

Global Offshore Prospects

SUT, Braemar Technical Services, London. 25th January 2018



Westwood
Global Energy
Group



Smarter decisions, powered by insight



01

Introduction

Westwood Global Energy Group Introduction



Westwood
Global Energy
Group

Leading independent provider of research, data analytics and consulting services to the global energy industry

Westwood Global Energy Group (“WGE” or “Westwood”) was formed in January 2015 by Energy Ventures, an energy specialist private equity firm with a vision to build a leading player in the business intelligence and data analytics space.

Westwood today comprises of the complementary expertise, products and services of six industry leading brands: Hannon Westwood, Douglas Westwood, Richmond Energy Partners, Novas Consulting, JSI Services and Emergent Group.

The core markets we serve are Oilfield Services (“OFS”) and Exploration & Production (“E&P”).

We help clients make informed commercial and strategic decisions through a combination of proprietary data, insights and knowledge.

Our core business lines are:

Research – OFS and E&P

- Our research analysts provide insightful and timely independent research, underpinned by proprietary databases and analytical tools.

Consultancy – OFS and E&P

- Our consulting professionals excel in the provision of unbiased commercial advisory services, underpinned by focused independent research.

“At Westwood we commit to deliver industry research that is **insightful, reliable, credible** and **relevant**, and above all, **independent**. It is our intention that Westwood Global Energy becomes recognised as a highly valued provider of research and insight across both the E&P and Oilfield Services sectors. With a distinctive brand we will offer more while maintaining the **depth** and **quality** that our legacy stands for. We look forward to this next industry cycle with anticipation.”

- *Gavin Prise, Executive Chairman*

Blue-chip client base including corporates, financial institutions, investment houses, government agencies and industry bodies...



Global insights supported by local presence – c. 50 professionals across the key energy hubs of **Aberdeen, London, Houston & Singapore...**



Trusted and recognized underlying brands ...



Douglas Westwood



Covering the full aspect of the global energy value chain from **upstream** to **downstream** and **power generation ...**





WGE Research Coverage Spectrum

Our research analysts provide insightful and timely independent research, underpinned by powerful proprietary databases and analytical tools

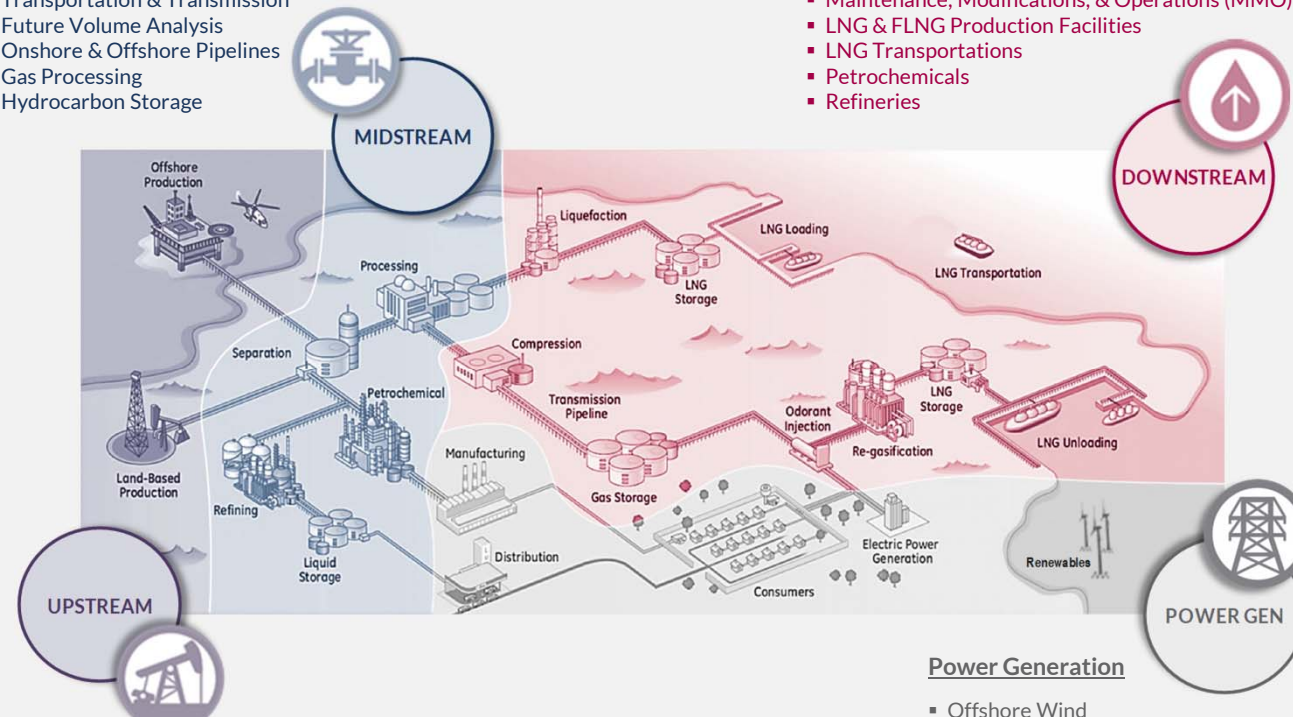
- Westwood’s research coverage spans the entire spectrum of the oil & gas supply chain and the offshore wind sector.
- Our proprietary databases are updated on a regular basis to maintain the relevance and effectiveness of the underlying data.
- Deep understanding of the global oil & gas supply chain / oilfield services

Midstream

- Transportation & Transmission
- Future Volume Analysis
- Onshore & Offshore Pipelines
- Gas Processing
- Hydrocarbon Storage

Downstream

- Maintenance, Modifications, & Operations (MMO)
- LNG & FLNG Production Facilities
- LNG Transportations
- Petrochemicals
- Refineries



Upstream

- Global Exploration & Appraisal
- North West Europe E&P
- Offshore Rigs & Vessels
- Offshore MMO
- Fixed & Floating Platforms
- Development Drilling & Wellstock
- Western European Decommissioning
- Subsea Hardware & Cables
- Helicopters, Offshore Accommodation
- Onshore US Unconventionals
- Land Drilling Rigs & OFS

Power Generation

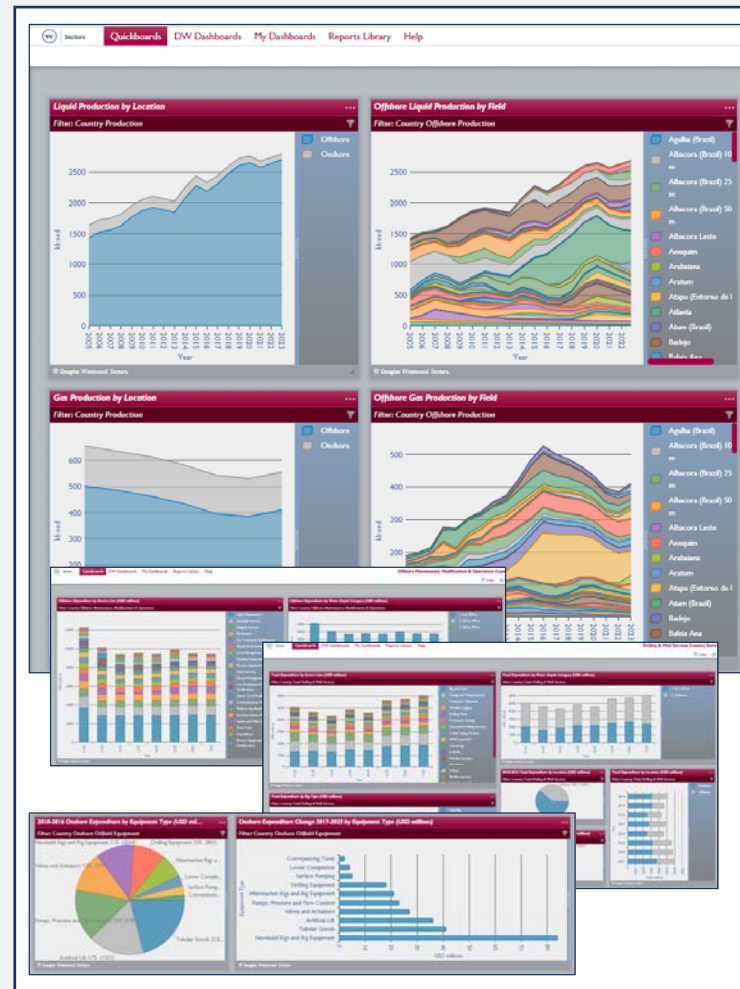
- Offshore Wind
- Solar, Wave & Tidal
- Power Generation
- Subsea Power Cables

WGE Online Tools Sectors

Sectors empowers the global oilfield services industry to capture new opportunities for growth and investment by providing clarity through real-time access to intelligence, data, and insight



- Global database of oil and gas production, field developments and drilling activity
- Commercial insight for sales and business development, strategy support and investment opportunity support
- ✓ Instant access to research reports, trends and insights for the global oilfield industry
- ✓ Interrogate, screen and visualise complex data
- ✓ Filter by a range of field attributes to build profiles
- ✓ Forecast accurately, mitigate risk, and make well-informed strategic decisions based on the latest data and insight
- ✓ Benchmark in-house research and analysis



2,523 fields across 1,463 projects



Historic data back to 2005



~150bn barrels of future production, 110bn barrels of historic production filterable on a field-level



42 field attributes - includes country, region, offshore details, production increments, cumulative produced volumes



Forecasting from 2017-2023 65 countries in the coverage. Expansion planned for the next 12 months



Access to 65 pre-built drilling and production PDF report quarter updates

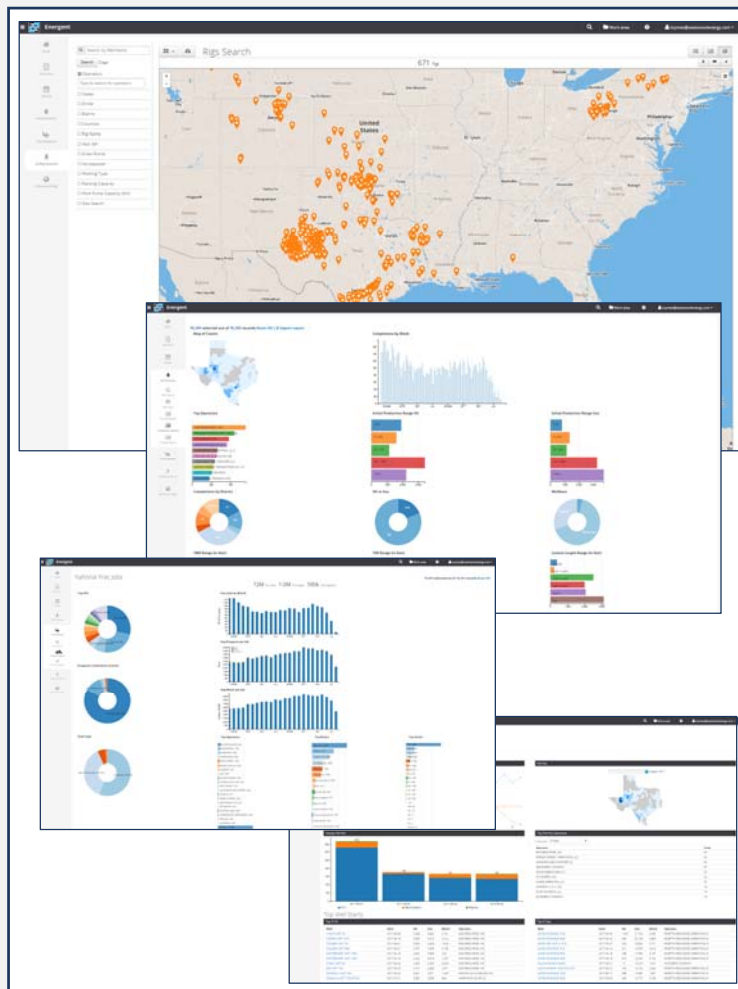


WGE Online Tools Energent



Energent tracks and benchmarks oil & gas trends in top US shale plays, with research, apps and data updated daily. Helps sales and marketing teams commercialise new products, work with up to date operator data and track well completions

- Focused on well life-cycle and frac market intelligence.
- Enables the user to create data driven market forecasts and asses well, frac sand and OCTG market potential by operator for a defined area
- ✓ View nationwide frac sand and proppant trends across all basins
- ✓ Review fluid system and volumes per well
- ✓ Analyse combination of proppants used per well across plays
- ✓ Determine pressure pumper and operator relationships by basin
- ✓ Compare well cohorts on maps, list, table and charts
- ✓ Customized analysis with well details alongside your proprietary data
- ✓ Identify near term opportunities by understanding operator forecasts



Tracks
1,700,000
US Wells



Historic data
back to 2005



Benchmark wells using key
efficiency, completion and
production metrics



Comprehensive
well and frac
data includes state,
basin, counties, well
orientation,
operator, spud date,
fluid type and
more



Weekly US rig
counts includes
operator, driller,
basins, counties,
well API, draw
works, horsepower
and more



Review and analyse data from
3,500+ E&P operators, 100+
Drilling Contractors & 150+
Oilfield service companies



WGE Research Publications

In-depth research covering the global oilfield services and exploration markets



- Westwood offers a **dynamic** and constantly updated range of **in-depth** special reports, forecasts and market briefing services covering the **global** oilfield services and exploration markets.
- The coverage within these **60+ report** services is designed specifically to help our global energy customers make better, **well-informed** commercial and strategic decisions.
- Behind every report is a team of **dedicated professionals** at your disposal working to gather and deliver information to you as it happens.

