

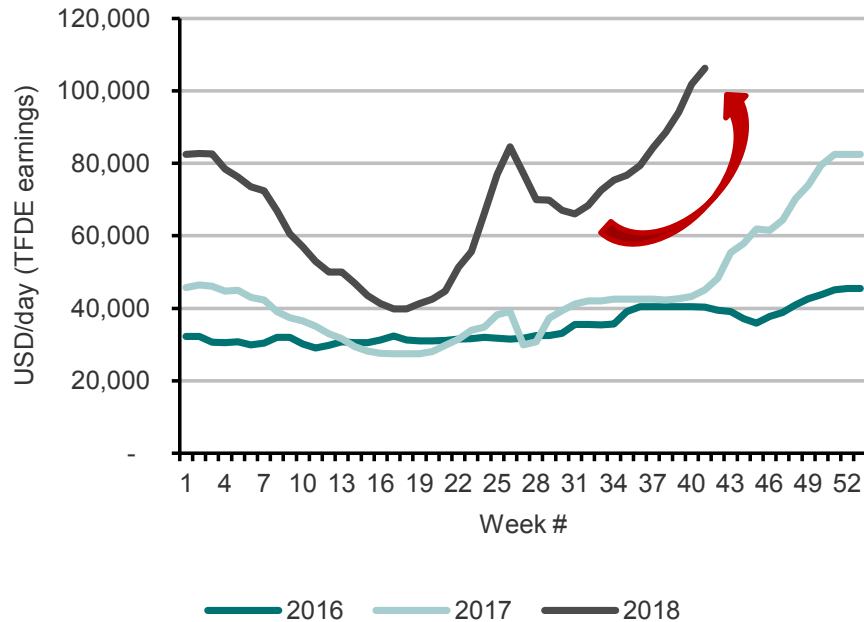
LNG panel

Capital Link New York

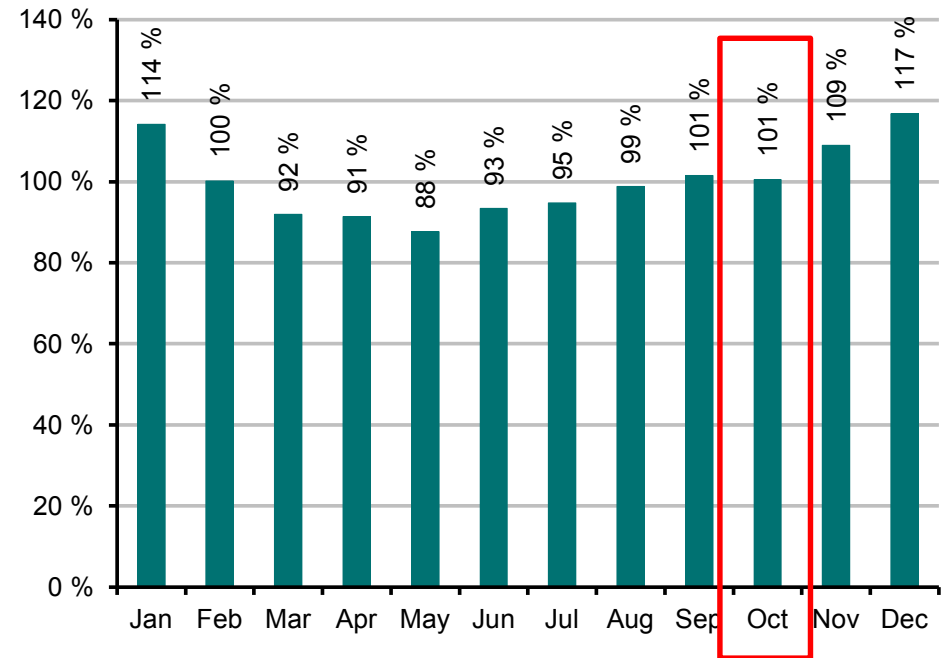
9 October 2018

TFDE headline rates have surpassed USD100k/day – and high season has barely started

TFDE headline rates, weekly averages (USD/day)



TFDE seasonality since 2011 (% of average annual earnings)



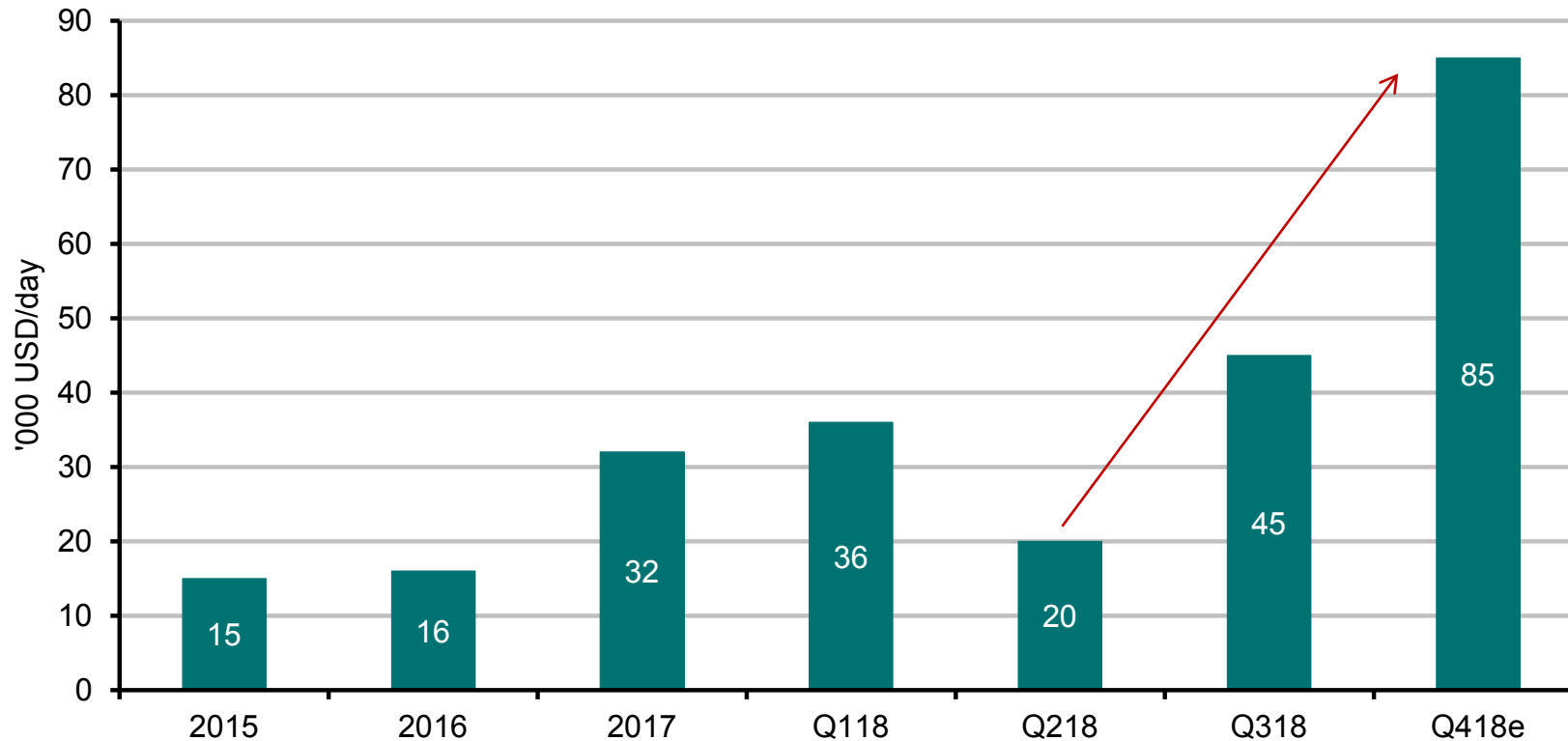
Source: DNB Markets, Argus Direct, Clarkson Research

