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DEEPWATER DEVELOPMENT

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*Global Floating Production Systems
Near Term Opportunities & Challenges*

March 2023

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Director SubseaLogix & PlatformLogix





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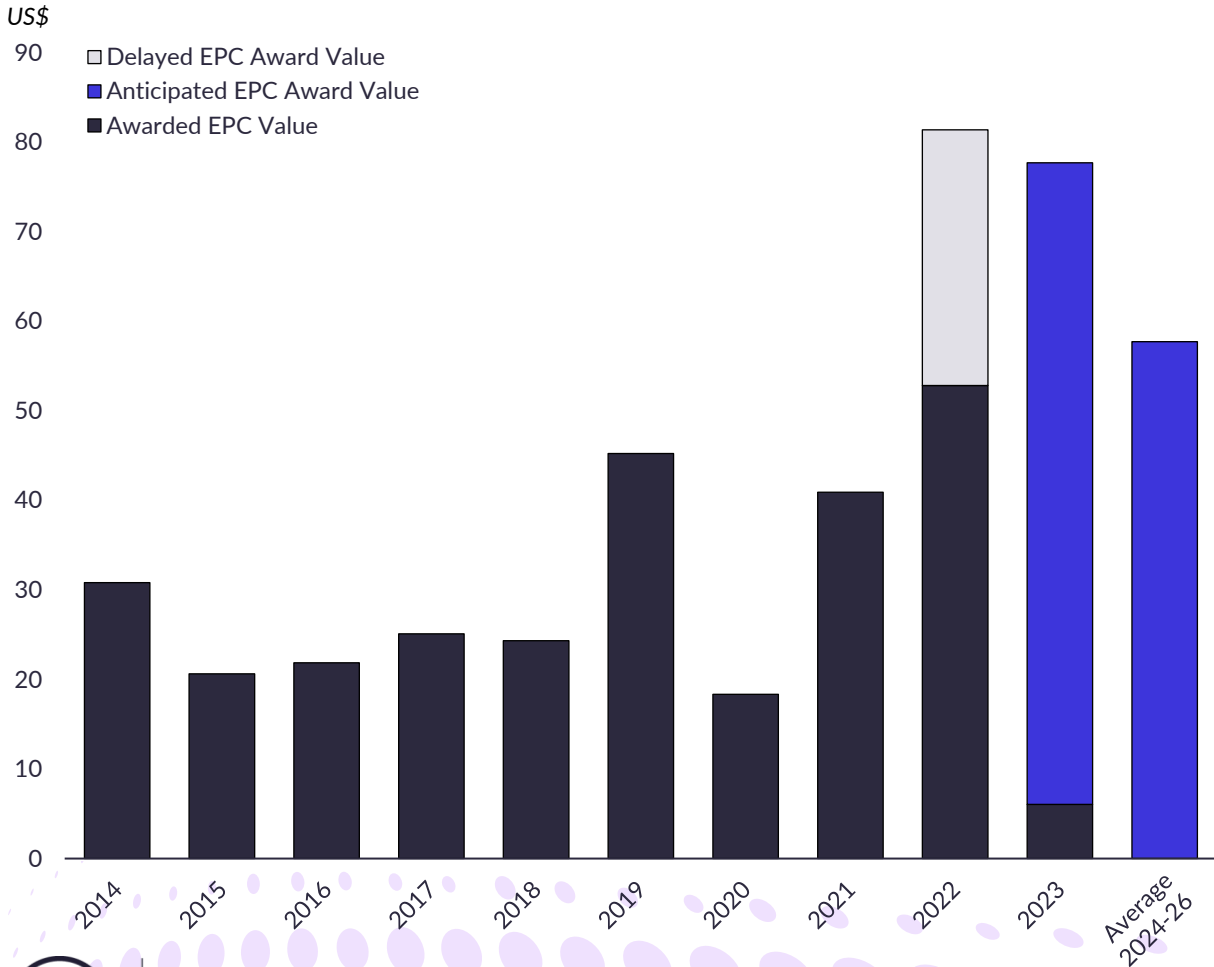
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Offshore EPC Market Outlook

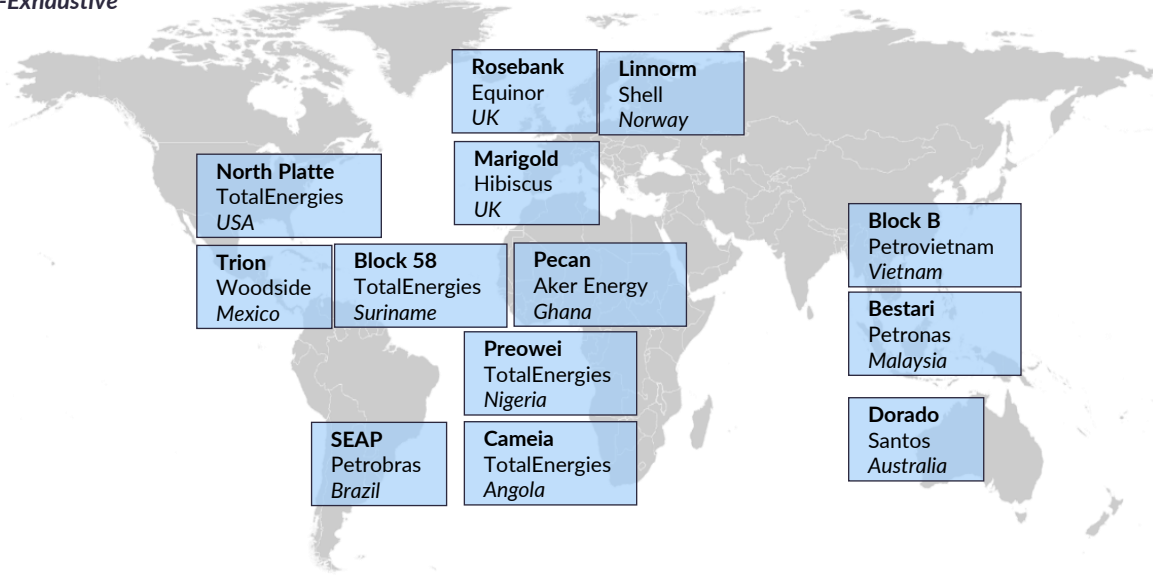
2022 Offshore EPC award value closed at \$53bn, a 29% increase YoY. Despite supply chain inflationary pressures, contracting activities are forecast to remain robust in 2023 at \$78bn.