E&P



Oilfield Services

- World Drilling & Well Services Market Forecast
- World Drilling & Production Market Forecast
- World Oilfield Equipment Market Forecast
- Upstream Investment Outlook
- World Offshore Maintenance, Modifications & Operations Market Forecast
- World Oilfield Equipment Market Forecast
- World Floating Production Systems Tracker
- World FLNG Market Forecast
- World Downstream Maintenance Market Forecast
- World Offshore Wind Market Forecast

Sample of the 60+ report titles covers across the Westwood Group

WGE Consulting Our Services



Westwood
Global Energy
Group

Our experienced consulting teams work with blue-chips across the entire spectrum of the energy industry, supported by world-class, in-house research

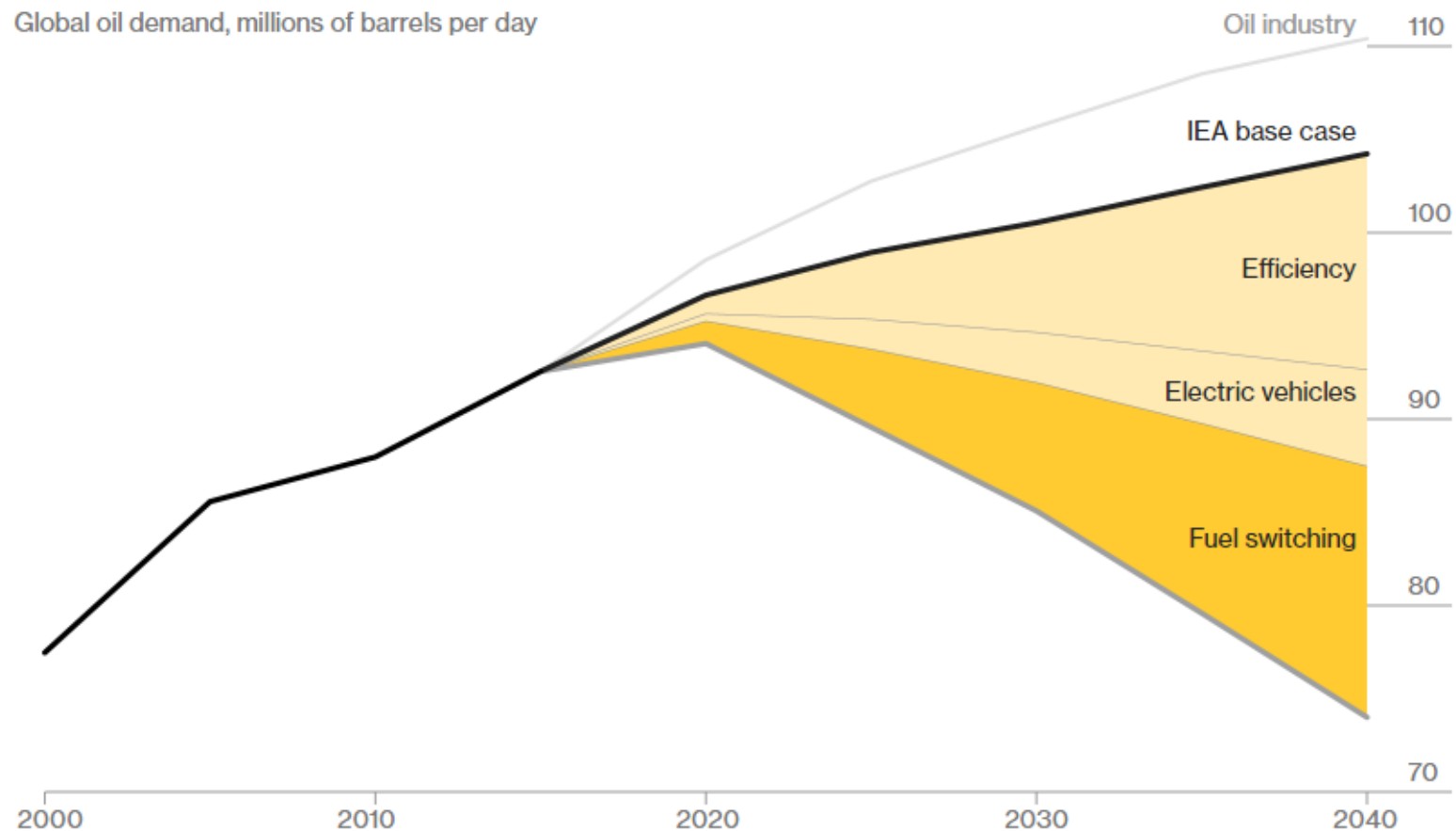
Service Line	Description	Client / s examples
 <p>Energy Analytics</p>	<p>Independent analysis and provision of insights on key macro-economic, commercial, regulatory and technological trends in conjunction with detailed forecasting:</p> <p>Macro Economic Analysis – Market Sizing & Projections – Supply & Demand analysis – Competitive Landscaping Supply Chain Modelling – Perception Surveys – Technology & Regulatory Risk Assessment</p>	
 <p>Corporate Strategic Advisory</p>	<p>Independent analysis and assessment of corporate business strategies and commercial positioning in a dynamic commodity price environment:</p> <p>Market Drivers Analysis – Commercial Positioning – DNA Assessment – Business As Usual (BAU) Diagnosis – Performance Benchmarking / Review – Growth Initiatives – Implementation Strategy – Business Planning</p>	
 <p>Transaction Support</p>	<p>Independent analysis of businesses, assets, underlying markets and drivers to help develop and support investment & financing decisions by corporates, financial institutions and investment houses:</p> <p>M&A Commercial Due Diligence – Investment Committee Support – Indicative Asset Valuations – Red Flag Analysis – IPO and Equity Financing Support – Debt Financing Support – Financial Restructuring Support – Project Financing Support</p>	
 <p>Government Services</p>	<p>Independent analysis and provision of insights to government agencies and industry bodies to help shape energy industry specific policies:</p> <p>Market Workshops – Long Term Energy Scenario Planning – Regional Hub benchmarking Industry Roadmap Development – Public Sector Financing Support – SME Stimulation</p>	



02

Macro-Economic Energy Outlook

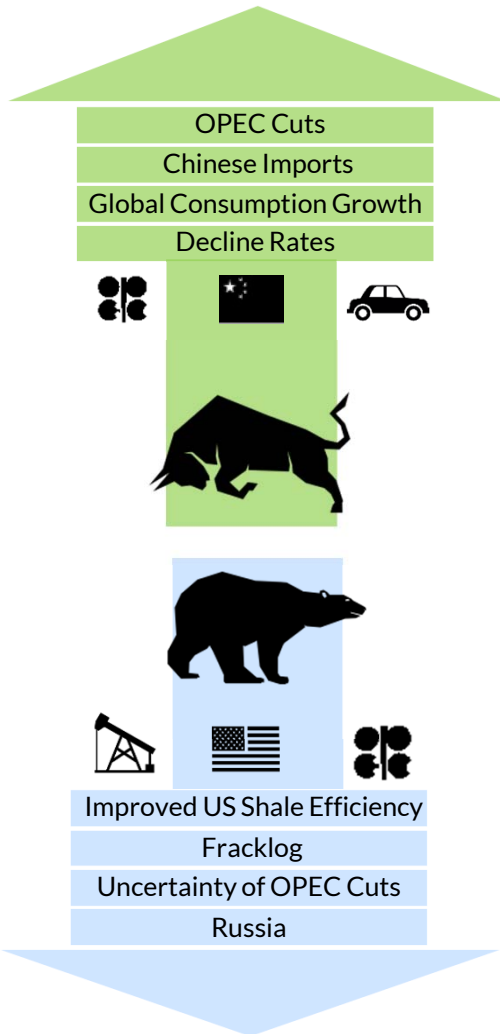
WGE Macro-Economic Outlook



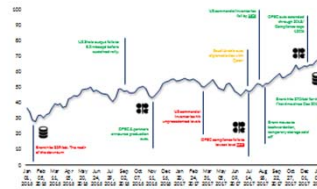
Oil Demand Outlook - IEA/Bloomberg, May 31, 2017

- Oil industry forecasting continued growth in demand which, along with production decline from existing fields paints a positive view for the need for offshore field development.
- However, other views exist and could have material impact on future oil development in difficult-to-access (i.e. high cost) areas.

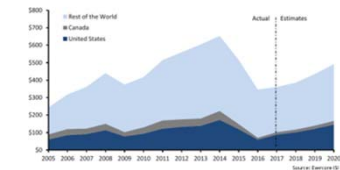
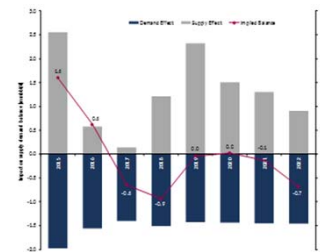
It's all about OPEC!



- Current recovery hinges entirely on OPEC... for now

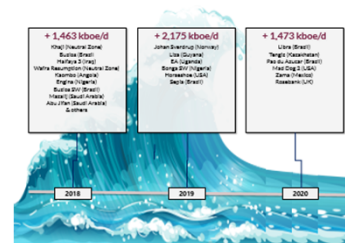


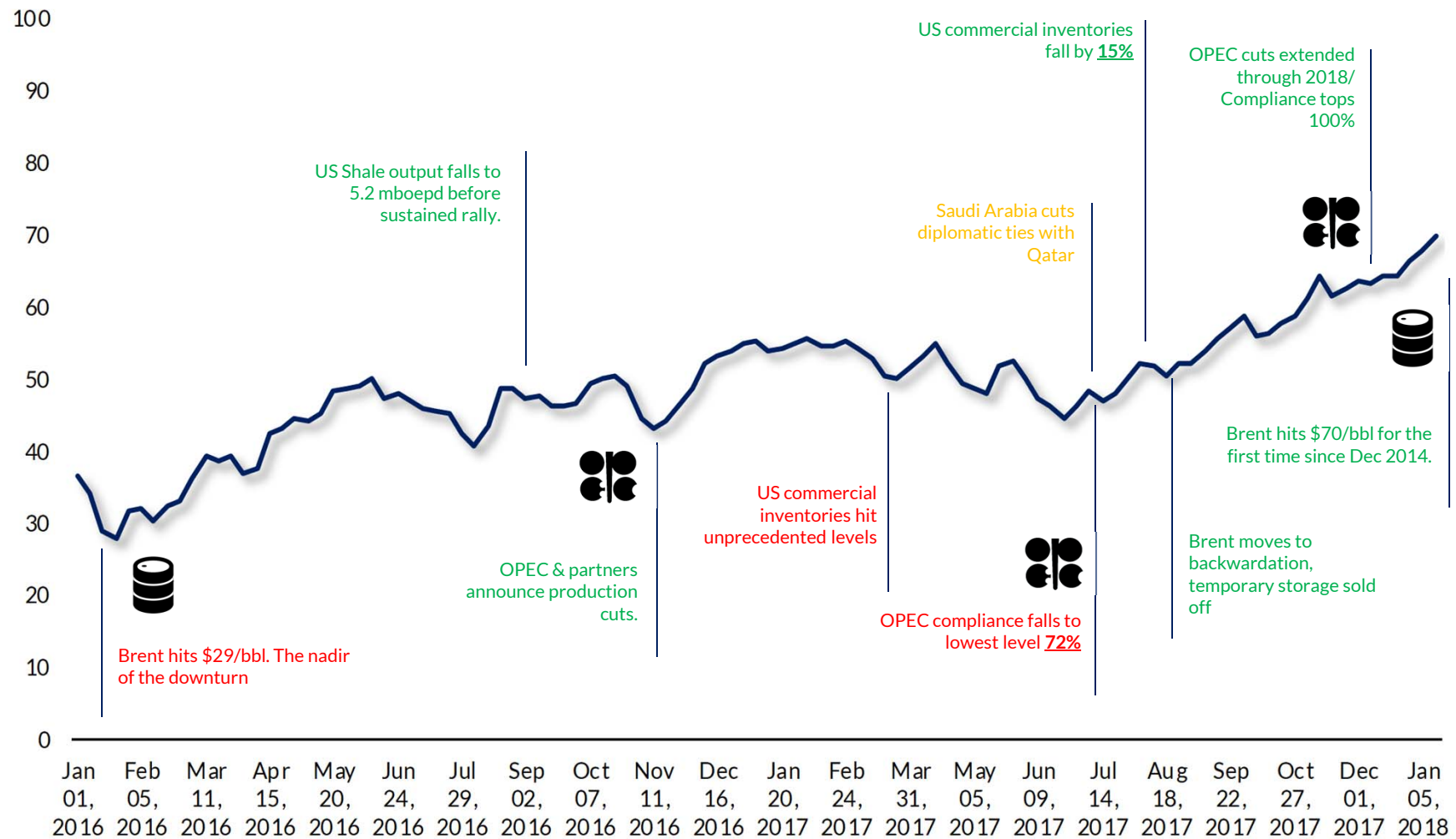
- Oil touches \$70/bbl after a long downturn and slow recovery
- OPEC intervention now well-disciplined – but for how long?
- Demand growth is accelerating – EIA forecasting 1.6m bpd in 2018 vs 1.4m bpd in 2017.



