication is directed at persons having professional experience in matters relating to investments. Any investment activity following from this communication will only be engaged in with such persons. Persons who do not have professional experience in matters relating to investments should not rely on this communication.</p>

<p>Dubai International Financial Centre</p>	<p>This communication is provided to you as a Professional Client or Market Counterparty as defined in the DFSA Rulebook Conduct of Business Module (the "COB Module"), and should not be relied upon or acted on by any person which does not meet the criteria to be classified as a Professional Client or Market Counterparty under the DFSA rules.</p> <p>This communication is from the branch of DBS Bank Ltd operating in the Dubai International Financial Centre (the "DIFC") under the trading name "DBS Bank Ltd. (DIFC Branch)" ("DBS DIFC"), registered with the DIFC Registrar of Companies under number 156 and having its registered office at units 608 - 610, 6th Floor, Gate Precinct Building 5, PO Box 506538, DIFC, Dubai, United Arab Emirates.</p> <p>DBS DIFC is regulated by the Dubai Financial Services Authority (the "DFSA") with a DFSA reference number F000164. For more information on DBS DIFC and its affiliates, please see http://www.dbs.com/ae/our-network/default.page.</p> <p>Where this communication contains a research report, this research report is prepared by the entity referred to therein, which may be DBS Bank Ltd or a third party, and is provided to you by DBS DIFC. The research report has not been reviewed or authorised by the DFSA. Such research report is distributed on the express understanding that, whilst the information contained within is believed to be reliable, the information has not been independently verified by DBS DIFC.</p> <p>Unless otherwise indicated, this communication does not constitute an "Offer of Securities to the Public" as defined under Article 12 of the Markets Law (DIFC Law No.1 of 2012) or an "Offer of a Unit of a Fund" as defined under Article 19(2) of the Collective Investment Law (DIFC Law No.2 of 2010).</p> <p>The DFSA has no responsibility for reviewing or verifying this communication or any associated documents in connection with this investment and it is not subject to any form of regulation or approval by the DFSA. Accordingly, the DFSA has not approved this communication or any other associated documents in connection with this investment nor taken any steps to verify the information set out in this communication or any associated documents, and has no responsibility for them. The DFSA has not assessed the suitability of any investments to which the communication relates and, in respect of any Islamic investments (or other investments identified to be Shari'a compliant), neither we nor the DFSA has determined whether they are Shari'a compliant in any way.</p> <p>Any investments which this communication relates to may be illiquid and/or subject to restrictions on their resale. Prospective purchasers should conduct their own due diligence on any investments. If you do not understand the contents of this document you should consult an authorised financial adviser.</p>
<p>United States</p>	<p>This report was prepared by DBS HK. DBSVUSA did not participate in its preparation. The research analyst(s) named on this report are not registered as research analysts with FINRA and are not associated persons of DBSVUSA. The research analyst(s) are not subject to FINRA Rule 2241 restrictions on analyst compensation, communications with a subject company, public appearances and trading securities held by a research analyst. This report is being distributed in the United States by DBSVUSA, which accepts responsibility for its contents. This report may only be distributed to Major U.S. Institutional Investors (as defined in SEC Rule 15a-6) and to such other institutional investors and qualified persons as DBSVUSA may authorize. Any U.S. person receiving this report who wishes to effect transactions in any securities referred to herein should contact DBSVUSA directly and not its affiliate.</p>
<p>Other jurisdictions</p>	<p>In any other jurisdictions, except if otherwise restricted by laws or regulations, this report is intended only for qualified, professional, institutional or sophisticated investors as defined in the laws and regulations of such jurisdictions.</p>

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: Carol Wu

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: Janice Chua

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