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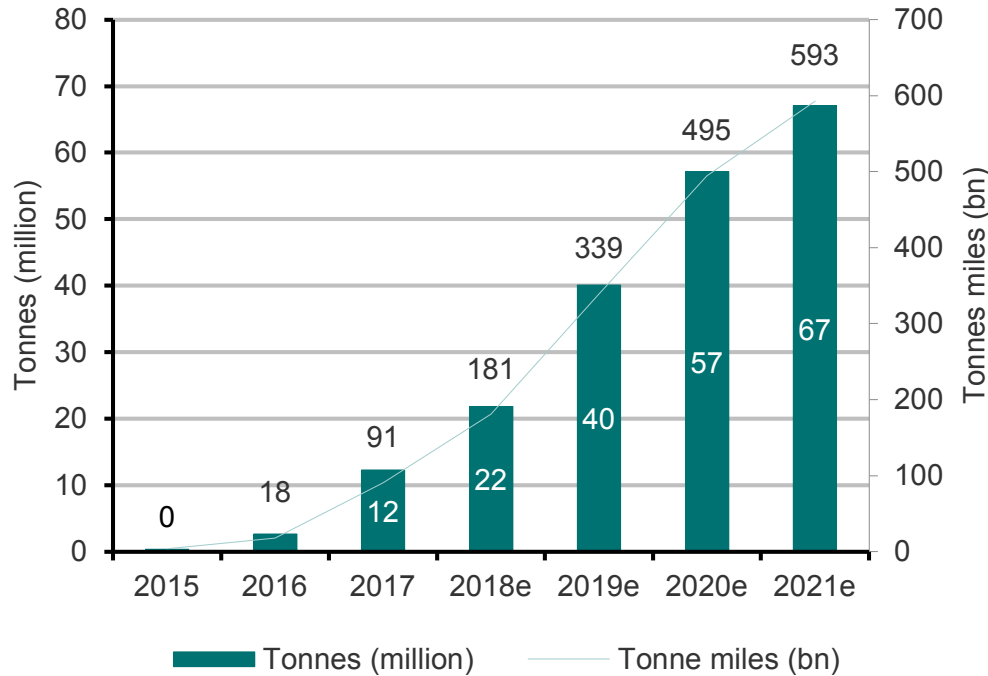
LNG spot time charter equivalent rates for TFDE vessels from USD20k/day in Q2 2018 to close to USD100k/day by Q4 2018 – what has changed in six months?



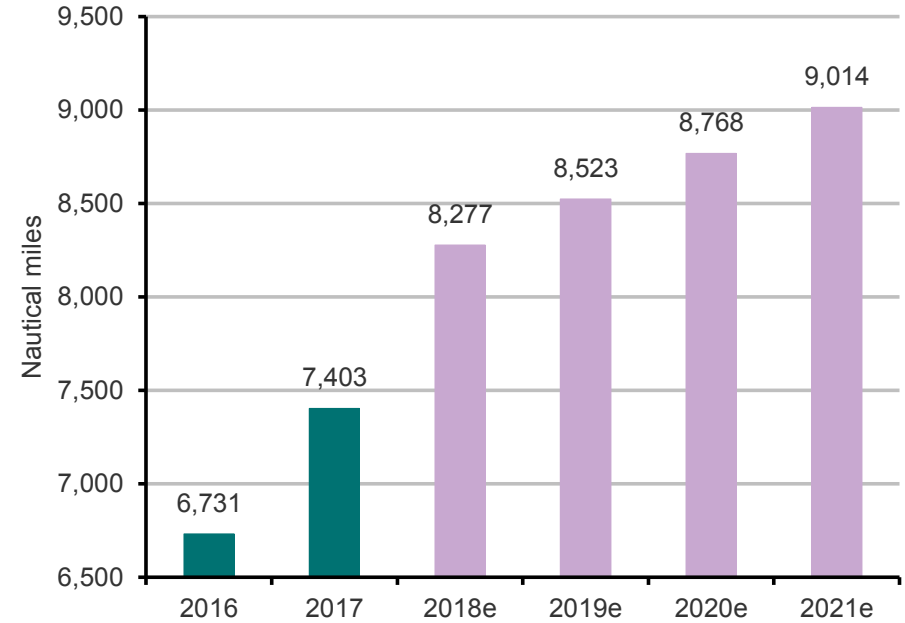
Source: DNB Markets (forecast), GIIGNL and Poten (historical)