- Recovery driven by North America – short lead-times & lower risk
- Expectations are that spend levels will not recover to pre-downturn levels this decade

- Huge supply-side uncertainties & wildcards remain

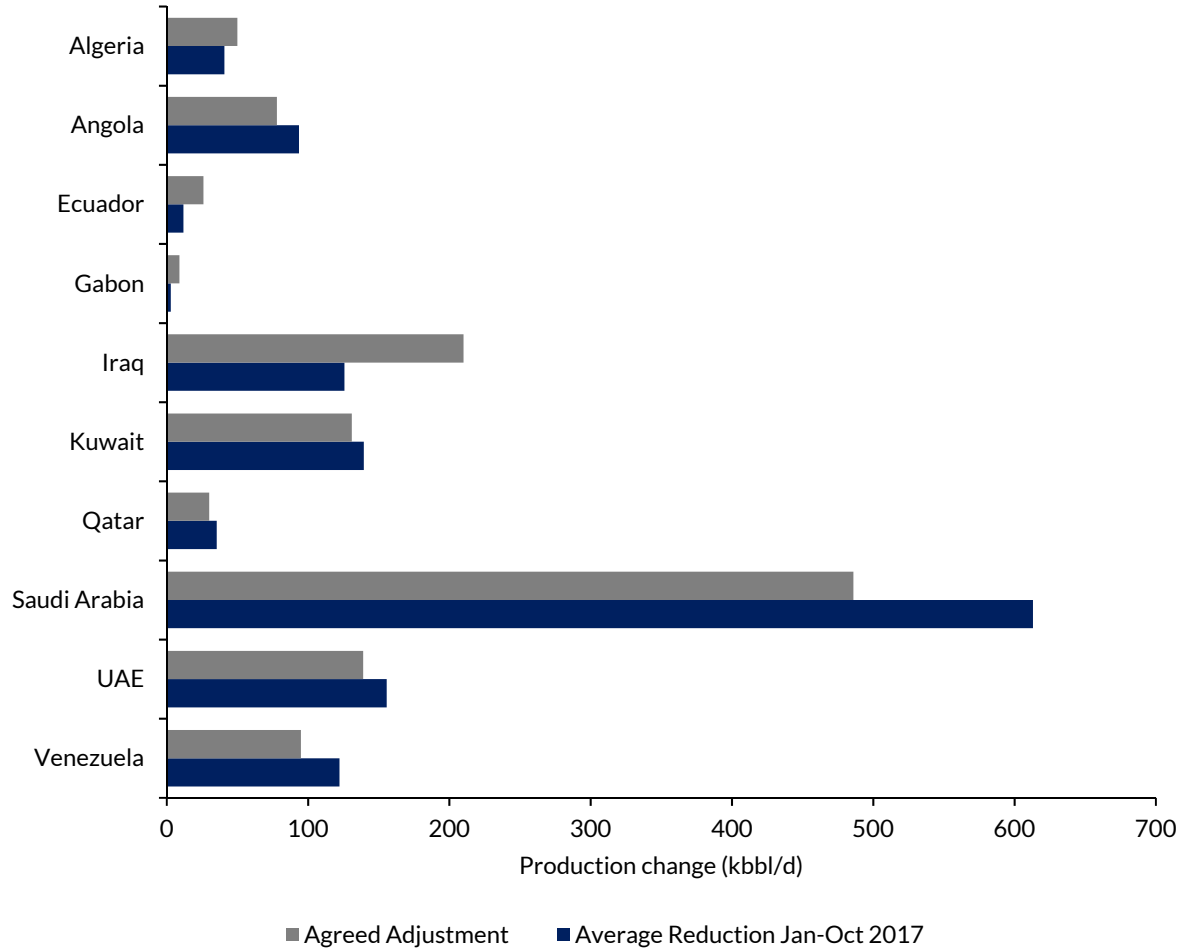




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WGE Macro-Economic Outlook

OPEC members display increasing discipline through 2017

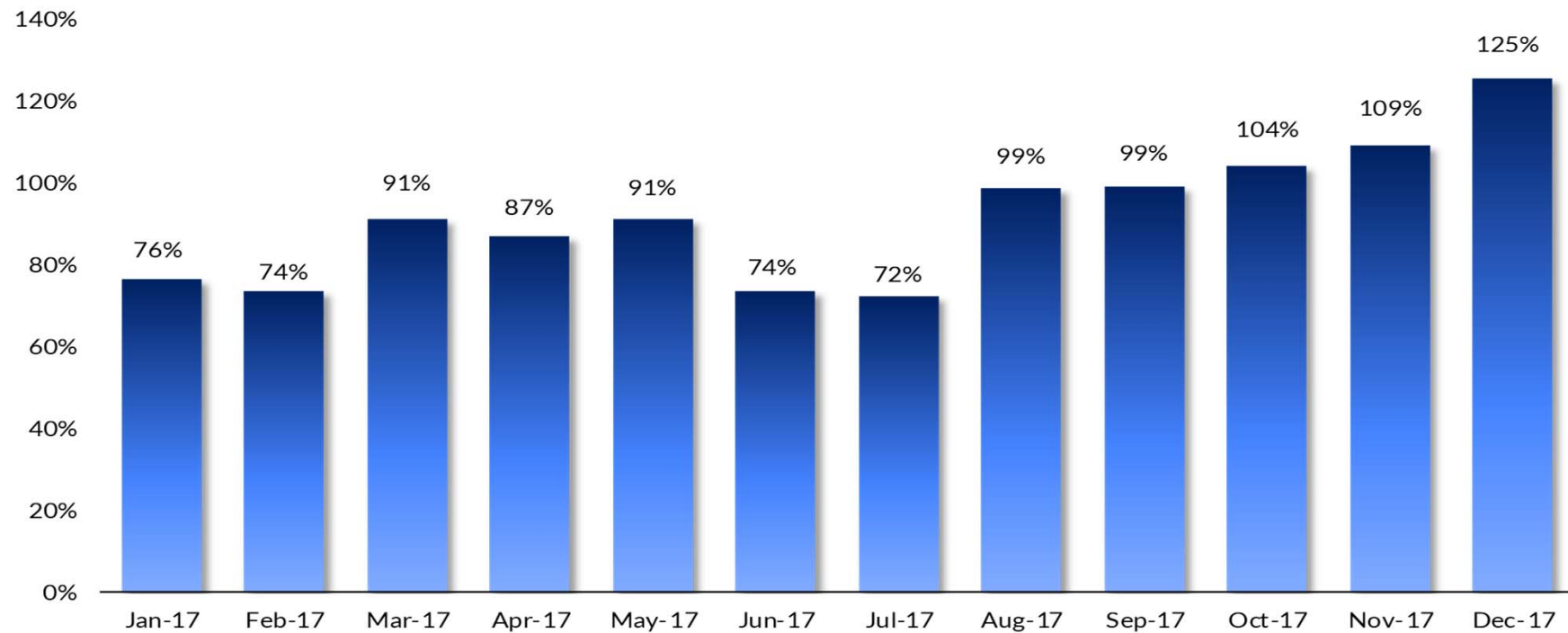


OPEC 2017 Production Reduction vs Agreed Reduction

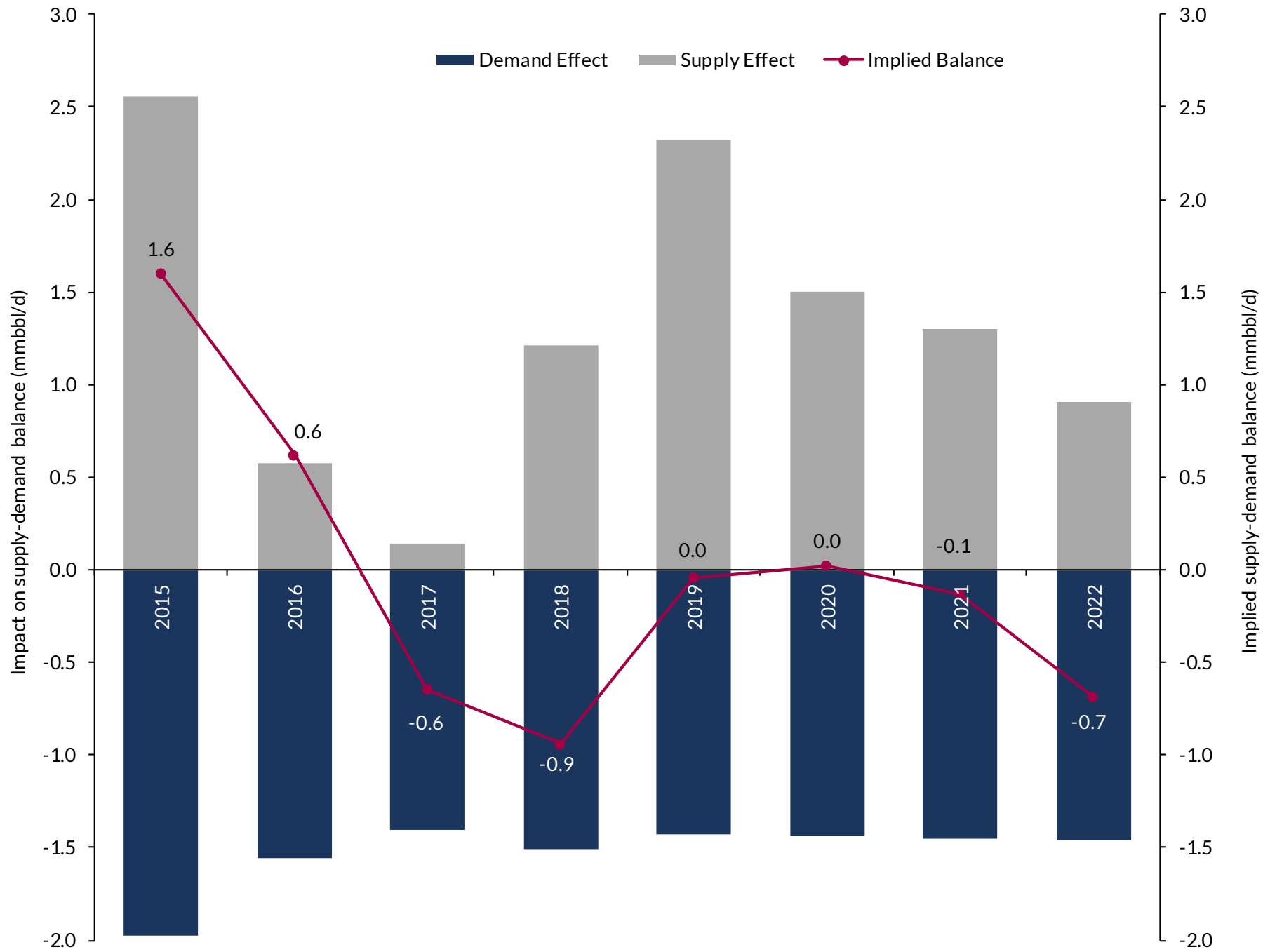
- 1.2 mmbbl/d cut agreed between ten OPEC members 12 months ago
- Saudi Arabia with largest share of the cut (-486 kbbbl/d)
- -558 kbbbl/d from 11 non-OPEC nations
- Saudi Arabia have gone beyond agreed adjustment to compensate for non-compliance of OPEC and non-OPEC nations
- Cuts extended in May to March 2018, again in November to end of 2018
- Libya and Nigeria now restricted to 2017 levels, previously exempt