Offshore EPC Contract Award Value



Projects Delayed/Cancelled in 2022

Non-Exhaustive

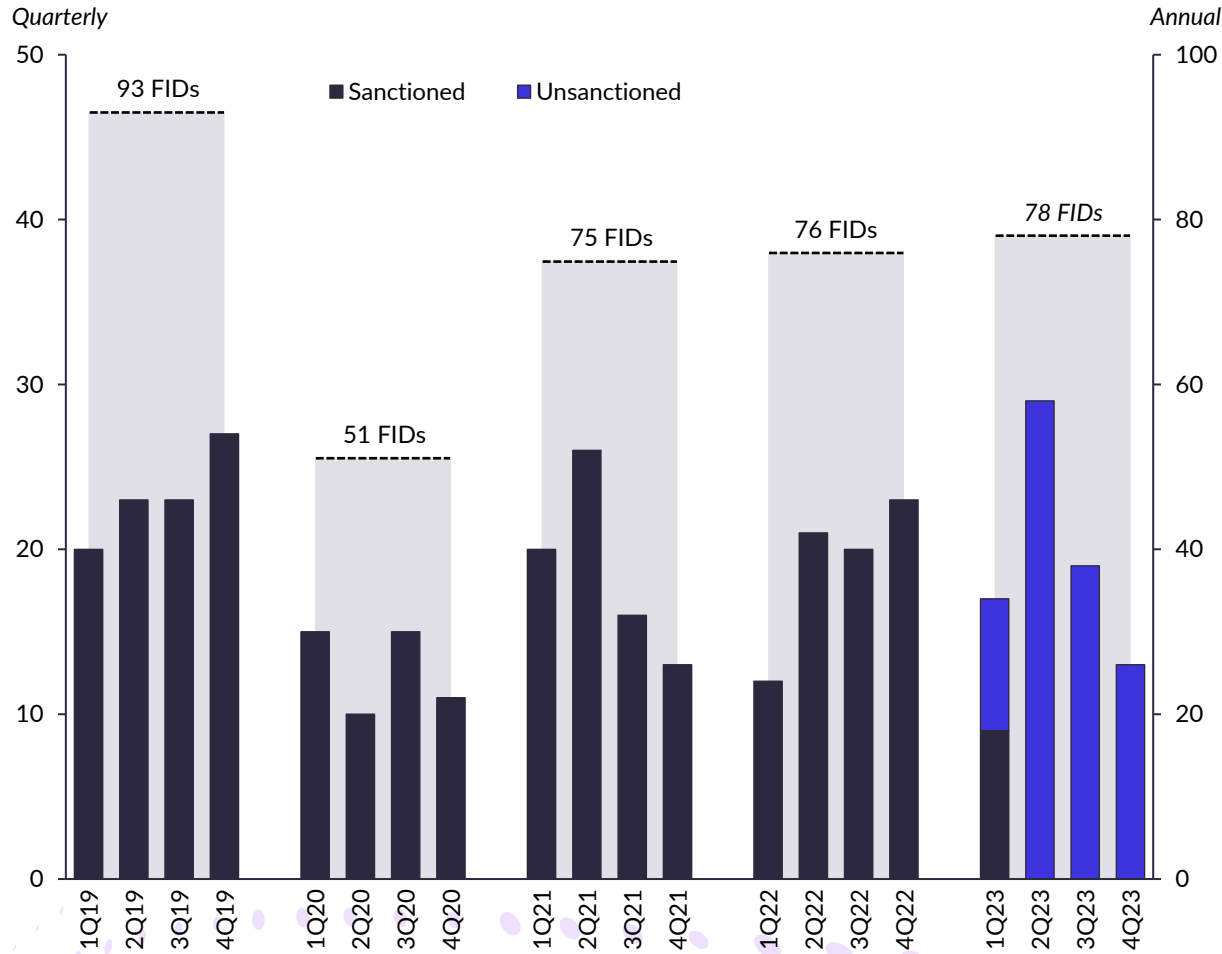


- Westwood recorded 16 FPS EPC contract awards in 2022, including Newbuilds, Conversions, Upgrades/redeployments. However, during the course of the year, 10 anticipated FPS awards were delayed/cancelled.

Offshore Field Development

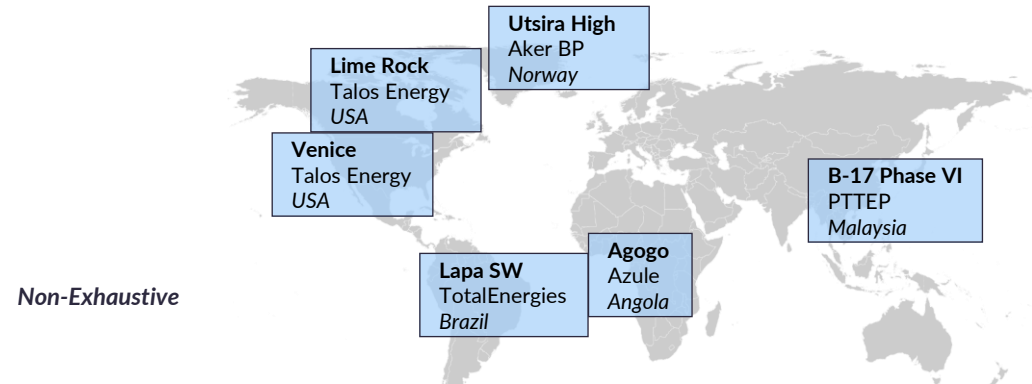
76 Upstream FIDs were recorded in 2022, with Europe accounting for 43%. 2023 FID count is forecast to mirror that of 2022 but will be driven by activities offshore W. Africa and SE Asia.