From zero US LNG exports in 2015 to 40m tonnes by 2019e and ~340bn tonne-miles

US LNG exports (million tonnes & bn tonne miles)



US exports average sailing distances (nautical miles)



Source: DNB Markets (forecast), GIIGNL and Poten (historical)

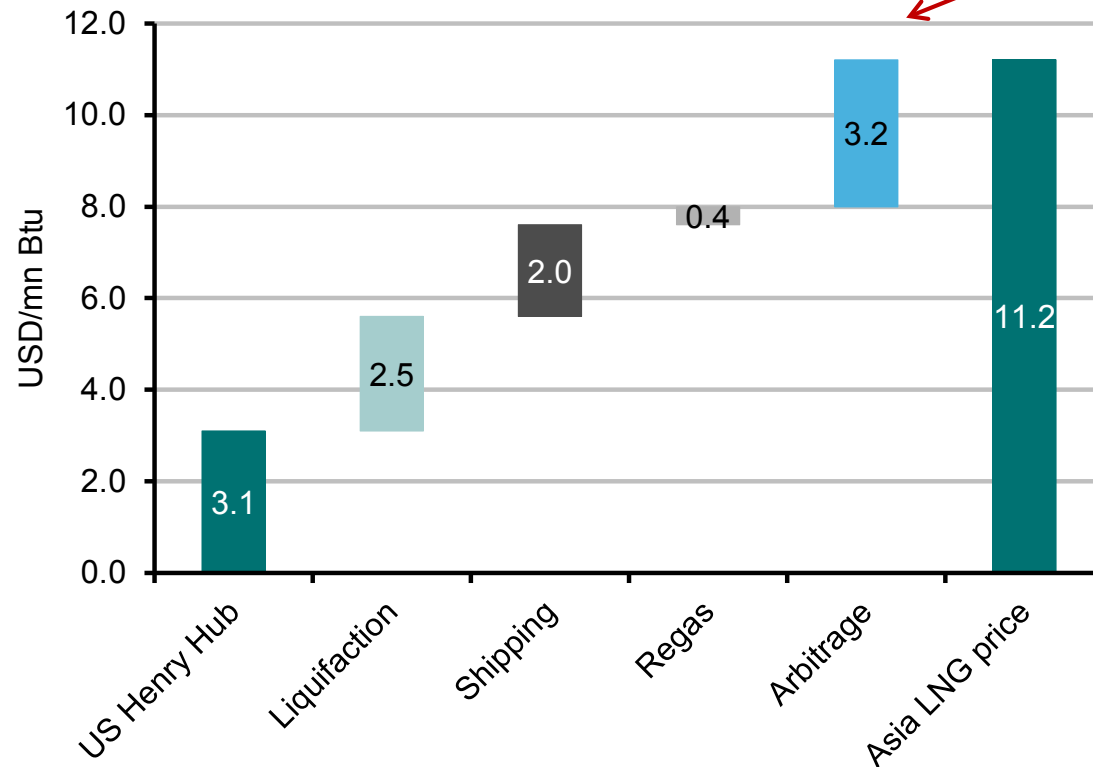
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LNG spot rates could more than double from current levels based on the current arbitrage between US Henry Hub and Asia LNG prices – could LNG shipping be a replay of LPG shipping 2014/2015?

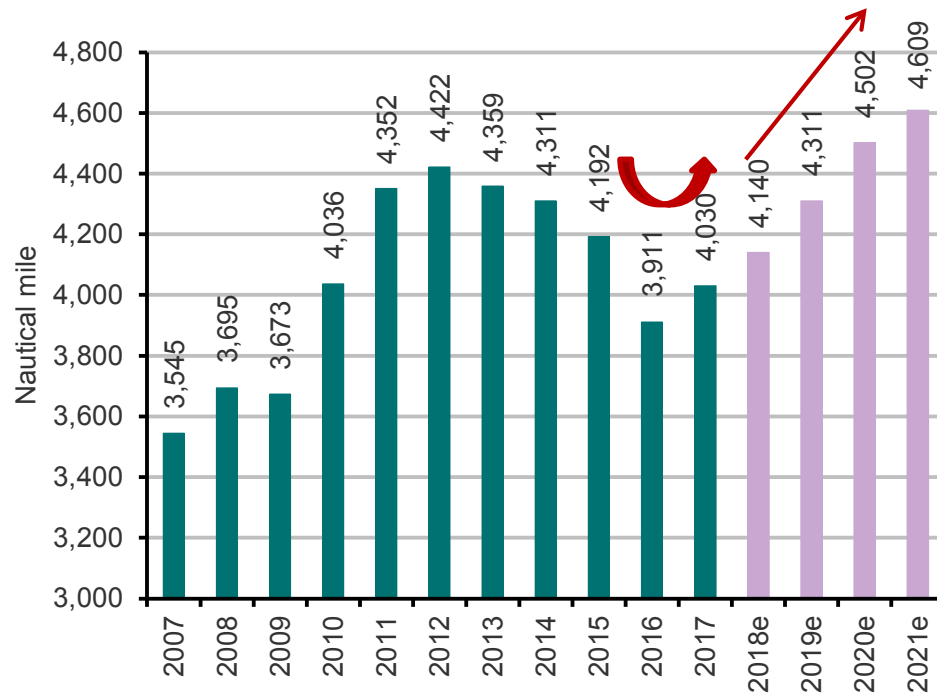
Cost components in LNG value chain (USD/mn Btu)