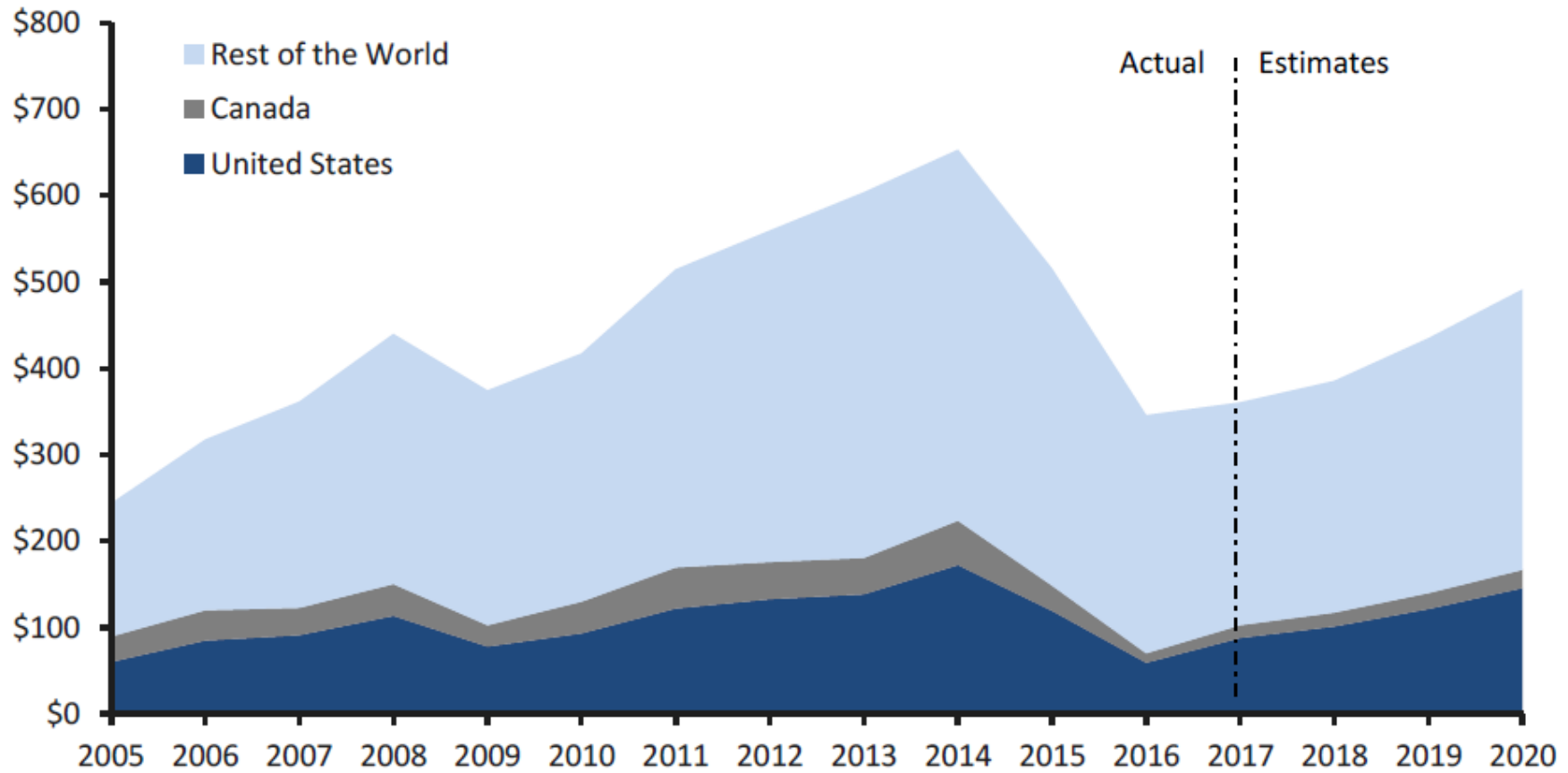
WGE Macro-Economic Outlook

OPEC members display increasing discipline through 2017



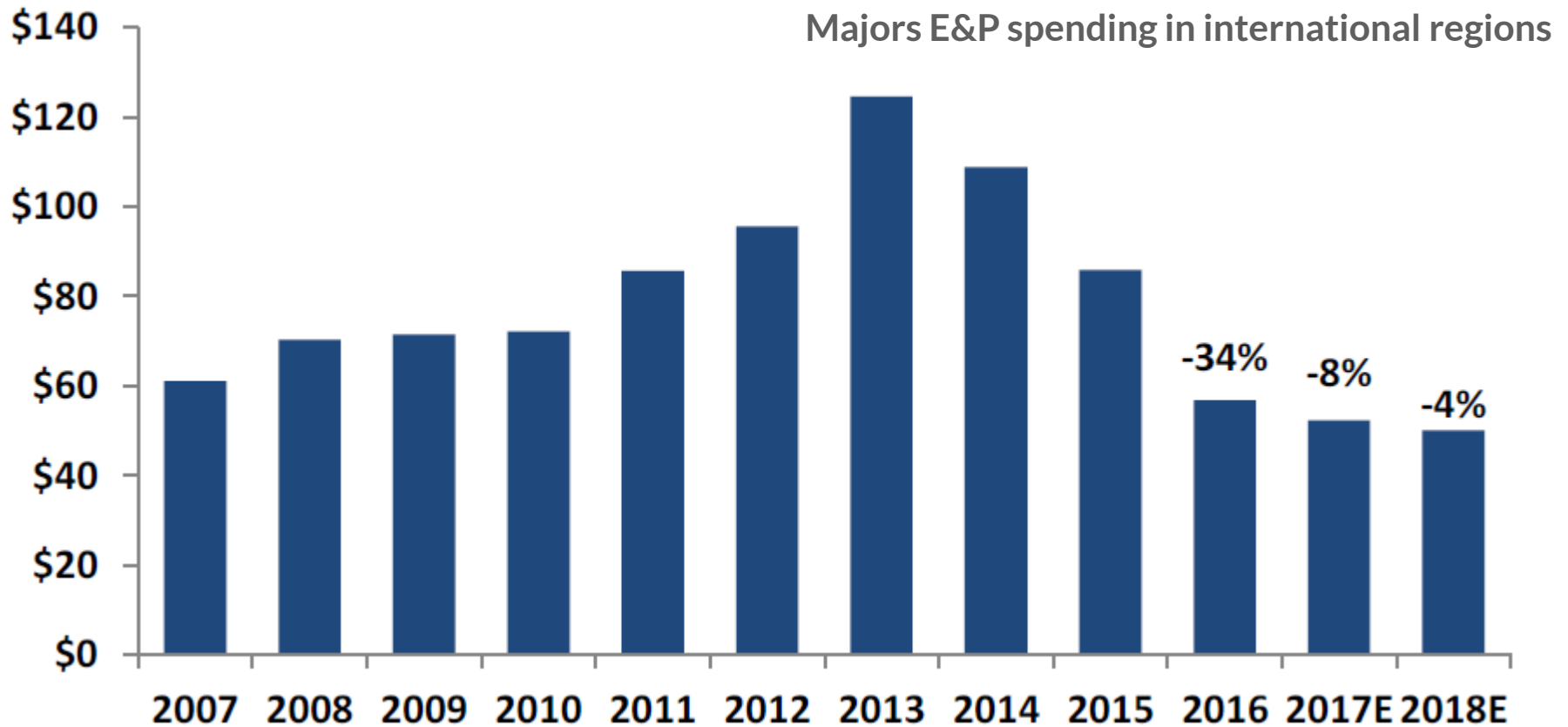
- Saudi Arabia, Venezuela and Mexico have driven OPEC cuts compliance to 125%
- Saudi Aramco reportedly continuing to progress IPO plans to float 5% in 2018
- Russia reportedly mulling OPEC deal exit?





Source: Evercore ISI

- Recovery driven by North America – short lead-times & lower risk
- Expectations are that spend levels will not recover to pre-downturn levels this decade



Source: Evercore ISI

- Major E&P cos continue to focus on capital discipline – overall Capex and cost/bbl extracted remain important performance indicators
- Over 40% reduction in average cost/bbl extracted for developments sanctioned 2014 vs 2016 onshore US.

+ 1,463 kboe/d

Khaji (Neutral Zone)
Buzios (Brazil)
Halfaya 3 (Iraq)
Wafra Resumption (Neutral Zone)
Kaombo (Angola)
Engina (Nigeria)
Buzios SW (Brazil)
Mazalij (Saudi Arabia)
Abu Jifan (Saudi Arabia)
& others

+ 2,175 kboe/d

Johan Sverdrup (Norway)
Liza (Guyana)
EA (Uganda)
Bonga SW (Nigeria)
Horseshoe (USA)
Sepia (Brazil)

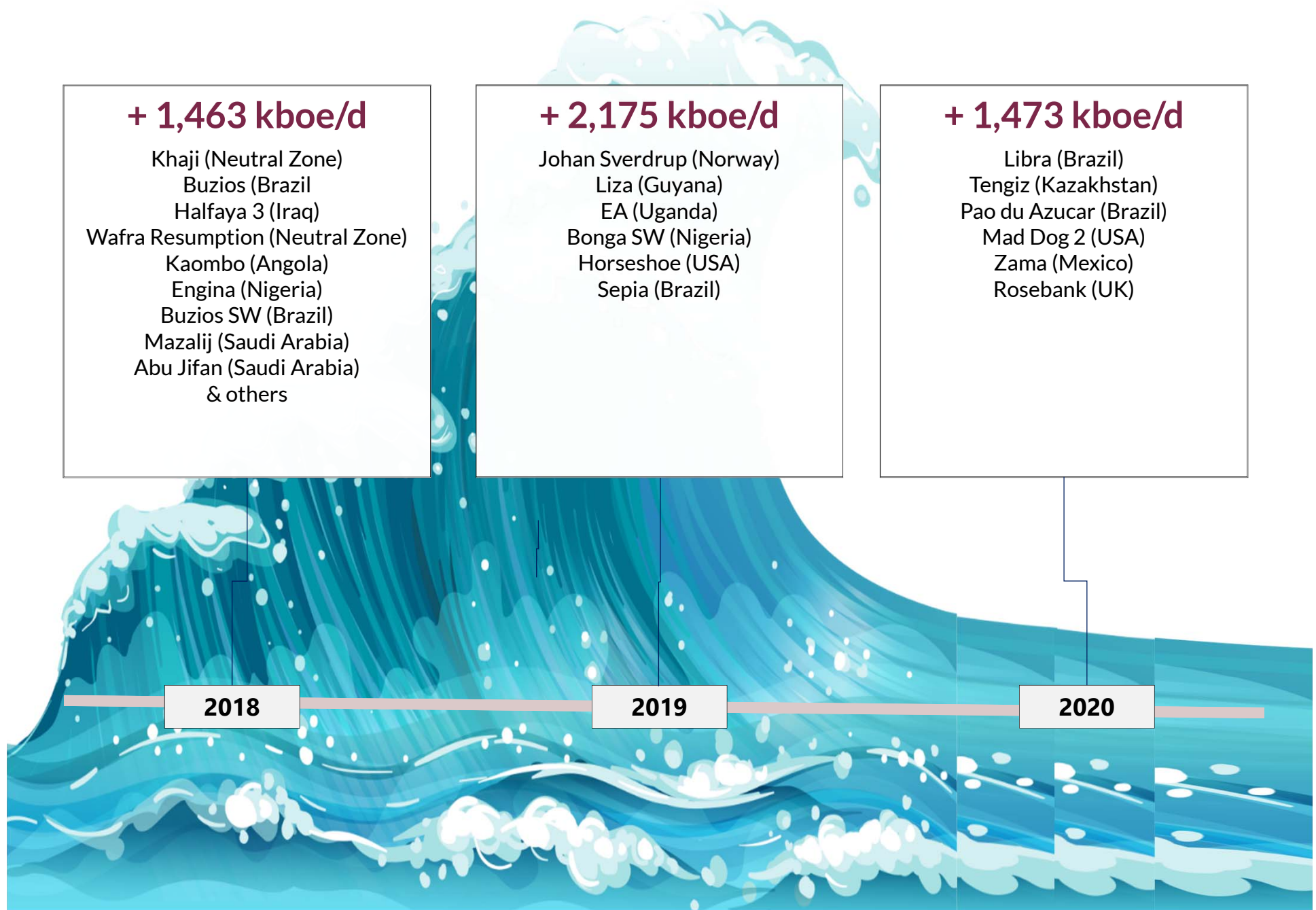
+ 1,473 kboe/d

Libra (Brazil)
Tengiz (Kazakhstan)
Pao du Azucar (Brazil)
Mad Dog 2 (USA)
Zama (Mexico)
Rosebank (UK)

2018

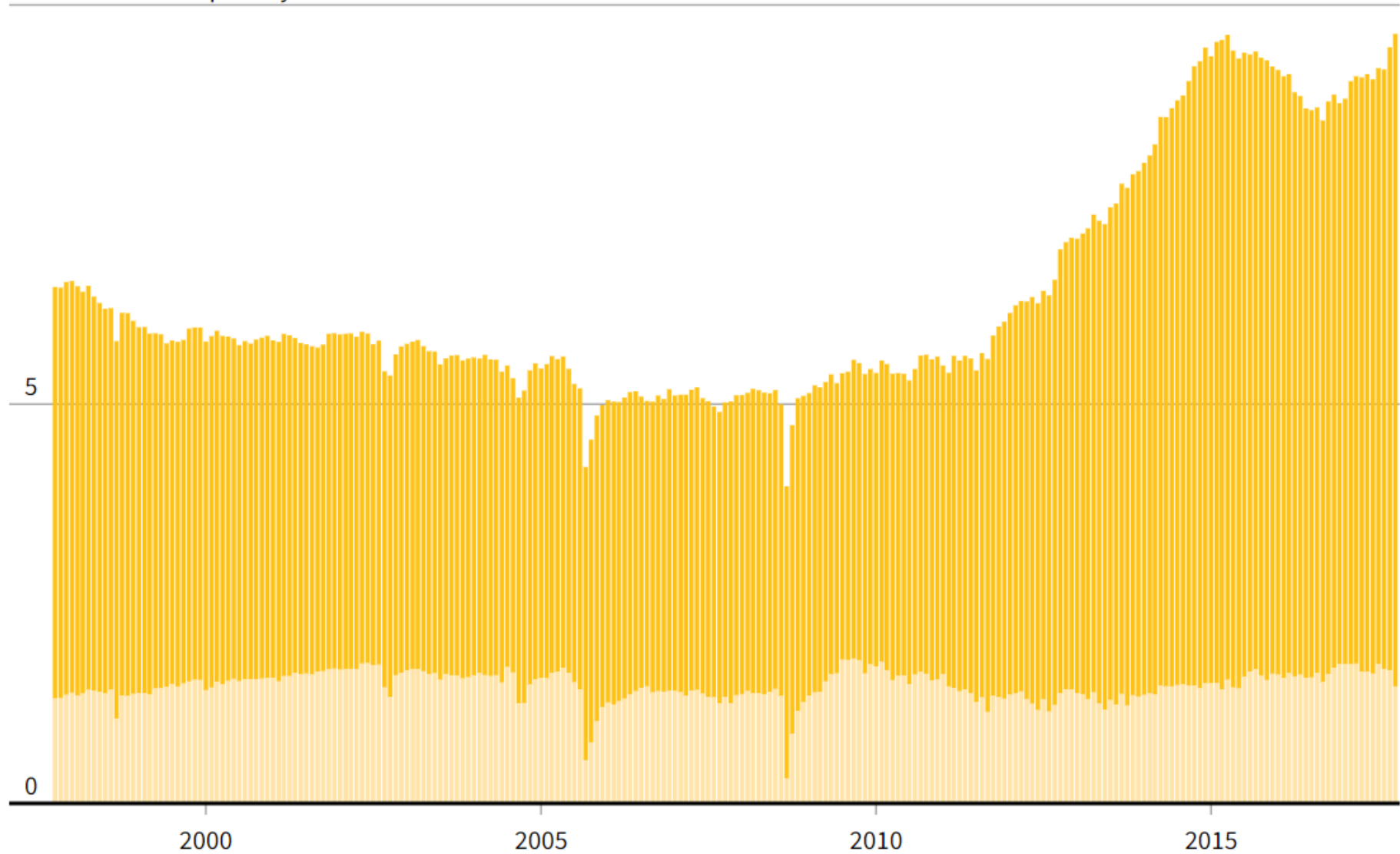
2019

2020




Offshore Onshore

10 million barrels per day



- US production is rapidly increasing & expected to hit 11mbpd by 2019....