Global Upstream Quarterly & Annual Field FIDs



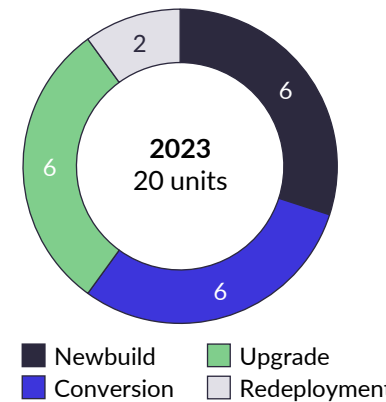
Global Upstream Field FIDs

January - February 2023

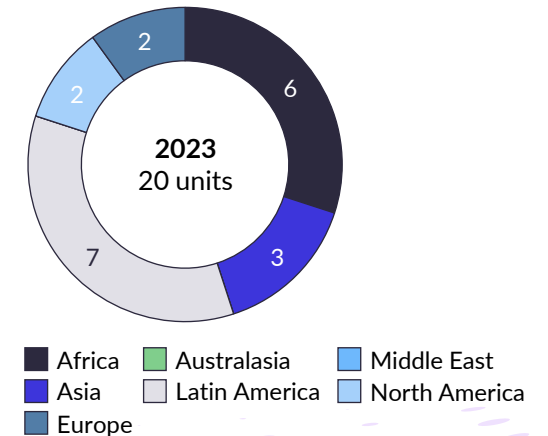


Global FPS EPC Awards Anticipated 2023 (inc. FLNG)

Hull Type



Deployment Region



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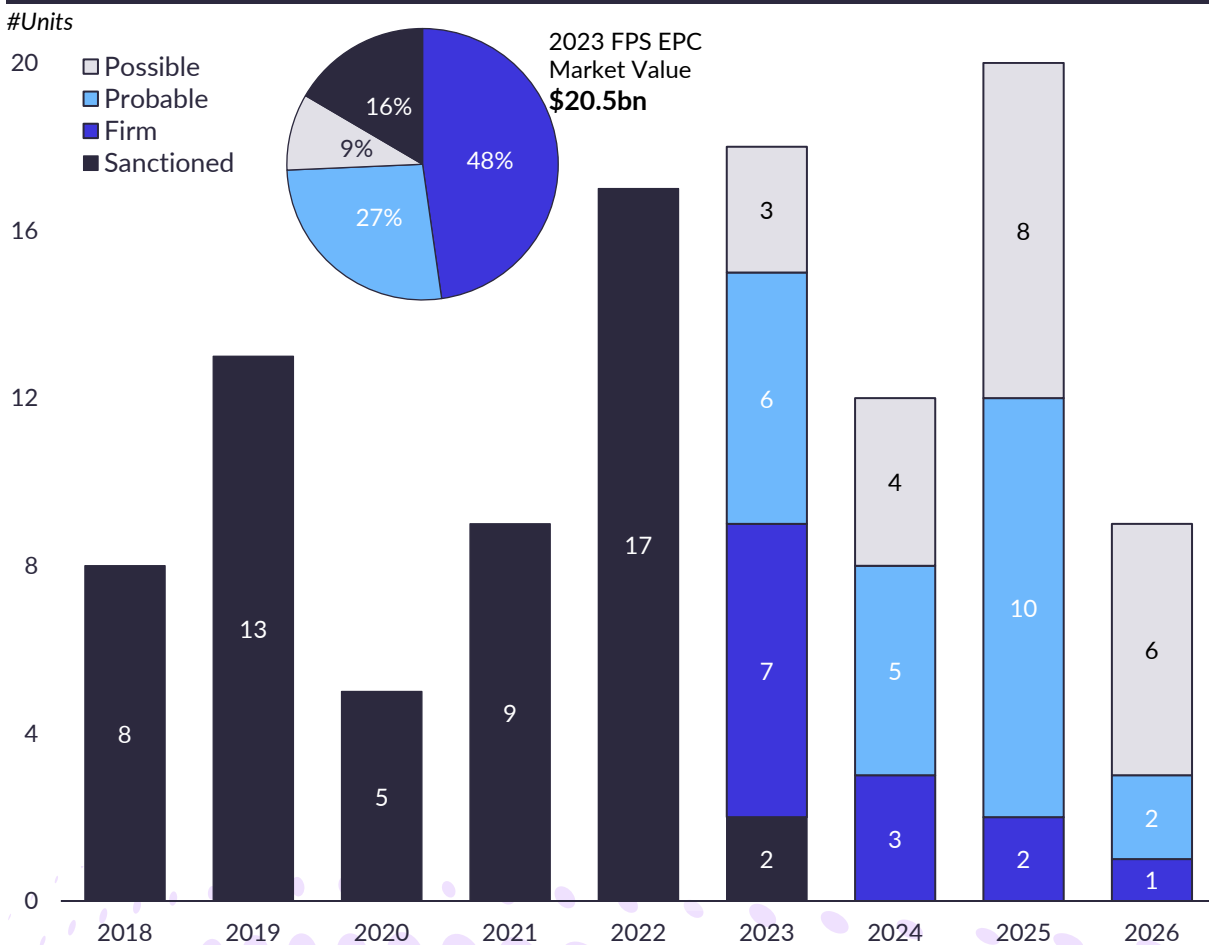
Source: SubseaLogix, PlatformLogix, Westwood Analysis