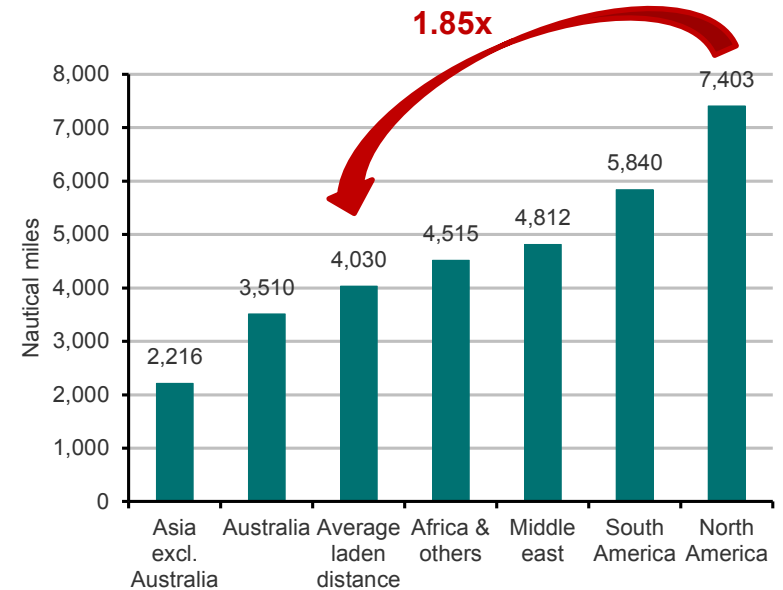
Source: DNB Markets (forecast), GIIGNL and Poten (historical)

LNG sailing distance increased for the first time in 4 years in 2017 (thanks to US exports) and we forecast a ~15% increase by 2021e (US export distance 1.85x the average)

Average export laden sailing distances (nautical miles) including our forecasts



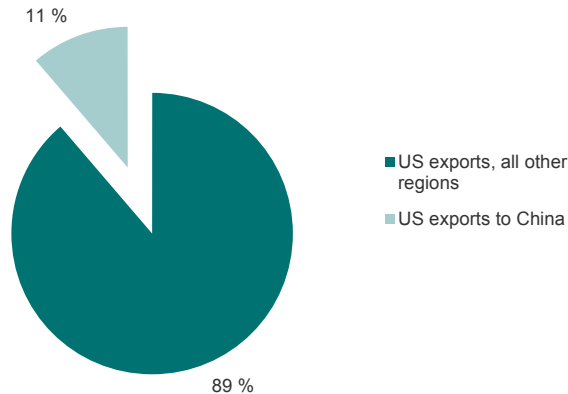
Our estimate of 2017 actual average export sailing distances by export region (nautical miles)



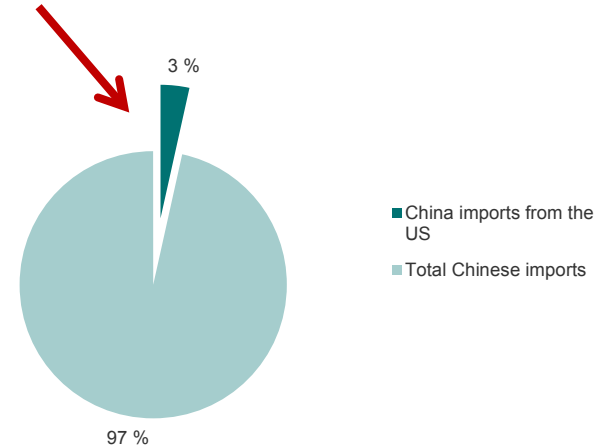
Source: DNB Markets (forecast), GIIGNL and Poten (historical)

China imports close to half of its 2017 LNG from Australia, 3% from the US

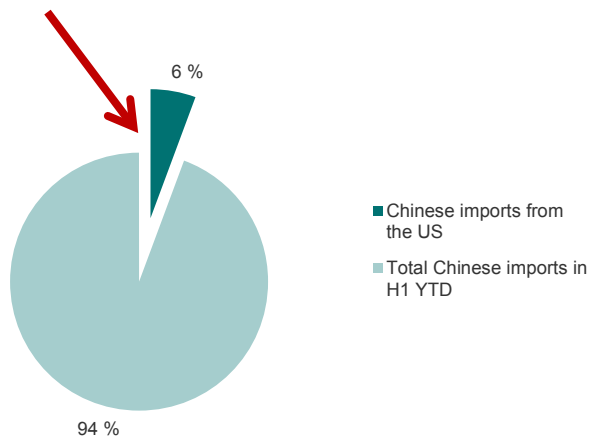
11% of US LNG was exported to China in 2017



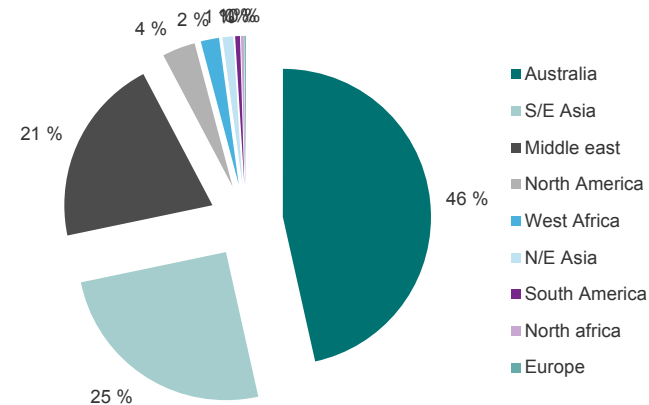
This amounted to 3% of China total imports in 2017