SA




IPO

Will reserves be disclosed?
Cashing in?
Resigned to <\$75/bbl
Landscape?

VS

J



Trump

Tax reliefs for fossil fuels
Acceleration of oil/gas exports
Conflict?

f

中国



China

Can demand be sustained
Production cuts
Import gains

中国

PG



Middle East

Yemen Conflict
Qatar & GCC
Kurdistan

PG



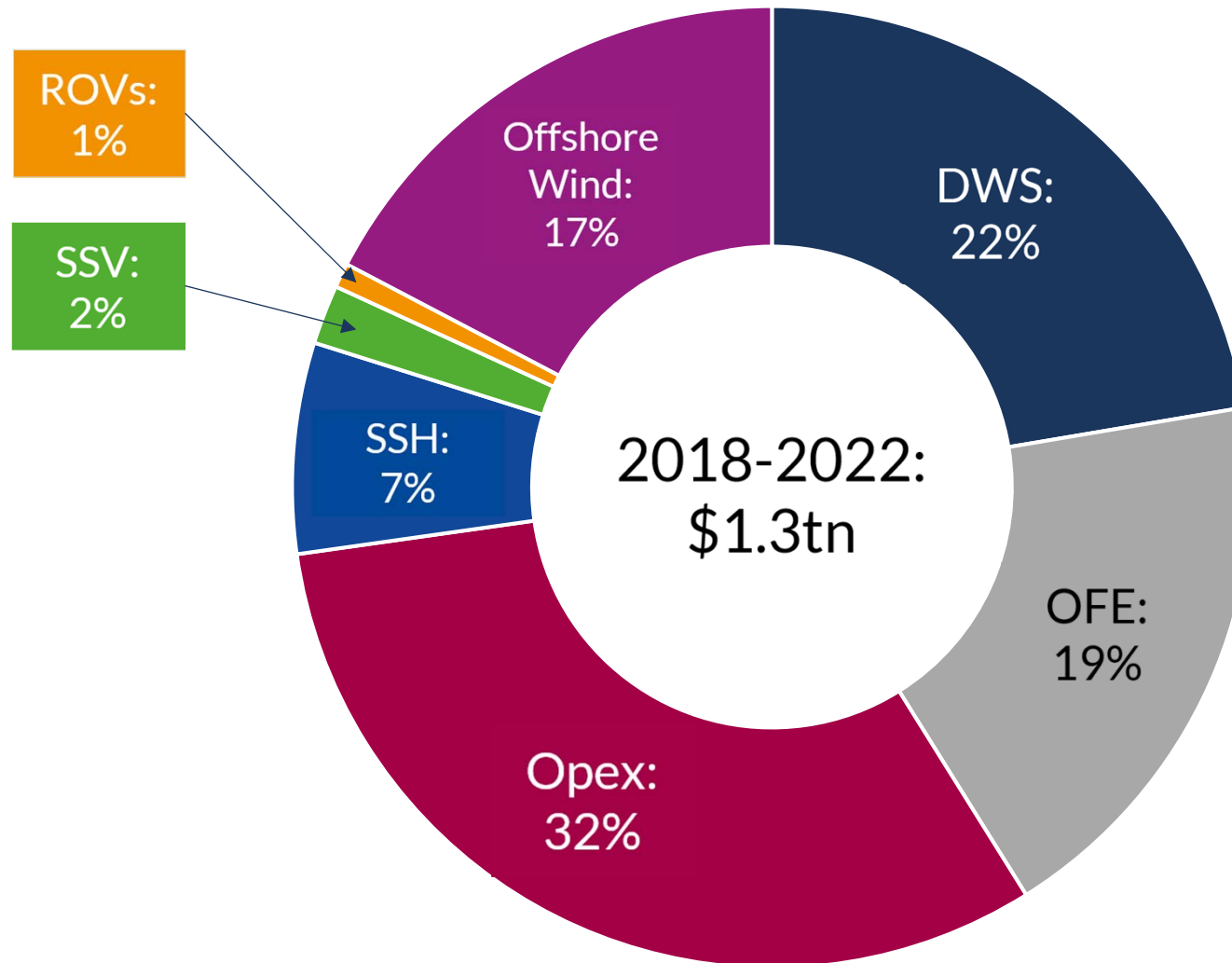
03

Offshore Sector
Forecasts &
Leading Indicators

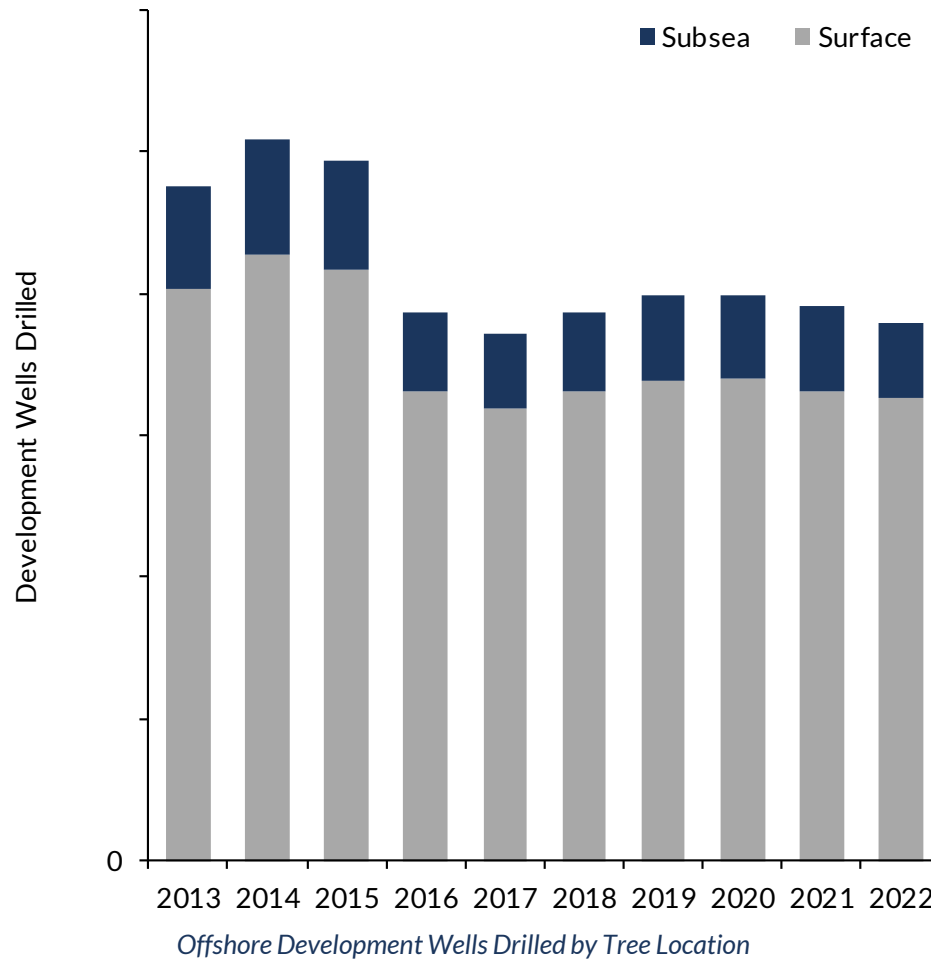
WGE Offshore Sector Forecasts & Leading Indicators



Total spend of c.\$1.3tn expected over 2018-2022.



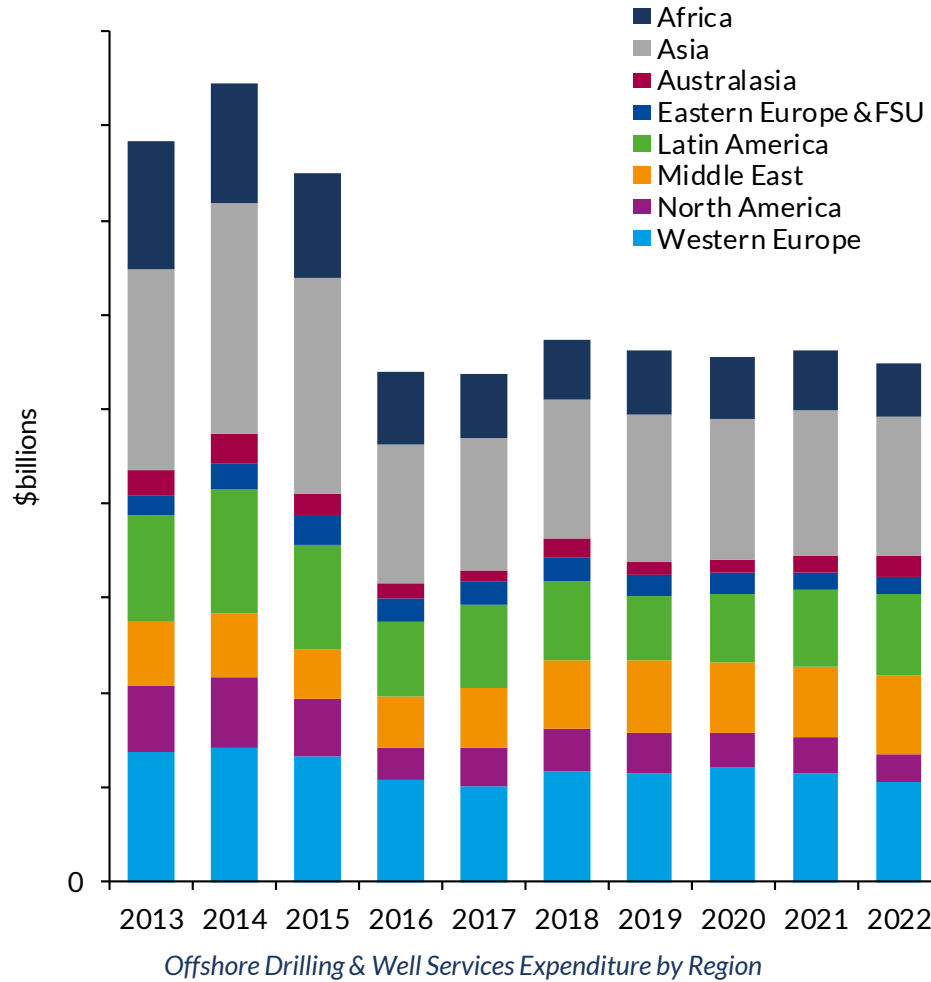
Surface drilling will remain dominant



- Surface wells 85% of forecast
- 1,449 visible subsea tree installations to 2022
- Subsea drilling to peak in 2021

WGE Offshore Drilling & Wells Services

Drilling & Well Services driven by drilling activity. Day rate deflation to remain.

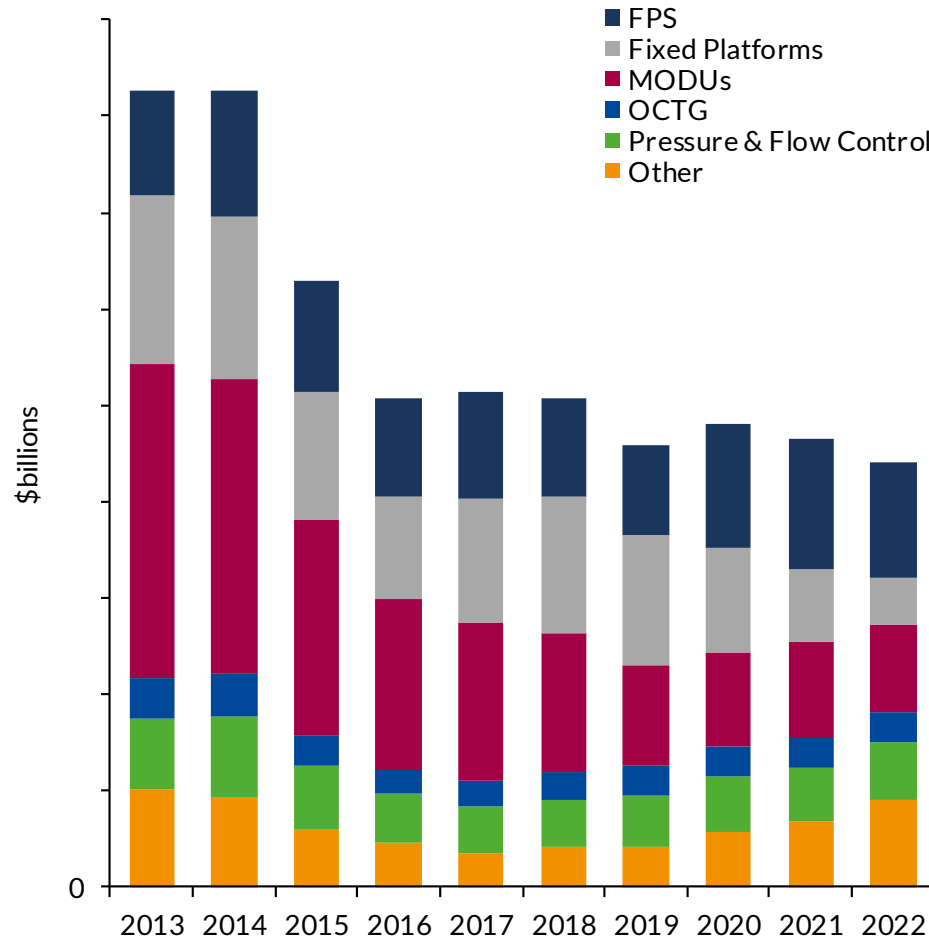


- \$280bn market over the forecast
- Uplift in 2018 due to rise in drilling
- Return to decline in 2019 and beyond
- Rig utilisation will remain low

WGE Offshore Oilfield Equipment



Offshore Oilfield Equipment market shows one of the poorest growth prospects in WGE market coverage.