MCEDD - March 2023

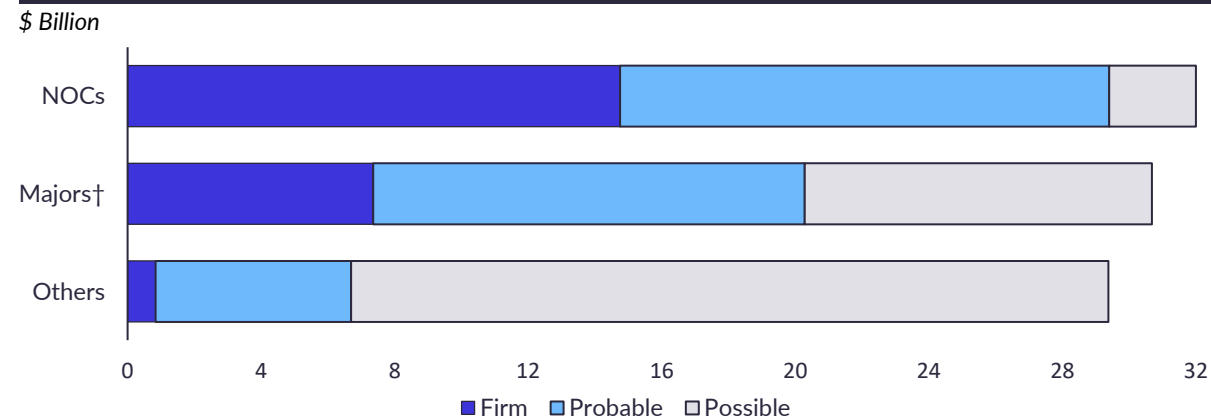
FPS Market Risk Analysis

FPS EPC contracting opportunities over the 2023-26 period, including FLNG unit, is forecast at 57 units with an EPC award value of \$92bn*.

Global FPS Market Outlook by Risk



Global FPS EPC Market Outlook Risk by E&P Type 2023-2026



- Over the 2023-26 period, NOCs account for \$32bn in forecast FPS EPC spend (35%); Majors† account for \$31bn (33%); and Others account for \$29bn (32%).
- “Firm” and “Probable” spend among the NOCs is led by Petrobras, whilst “Firm” spend among the Majors† is driven by ExxonMobil. The large “Possible” allocation in the Others category represents marginal gas projects.

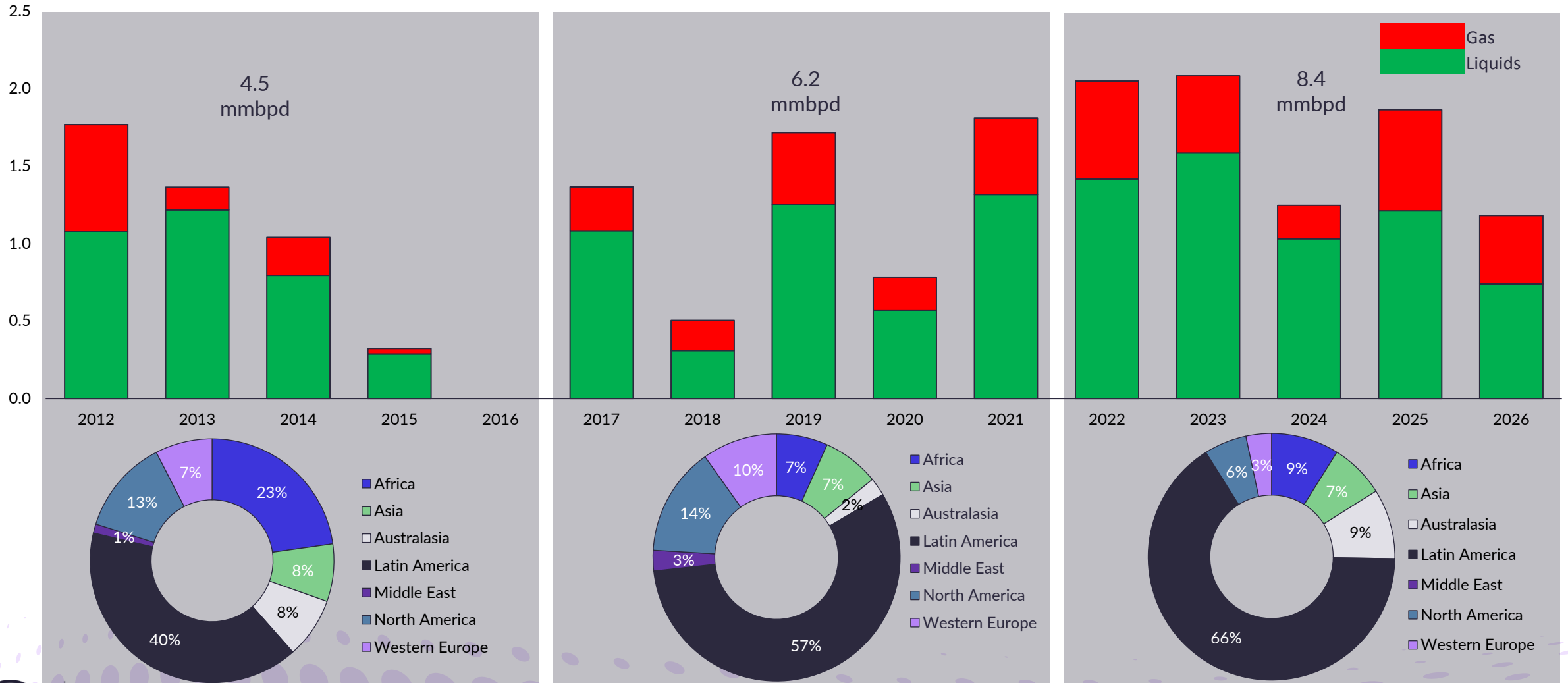
* Excludes the PFLNG Tiga FLNG and Agogo FPSO units sanctioned in 1Q 2023.

† Majors category includes BP, Chevron, ConocoPhillips, Eni, ExxonMobil, Shell, TotalEnergies.