However estimated to have grown to 6% in H1 2018



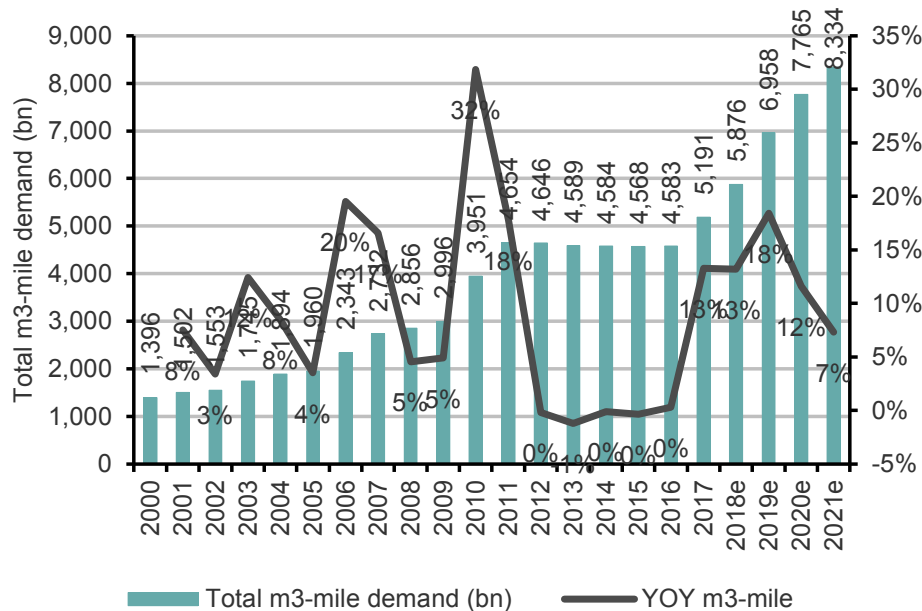
46% of Chinese imports are sourced from Australia



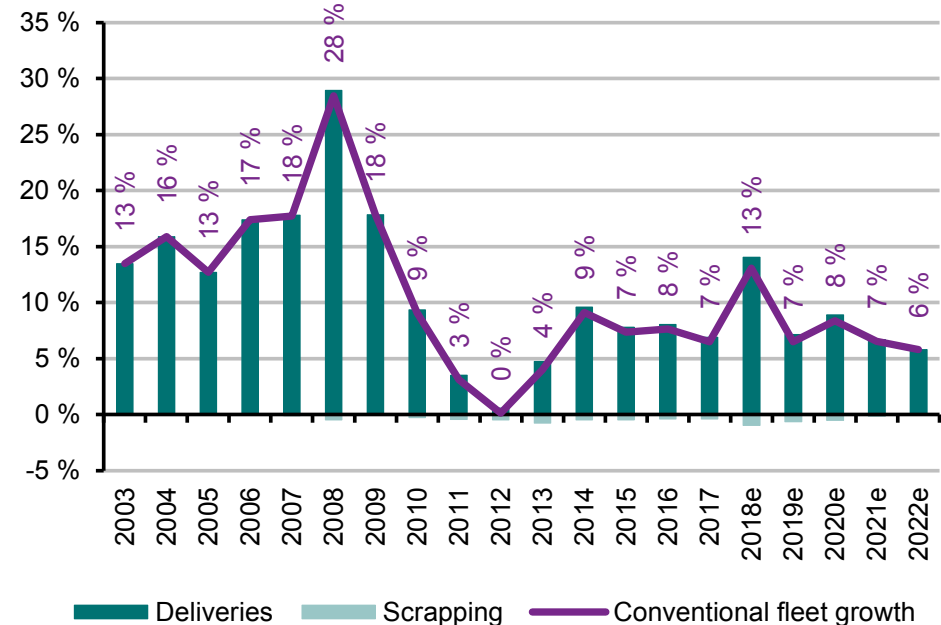
Source: Argus Media, Bloomberg, GIIGNL, USITC, DNB Markets

We forecast tonne-mile to outperform volume growth and 2019e tonne-mile set to outgrow supply growth by ~3.0x driven by US LNG exports and boosts in sailing distances

We forecast higher tonne-mile of 18% for 2019e, 12% for 2020e and 7% for 2021e driven by the higher sailing distances from large expansion in US LNG export volumes...



Fleet growth down ~50% YOY into 2019 of 6.6% down from 2018e of 12.5% before increasing to 8.5% in 2020e and 5.8% in 2021e



Source: DNB Markets (forecast), GIIGNL and Poten (historical)

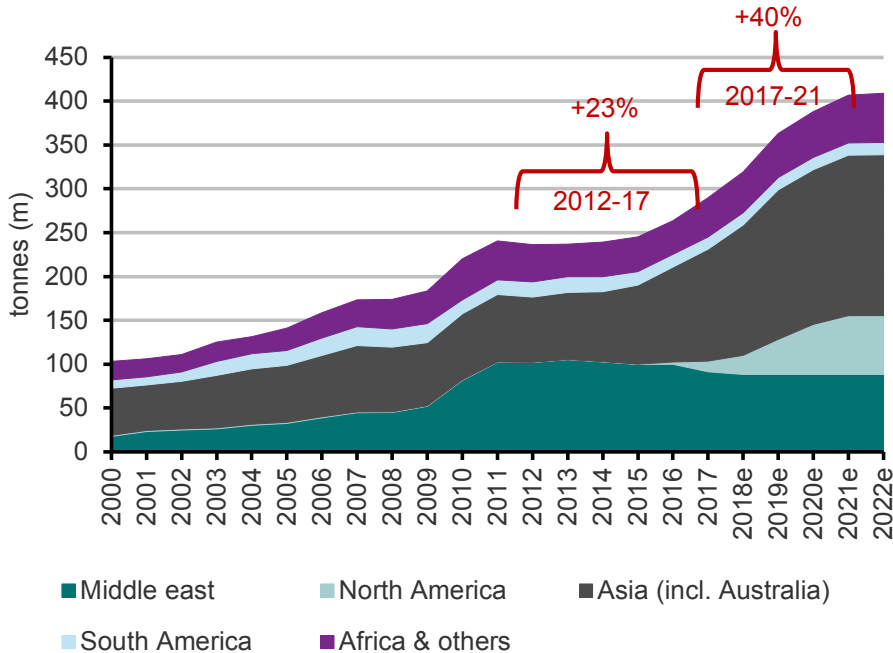
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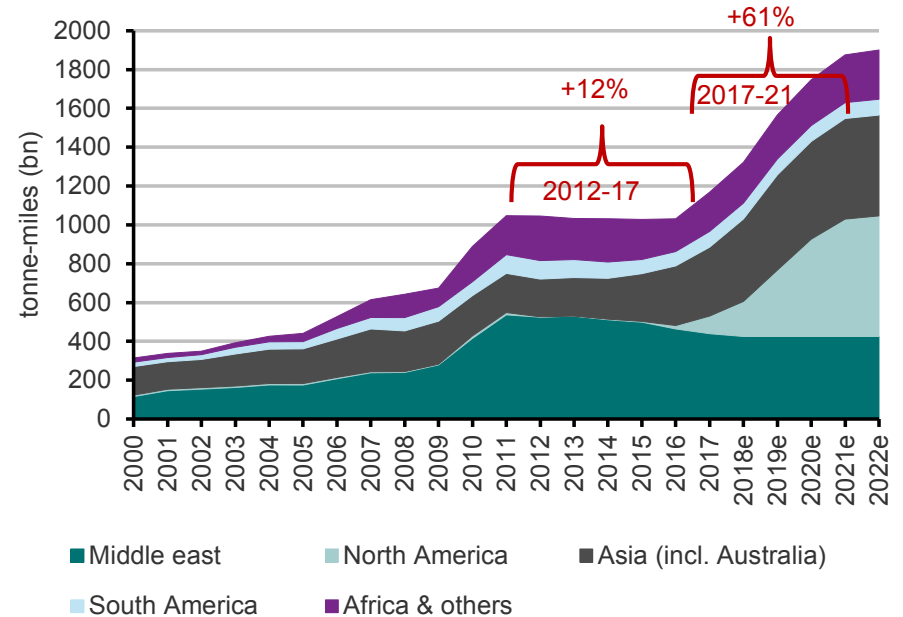
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2012-2017 tonne-mile grew 0.5x the pace of volumes due to lower sailing distances, but 2017-2021e we forecast that tonne-mile set to outperform volumes by 1.5x...