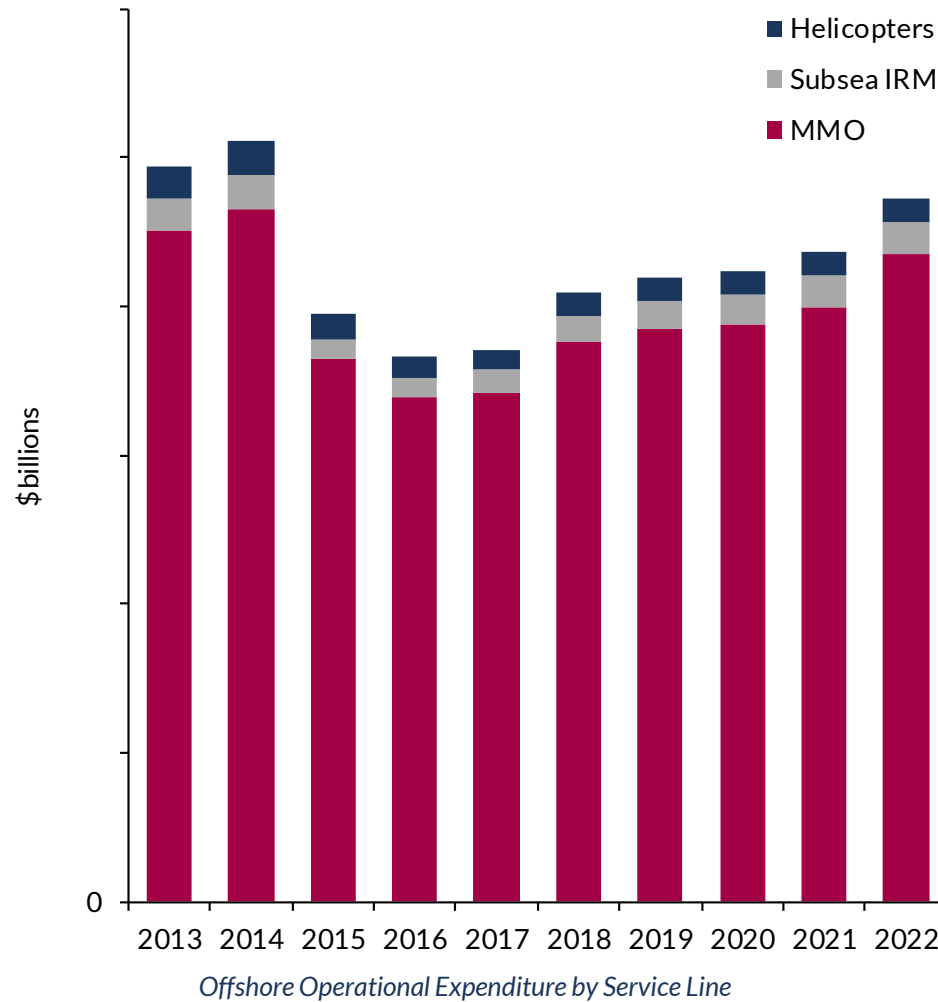


Offshore Oilfield Equipment Expenditure by Equipment Category

- \$235bn market over next 5 years
- Expenditure phased from order to delivery year
- Fixed platforms and MODUs have worst outlook
- FPS flat near-term; gaining long-term

WGE Offshore Opex

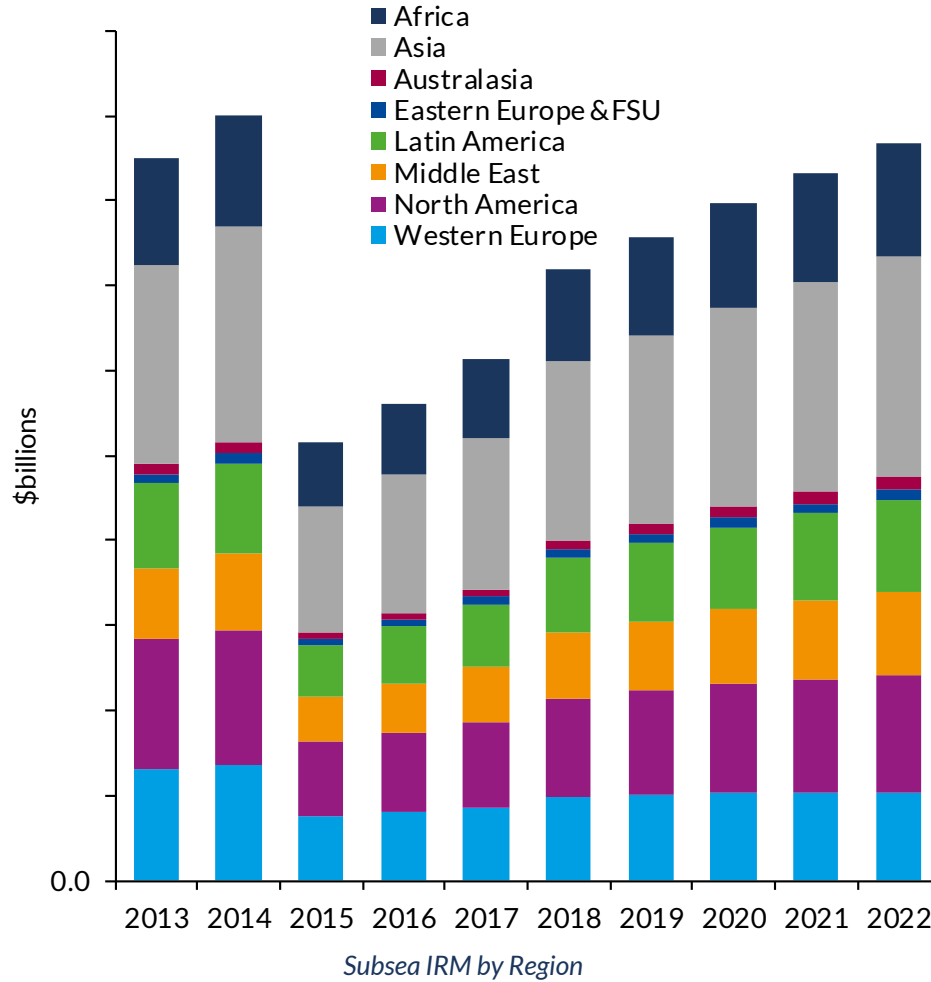
Significant offshore Opex market. Operators have looked to make cutbacks where possible.



- \$432bn market over 2018-2022
- Platform maintenance accounts for vast majority of this
- All Opex markets have seen cutbacks through the downturn
- Positive outlook from here



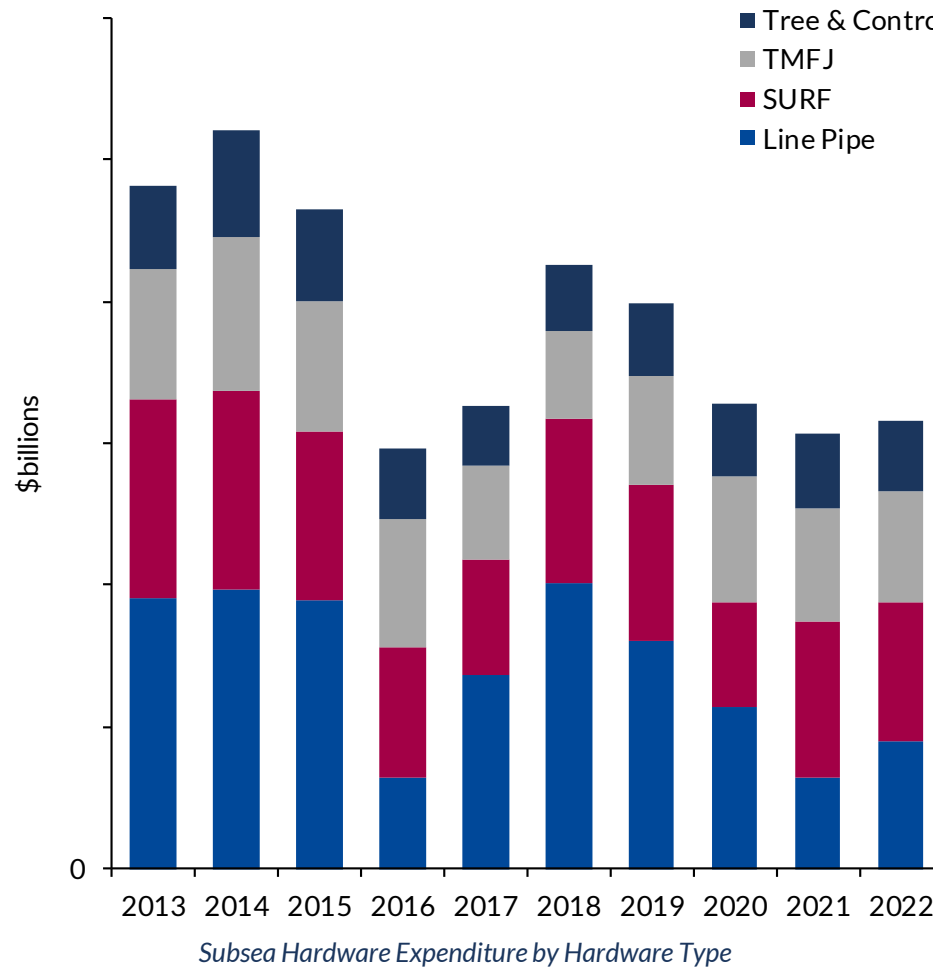
Subsea inspection, repair and maintenance market is a much smaller market, but no less significant.



- \$20bn market over next 5 years
- Asia is the largest subsea IRM market
- Middle East to see strongest growth
- Western Europe to be flat

WGE Subsea Hardware

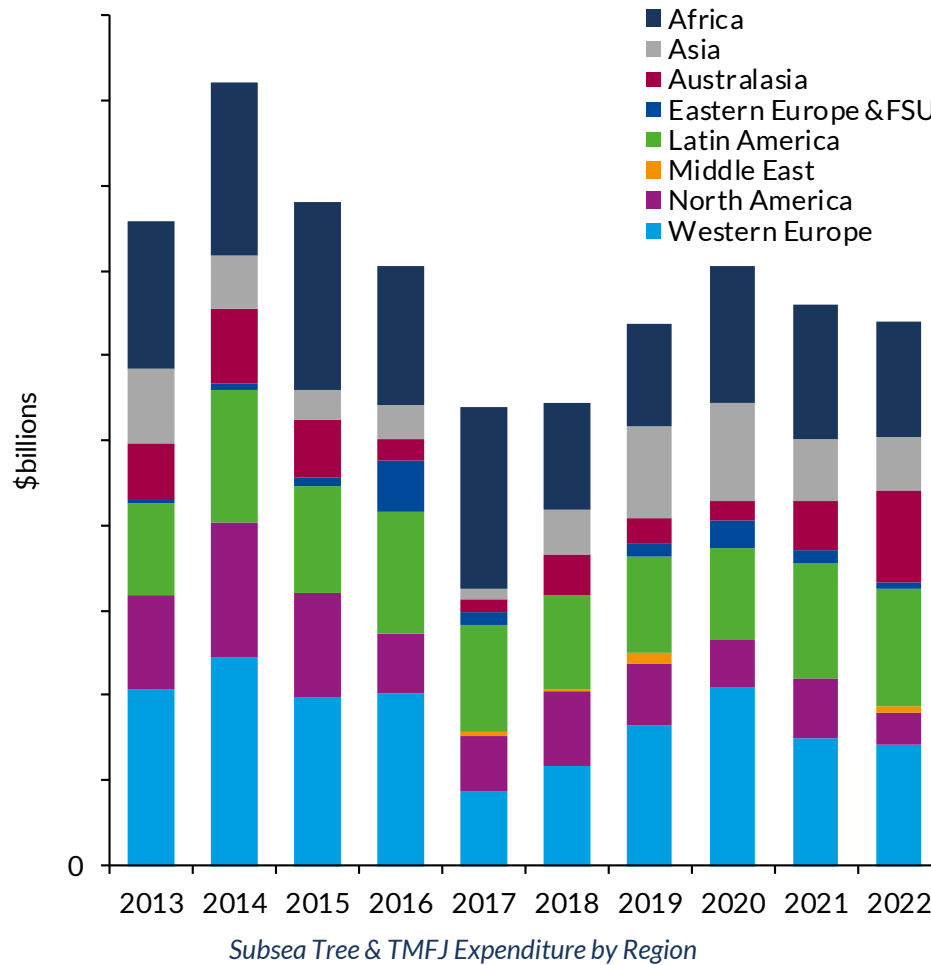
Subsea hardware market is improving. \$89bn total market over 2018-2022.