Record Levels of FPS Throughput Capacity

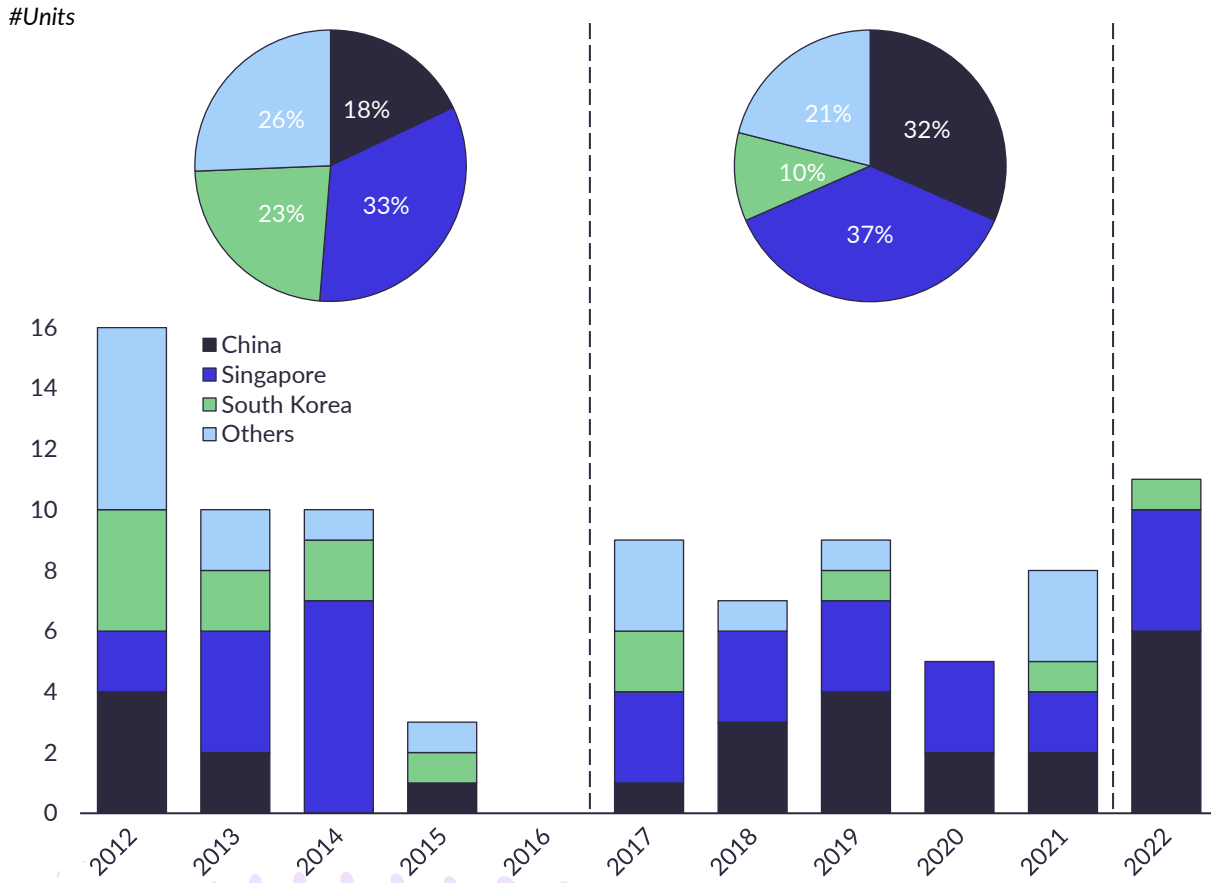
2022 had the highest FPS throughput capacity sanctioned since 2010, with 2 mmboepd. An estimated 2.1 mmboepd of FPS capacity is expected to be sanctioned in 2023.



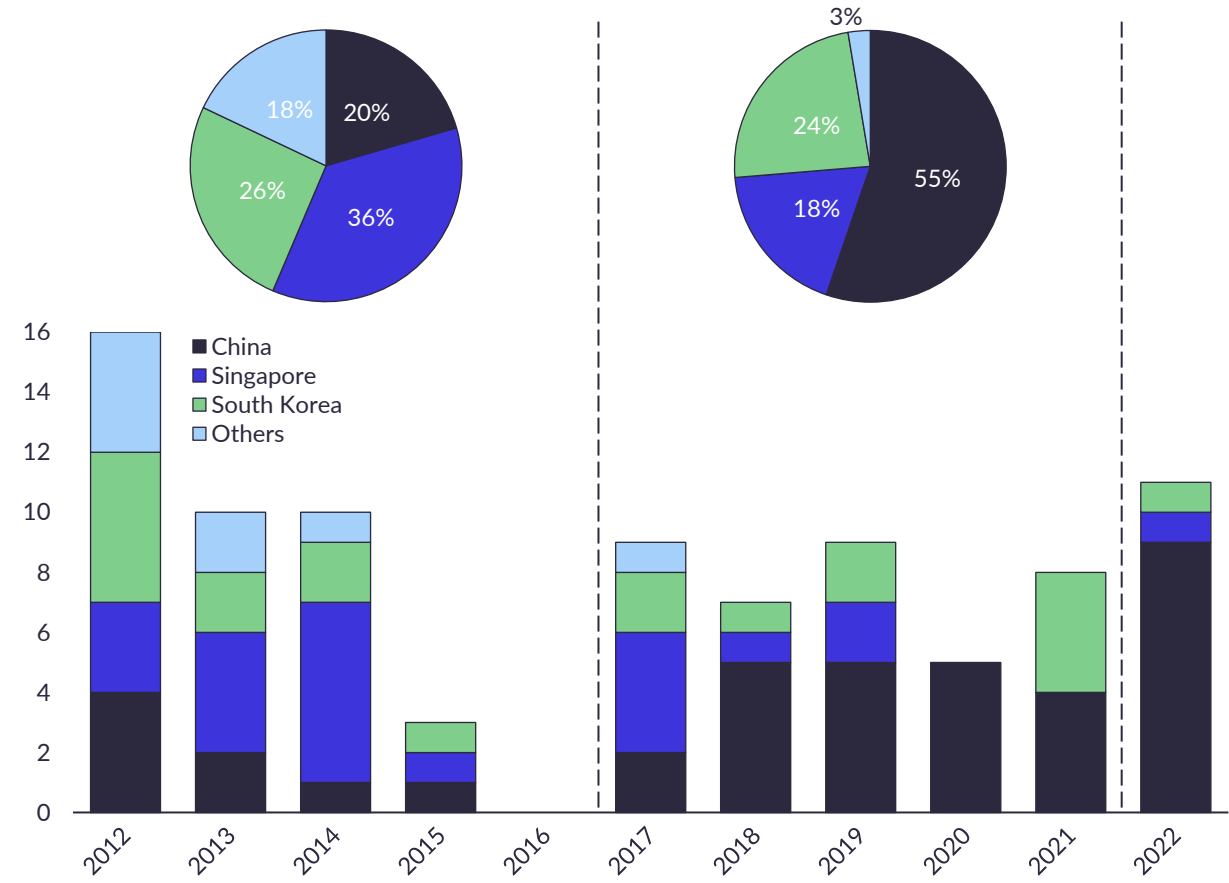
FPS Newbuilds & Conversions Yard Activity Analysis

Comparing the 2017-21 period with 2012-16, S. Korea saw its share of the topside fabrication market fall to just 10%, whilst the proportion of hull EPC work in China increased significantly.