We forecast that global **LNG exports** grew 23% from 2012-2017 and we forecast an increase of 40% from 2017-2021e...



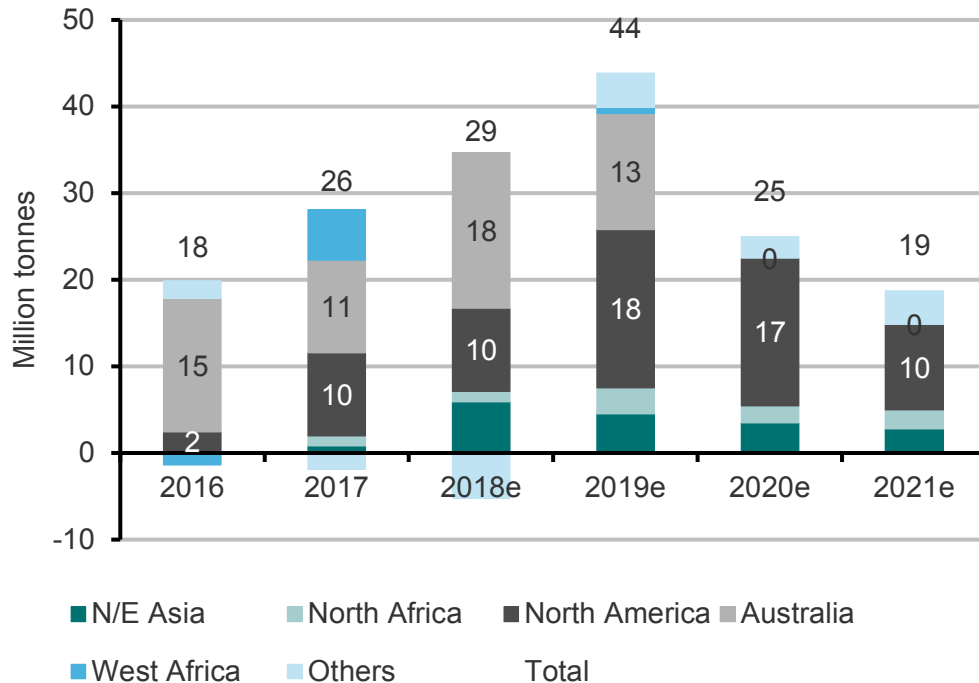
...while on our forecast **tonne-mile demand** grew by 12% from 2012-2017e (or half the volume growth), but from 2017-2021e is forecast to grow by 61% or 1.5x that of volumes...



Source: DNB Markets (forecast), GIIGNL and Poten (historical)

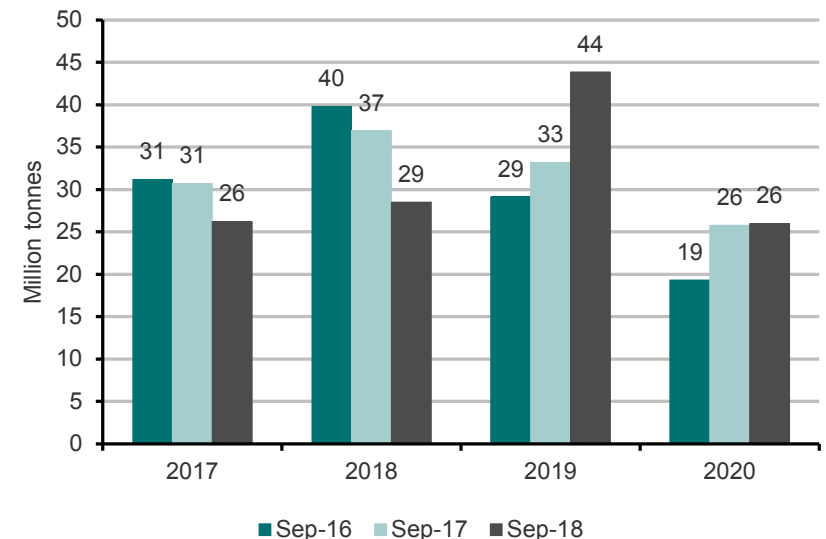
Based on our fifth annual LNG liquefaction survey, we estimate the LNG trade will grow from 290m tonnes in 2017 to **388m tonnes in 2020e** (marginally down from **390m tonnes** in our previous sector report in September 2017), or a 34% increase.