- Driven by deepwater activity
- Line Pipe a key market, but “lumpy”
- Western Europe one of the biggest markets
- Tree installations key driver of SSH market

WGE Subsea Hardware

Subsea tree, control and template, manifold, flying lead and jumpers

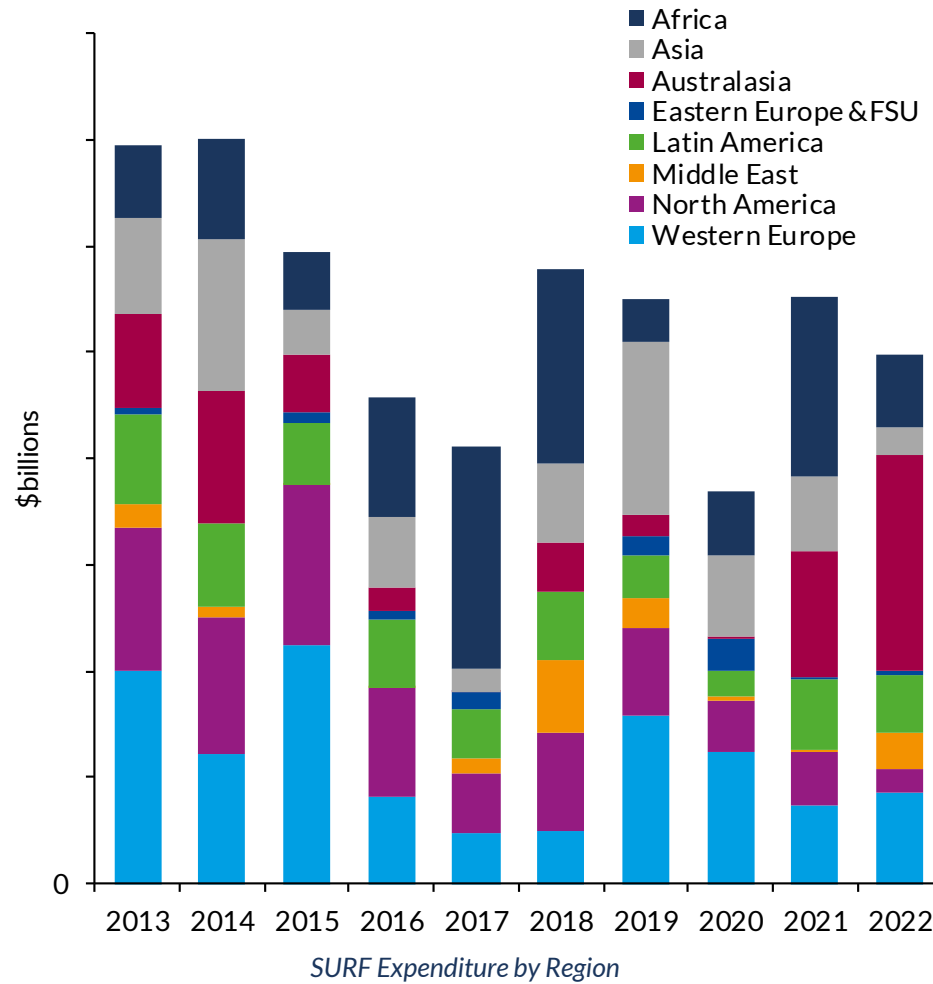


- \$32bn market over next 5 years
- Templates and manifolds 43% of spend
- Subsea trees 22% of total
- UK & Norway to see 276 subsea tree installations
- Tree awards have recovered in the last year however not to pre-downturn levels.
- Backlogs have been eroded through the downturn and are now at lowest levels for a decade.

WGE Subsea Hardware



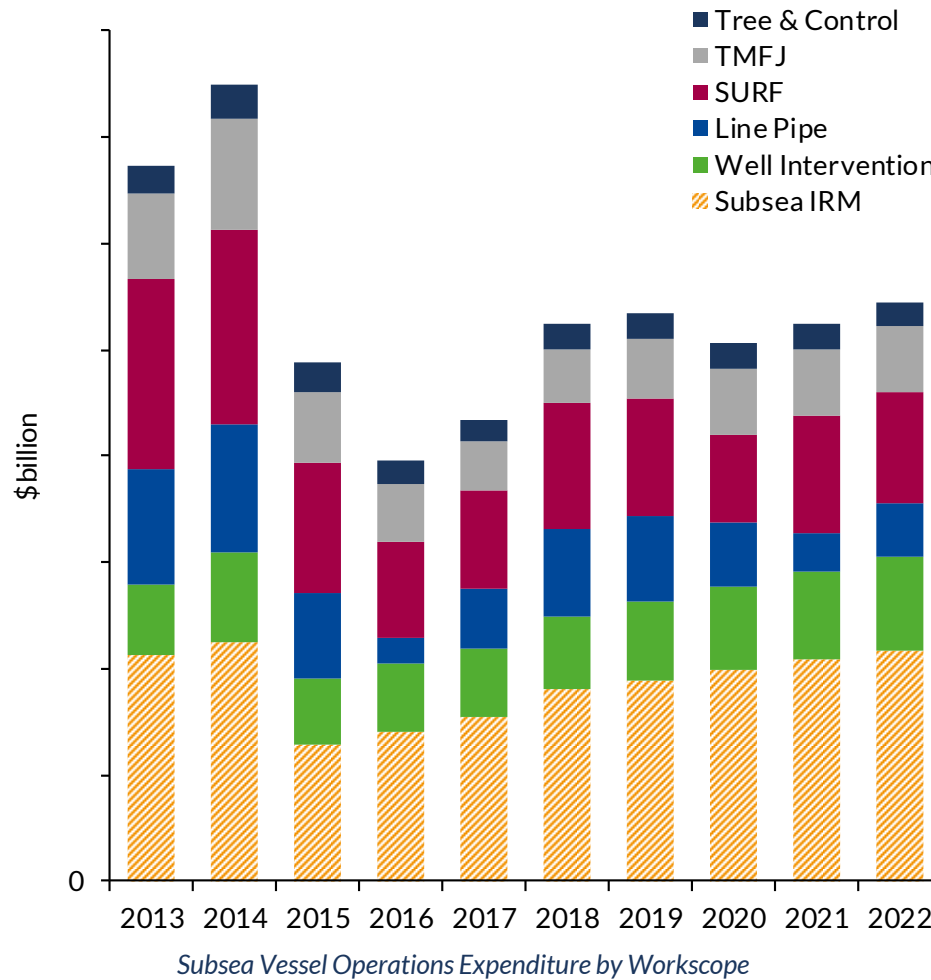
Subsea umbilicals, risers and flowlines market is 29% of future subsea hardware market.



- 41% decline through downturn
- More 'lumpy' than TMFJ and xmas tree market
- 2017-2018 boosted by 1,410km in North Africa
- 2019 by India, Norway
- 2021-2022 by Australasia

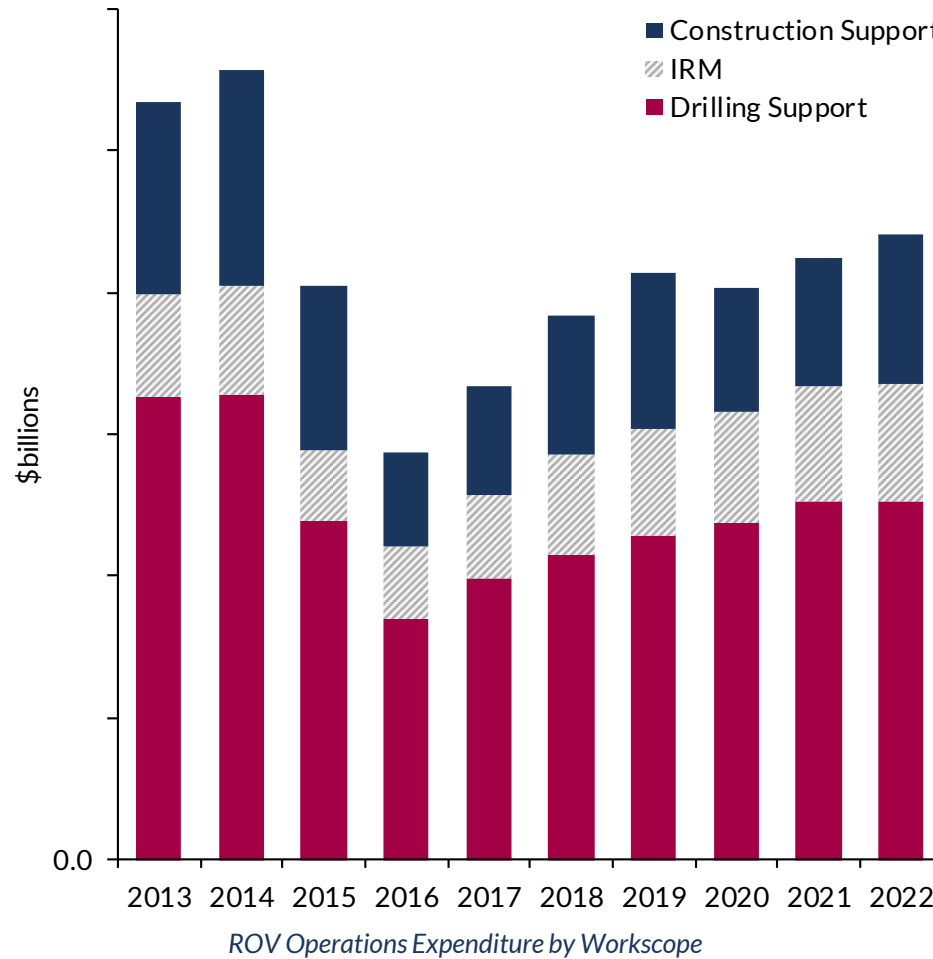


Reduction of E&P spend and an oversupplied vessel market put large pressure on the vessel market in recent years



- Expenditure of \$53bn, 2018-2022.
- Brazil biggest Capex spender, high number of tree installations.
- Oversupplied vessel market has suppressed day rates. Modest growth through to 2022.
- Project sanctioning picking up but pressure on prices remains.

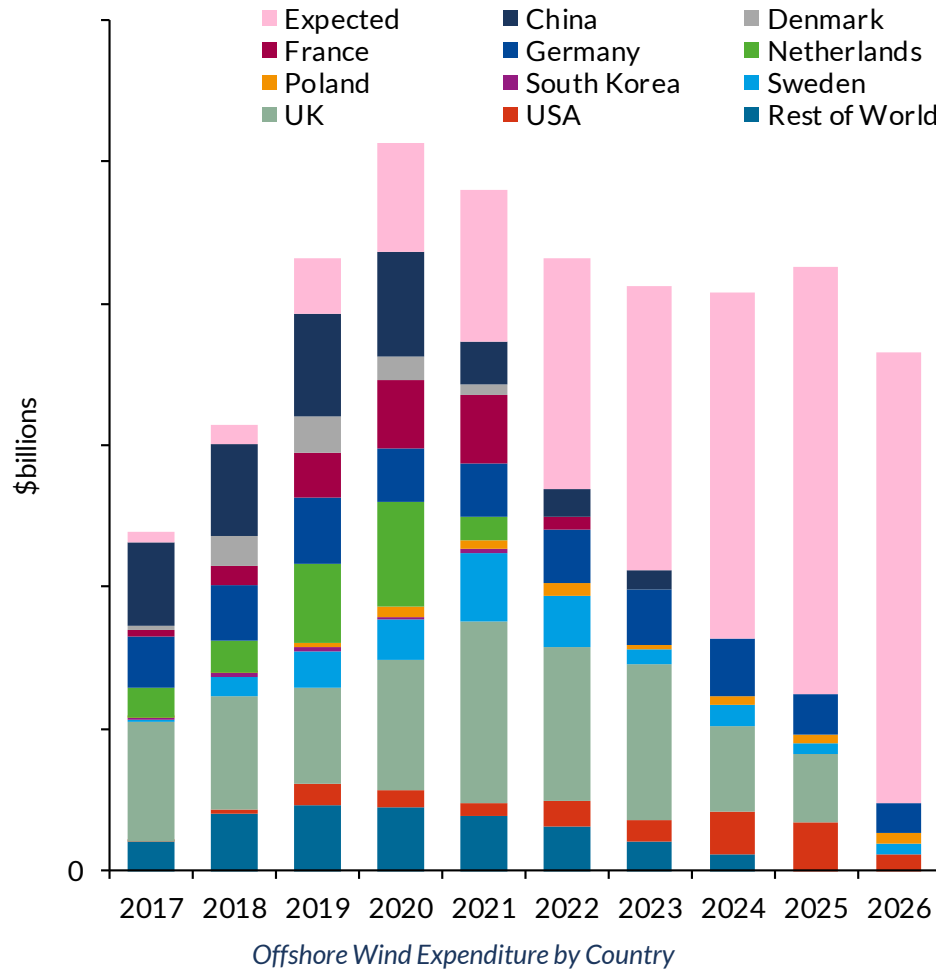
Expenditure for WROV support will reach over \$10bn as demand begins to improve.



- Drilling support will account for over half of both volume and expenditure.
- After a decline due to delayed maintenance, IMR activity will see consistent growth.
- Asia to account for largest volume of activity and spend due to a large installed base and a number of new projects.



Offshore wind sector to benefit from the increased scale of project in both project capacity and turbine capacity.