Topside EPC by Country



Hull EPC by Country



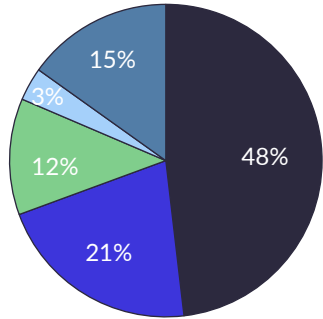
Offshore EPC Market Outlook

FPSO EPC award value totalled c.\$13bn in 2021 and 2022. However, more newbuilds were recorded in 2021, 7 units against 5 in 2022. Only two newbuild units are anticipated in 2023.

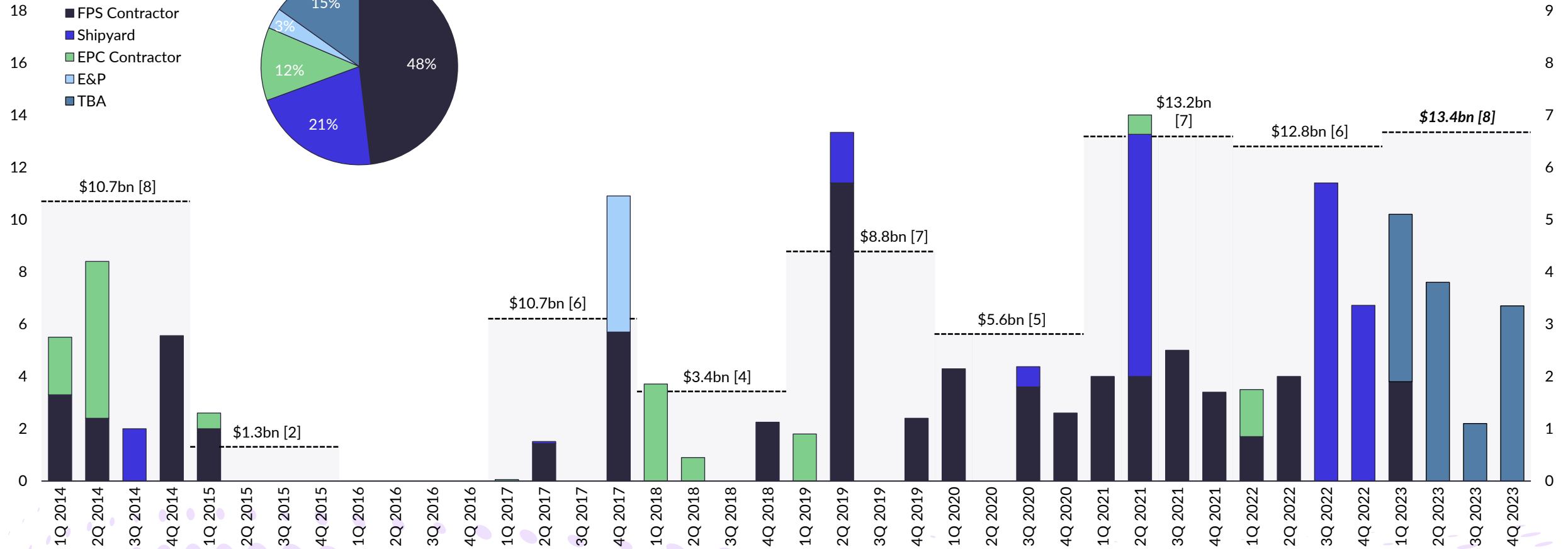
FPSO Order Intake Split by Primary EPC Award

Annual Order Intake (\$bn)

- FPS Contractor
- Shipyard
- EPC Contractor
- E&P
- TBA



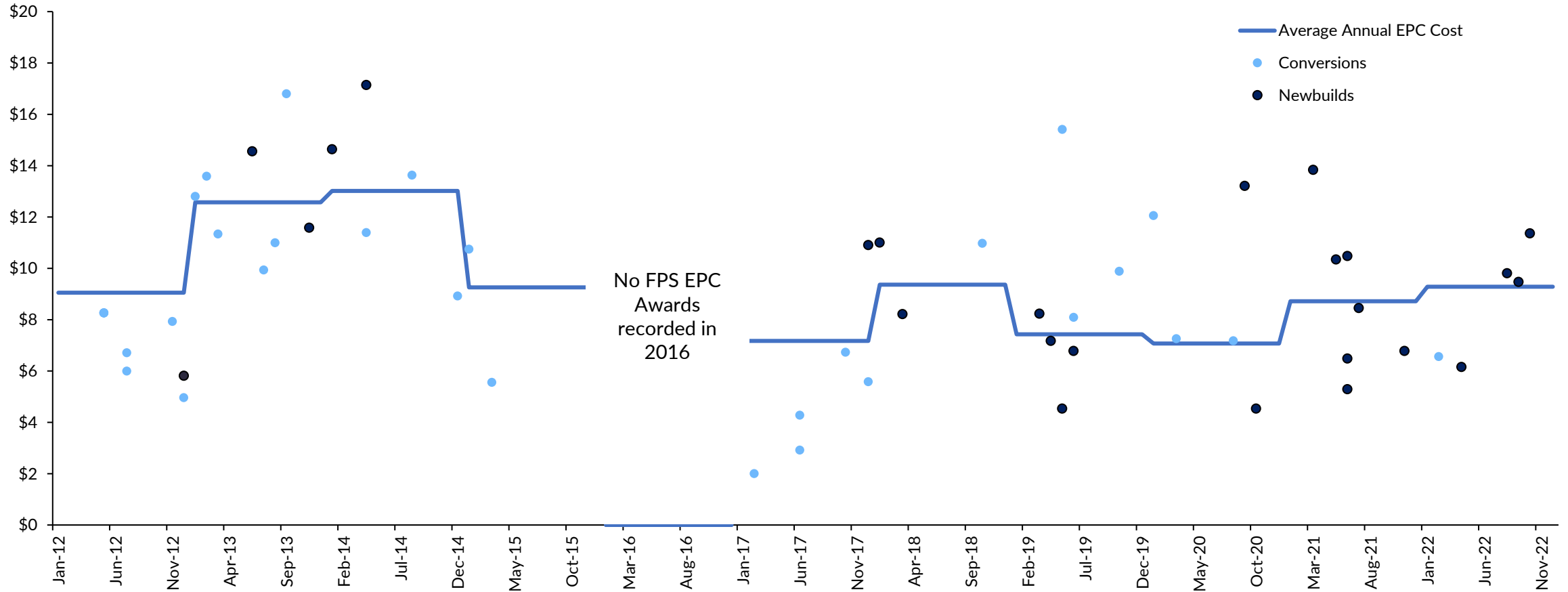
Quarterly Order Intake (\$bn)