Annual growth in trade by export region (m tonnes), our base case



Annual estimated growth in trade from historical surveys, including our 2018 survey

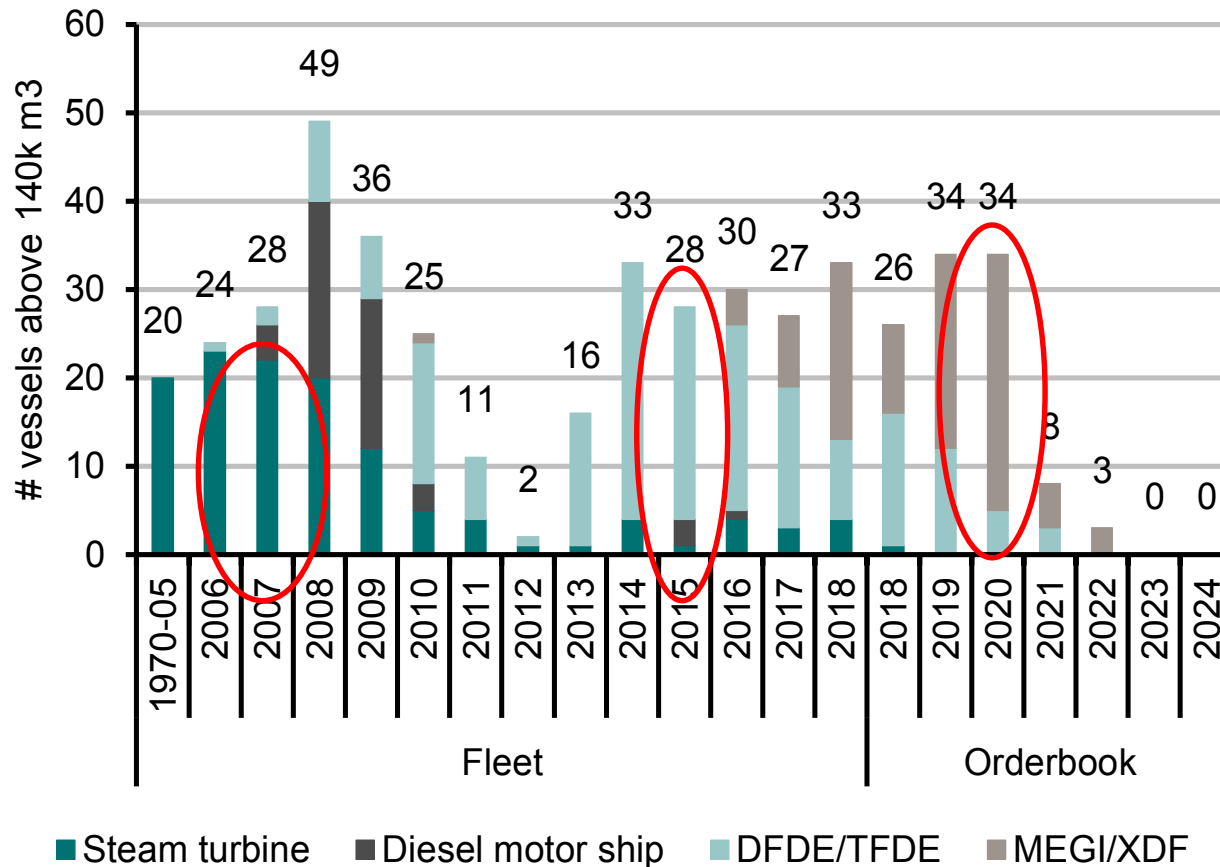
- 2018e revision is 40% explained by Papua New Guinea earthquake, while remaining 60% is explained by production delays in US and Australia
- For 2019e we assume Papua New Guinea back in operations and 2018 liquefaction delays having a positive effect



Source: DNB Markets (forecast), GIIGNL and Poten (historical)

Rapid developments in LNGC technologies. What will be next?

Fleet and orderbook (# of vessels)



2007: Steam vessels dominated
 2015: TFDE and DFDE dominated
 Now: MEGI and XDF dominate

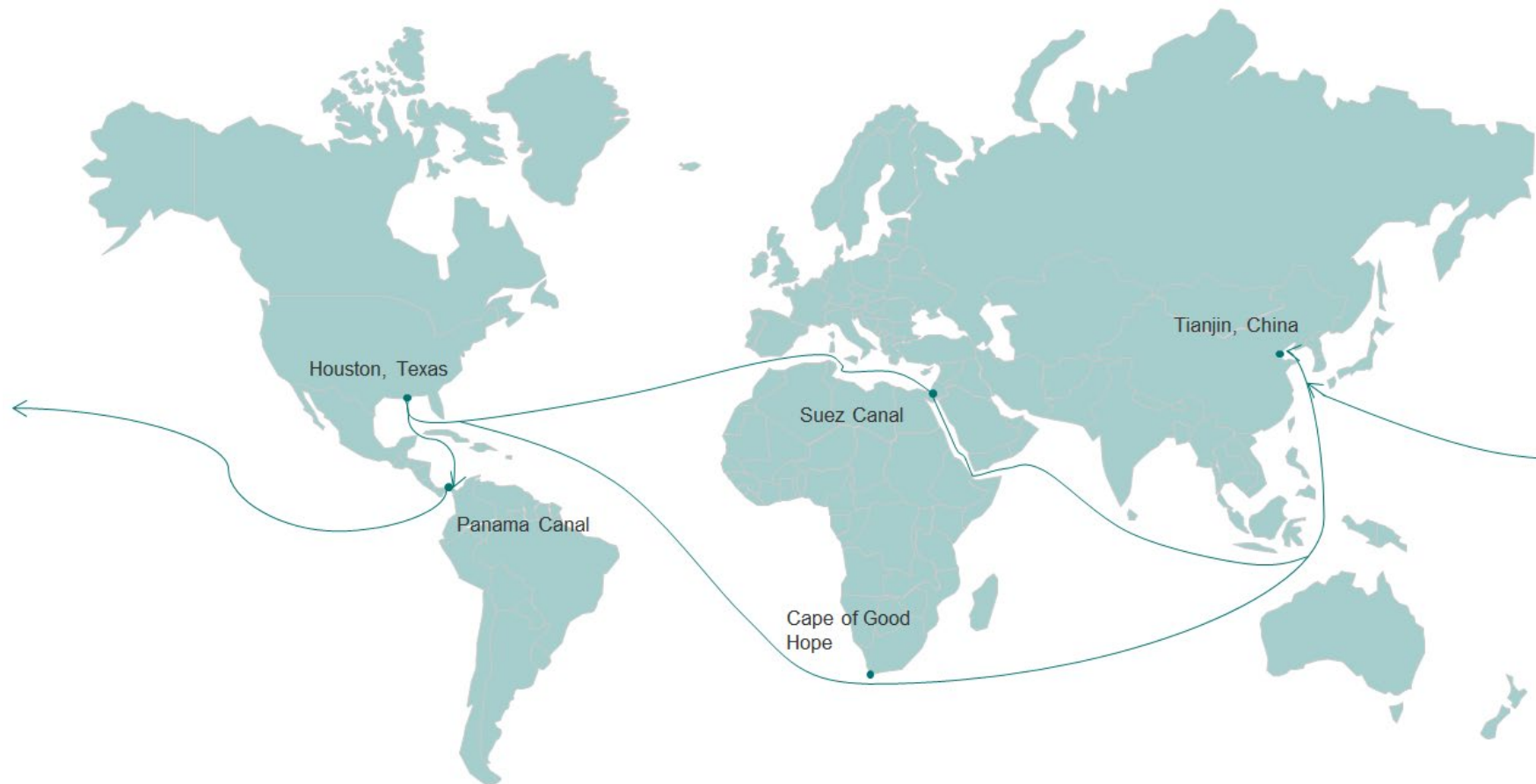
Efficiency differences are substantial on DNB estimate TCE basis, with differentials to TFDE:

- Steam TCE: ~ -30k/day
- MEGI/XDF: ~ +20k/day

What will be next?

Passing through the Panama canal is 28.5% shorter than sailing around the Cape of Good Hope

Routes from US Gulf to East Asia import markets



Source: DNB Markets (forecast), GIIGNL and Poten (historical)

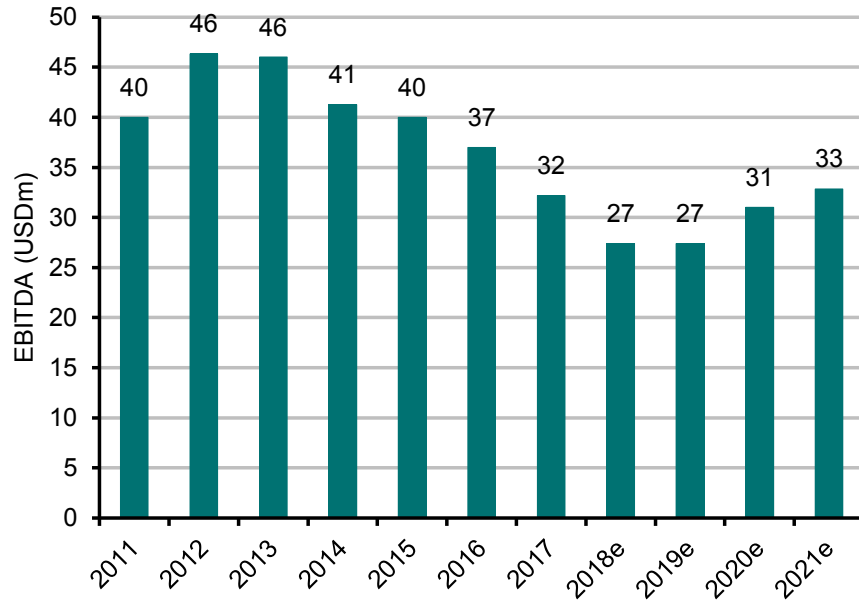
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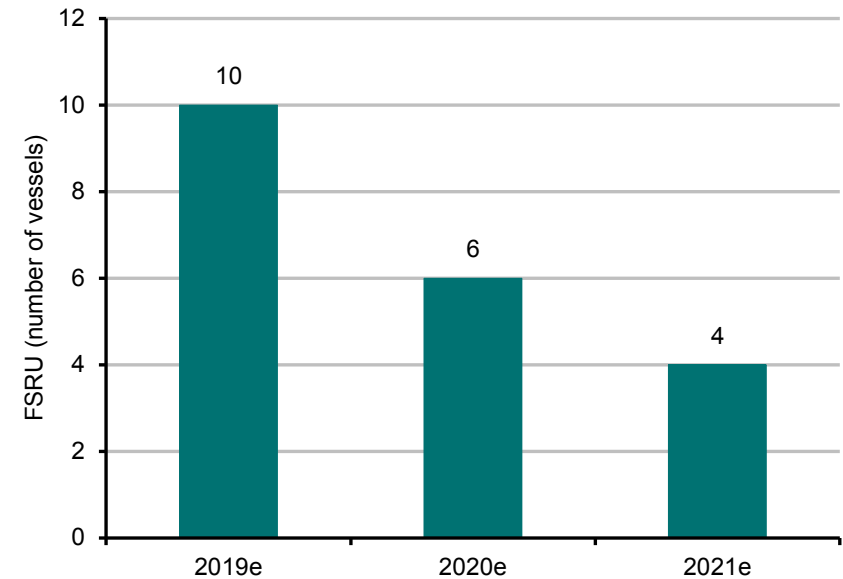
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FSRU market set to bottom in 2019, but a slow recovery expected

We forecast the FSRU market to bottom out in 2019e (of contracted FSRU EBITDA USDm)...



...as we forecast the number of modern available FSRUs would decline from 10 units in 2019e to six units by 2020e and four units by 2021e based on our forecast of four annual FSRU awards.



Source: Clarksons, DNB Markets (forecast)

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