FPSO Cost Analysis & Trend

EPC contract awards in 2022 showed a continuation of FPSO cost inflation. This trend is set to continue, given underlining supply chain constraints and increasing FPSO demand.

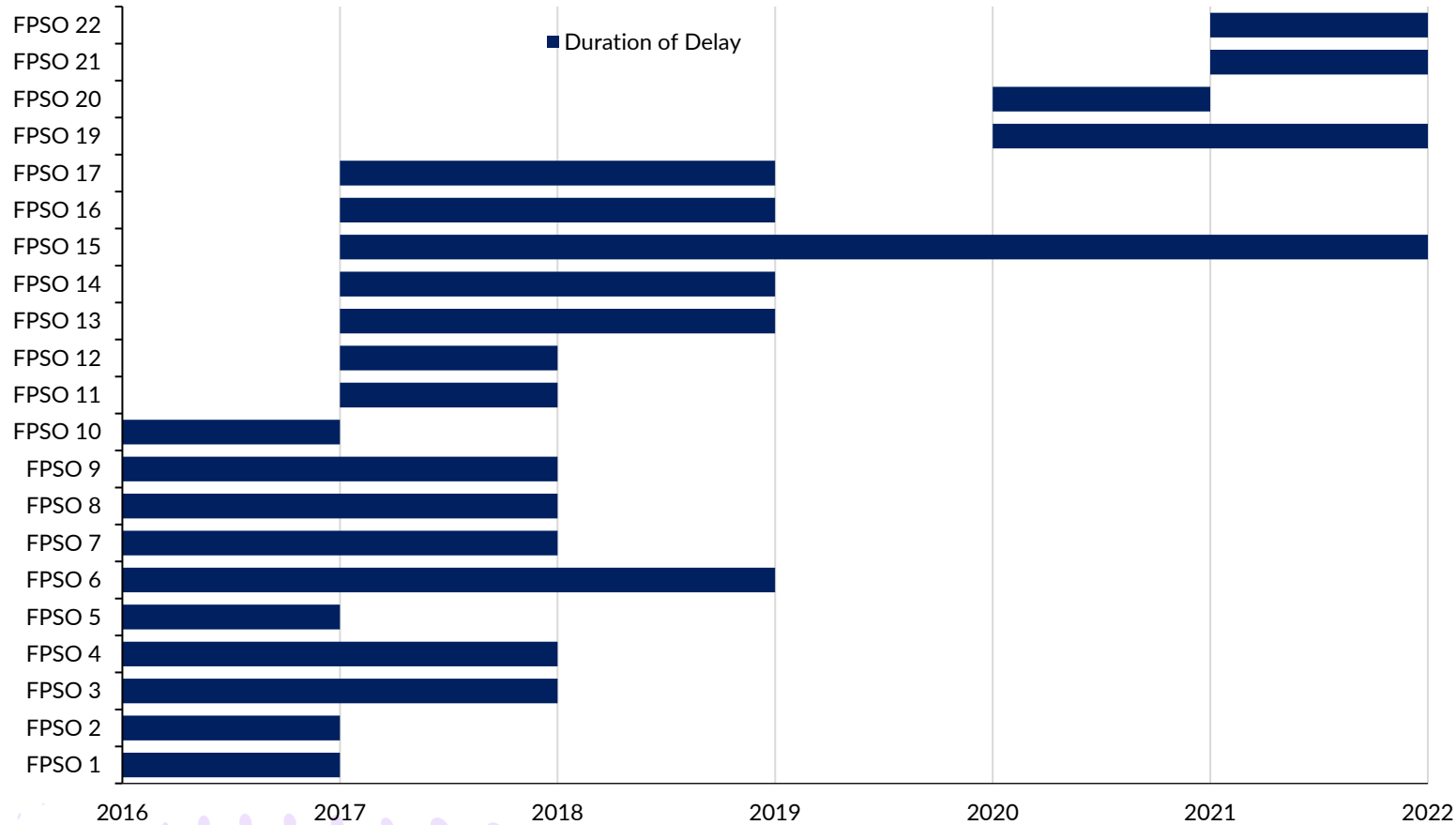
FPSO Order Intake Split by Primary EPC Award



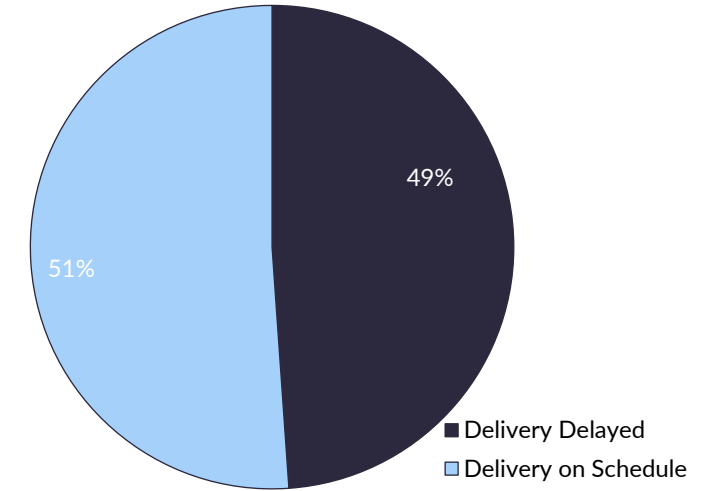
FPSO Delivery Delays

Pre Covid-19 pandemic, the FPSO industry had been laden by a legacy of delivery delays. This could be worsen in the near-term due to the impact of the pandemic & Labour shortage.

Duration of FPSO Delivery Delays 2016-2022



FPSO Delivery Delays 2016-2022



* FPSO Delivery count only accounts for Newbuilds and Conversions that experienced at least six months of delays from the initial planned delivery schedule at the time of EPC contract award.



Potential Upside in Recent High Impact Discoveries

Recent high-impact discoveries offshore Guyana and exploratory success offshore Namibia represents an upside for FPSO EPC opportunities in the latter years of the forecast and beyond.

2021-22 High Impact Discoveries for Oil & Gas Plays

Stabroek Block^(A) ExxonMobil
Guyana

2,150 mmboe*

975 mmbbl
7,050 bcf

Discovered: Sep 2021
Water depth: 1,810 m
Dist. to shore: ~200 km

1

Krabdagu TETRA
Suriname

150 mmboe*

105 mmbbl
270 bcf

Discovered: Feb 2022
Water depth: 780 m
Dist. to shore: ~150 km

2

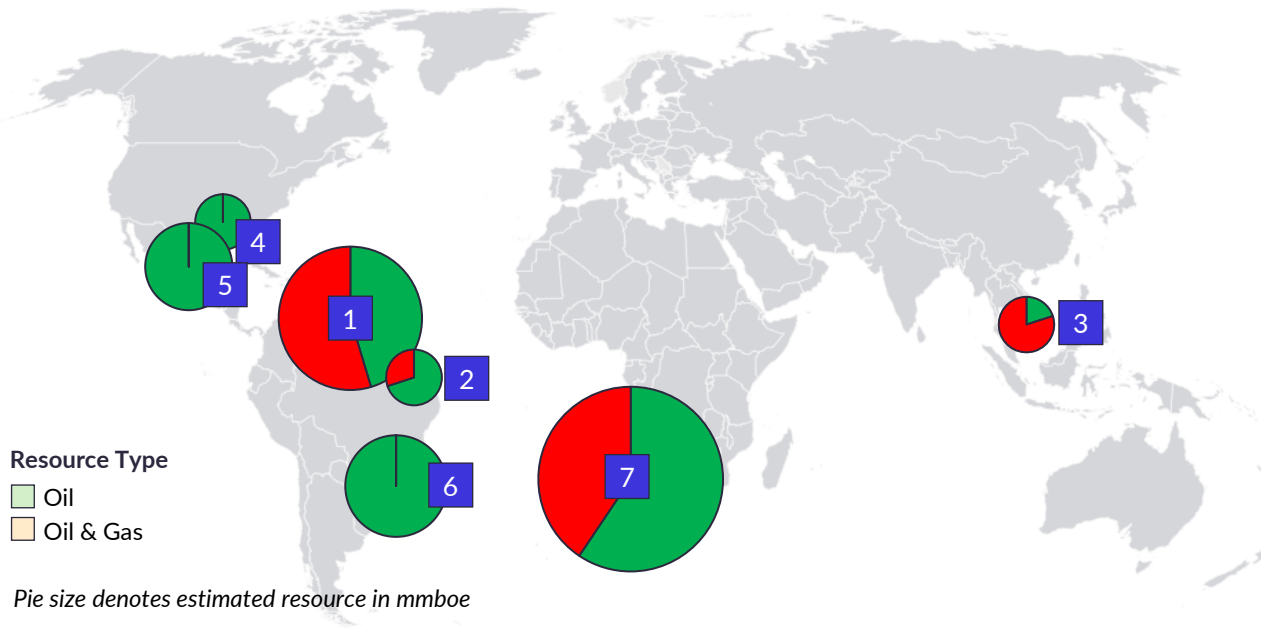
Timpan Harbour Energy
Indonesia

200 mmboe*

40 mmbbl
960 bcf

Discovered: July 2022
Water depth: 1,300 m
Dist. to shore: ~130 km

3



Blacktip North Shell
USA

150 mmboe*

150
N/A

Discovered: Nov 2021
Water depth: 1,400 m
Dist. to shore: ~320 km

4

Leopard Shell
USA

350 mmboe*

350
N/A

Discovered: May 2021
Water depth: 2,070 m
Dist. to shore: ~275 km

5

Pedunculo BR PETROBRAS
Brazil

450 mmboe*

450 mmbbl
N/A

Discovered: Oct 2022
Water depth: 2,200 m
Dist. to shore: ~240 km

6

Namibia^(B) Shell TETRA
Orange Basin

4,250 mmboe*

2,525
10,350

Discovered: Dec 2022
Water depth: 1,990 m
Dist. to shore: ~190 km

7

(A) ExxonMobil made 12 commercial discoveries on its Stabroek block offshore Guyana in 2021-22, which in total represent 2,150 mmboe in estimated resources classified under Discovery – Commercial. Non-operating partner Hess has stated that the block will support up to 10 FPSOs, of which four have been sanctioned.

(B) Four exploration wells have been drilled in the Orange Basin offshore Namibia, with many more planned. No post-drill resources have been announced.

* Mid-Case (typically P50) Resource Estimates taken from Westwood’s Wildcat product.



Key Takeaways

- Supply chain inflationary pressure causing FID delays. However, a multi-year growth cycle is anticipated as global energy demand rebounds to pre-pandemic levels.
- Cost deflation, simplification and standardisation have seen FPSO unit costs fall dramatically over the past 5-7 years. However, an increase in tender activity since 2021 and supply chain challenges are driving cost inflation.
- Offshore EPC contract award value is forecast to average approximately \$68bn YoY over the forecast, underpinned by an assumption that Brent crude stabilises between \$70-\$90/bbl in 2023 and above \$65/bbl over the 2024-26 period.
- Recent high-impact discoveries in the Stabroek block offshore Guyana and exploratory success offshore Namibia could account for significant FPSO EPC contracting opportunities in the latter years of the forecast and beyond.





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