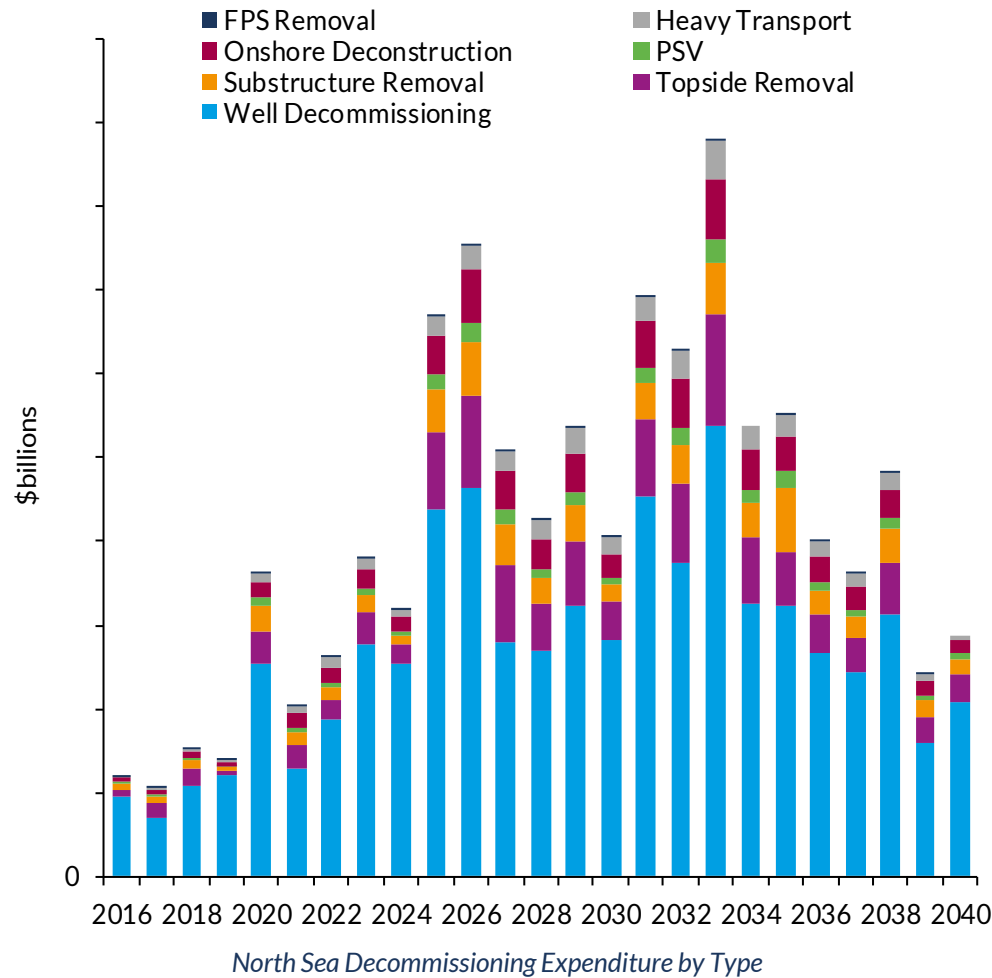


- Global capacity to increase 431% between now and 2026 – additional 57 GW.
- €420bn to be spent globally.
- UK, Germany and China are largest markets. The US, France and Poland are key emerging markets.
- Wind farms moving further from shore and in deeper waters.
- 42,200km of Cable to be installed.

WGE North Sea Decommissioning



Well decommissioning to dominate North Sea decommissioning spend to 2040, with UK as the largest region.



- Market to total \$102bn between 2018-2040.
- Ramping up in decommissioning activity from 2025 onwards.
- Well decommissioning to dominate spend – 65% of the total.
- UK dominates spend due to the highest number of platforms and tree removals.



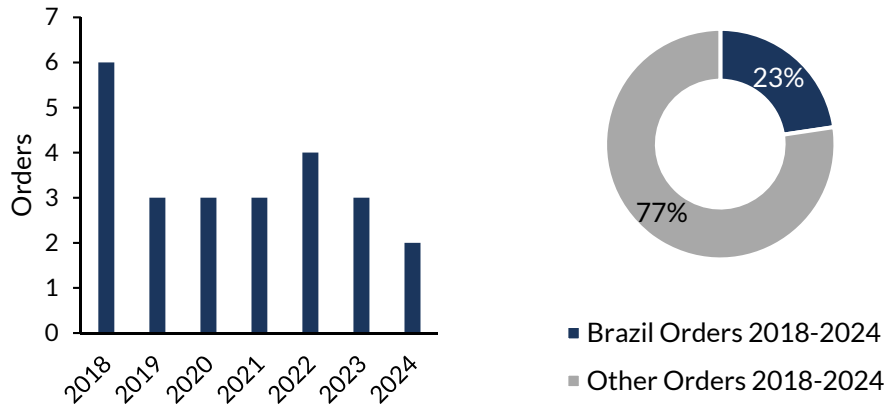
04

Countries in
Focus

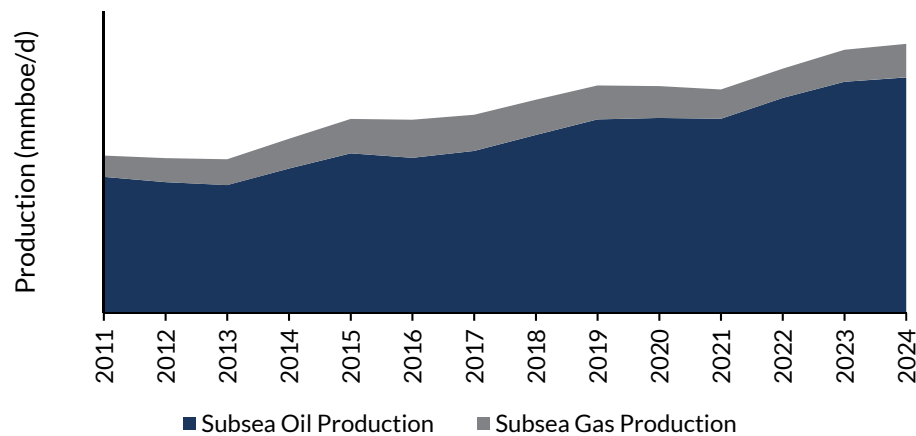
Westwood Global Energy Group Countries in Focus



Conclusions...

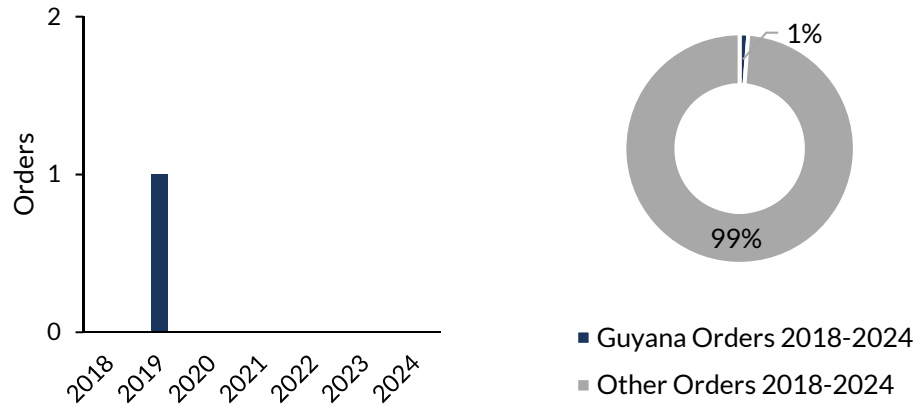


Brazil Expected FPS Orders



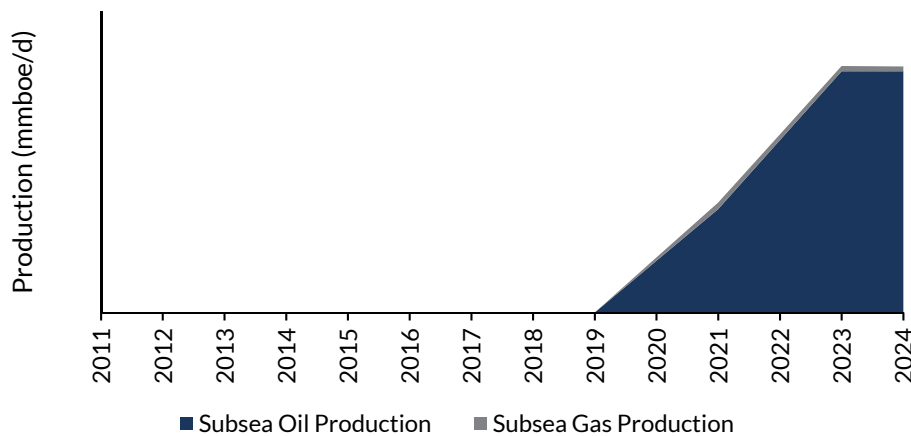
Brazil Subsea Oil & Gas Production

- Sector opened up following local content change
- Six FPS orders expected this year
- 23% of all FPS orders destined for Brazil
- One fifth of tree installations to occur in Brazil



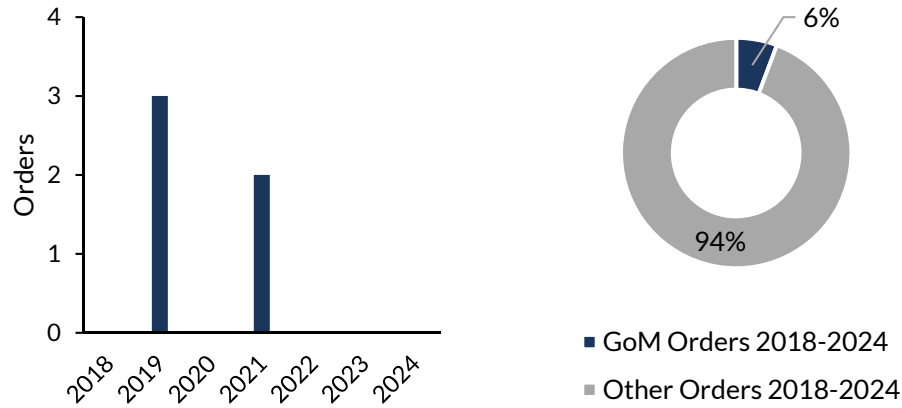
Guyana Expected FPS Orders

- Liza one of the largest new producers in forecast period
- A super size FPSO is expected to be ordered in 2019
- Exxon’s success continuing, 5 discoveries – potential for more FPS orders & higher production

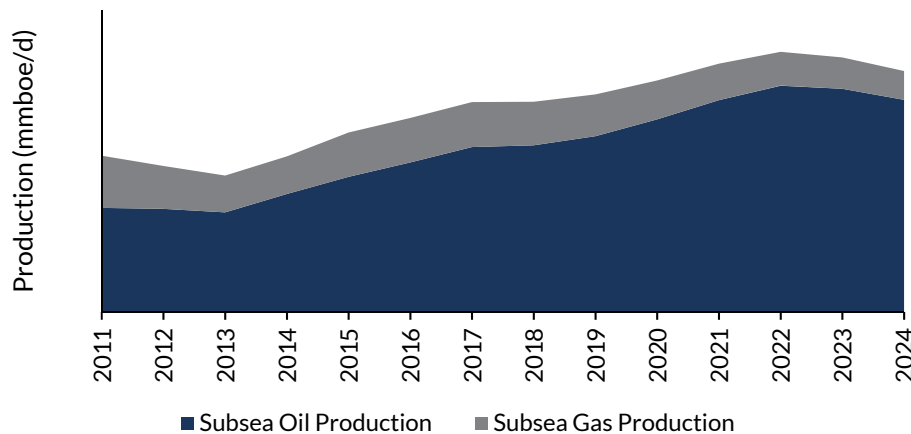


Guyana Subsea Oil & Gas Production



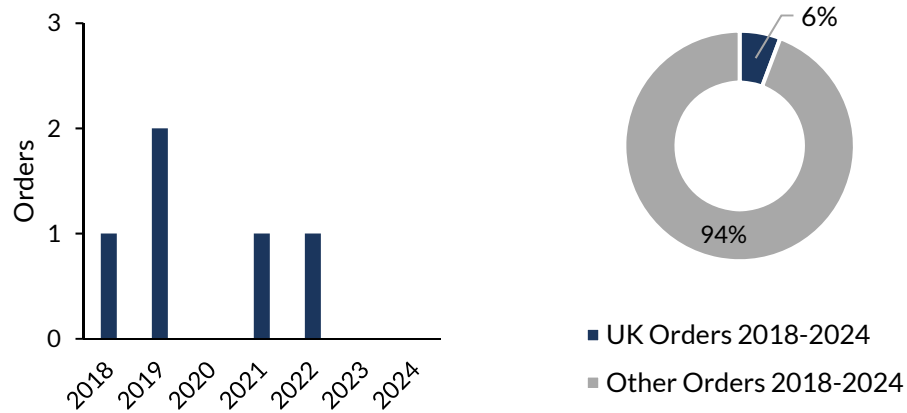


Gulf of Mexico Expected FPS Orders

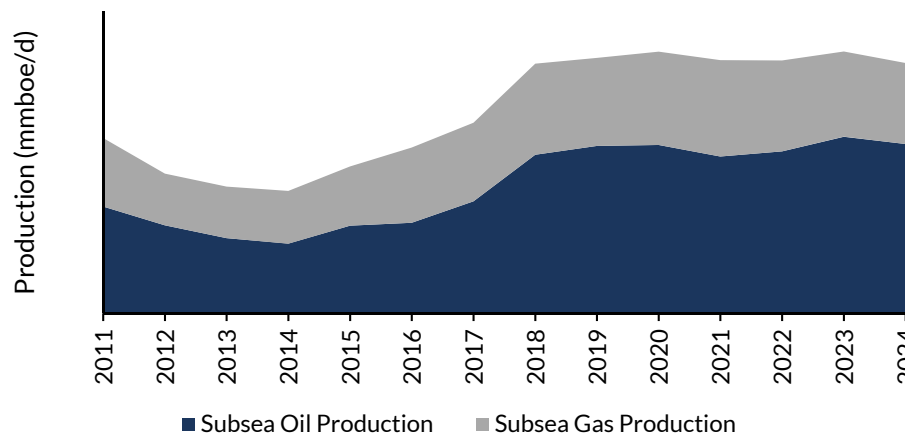


Gulf of Mexico Subsea Oil & Gas Production

- Backlog of pre-downturn developments still being worked through in US
- Mexico to benefit from foreign investment in medium-term
- Limited FPS orders over the forecast, however, subsea tiebacks provide potential upsides for investments

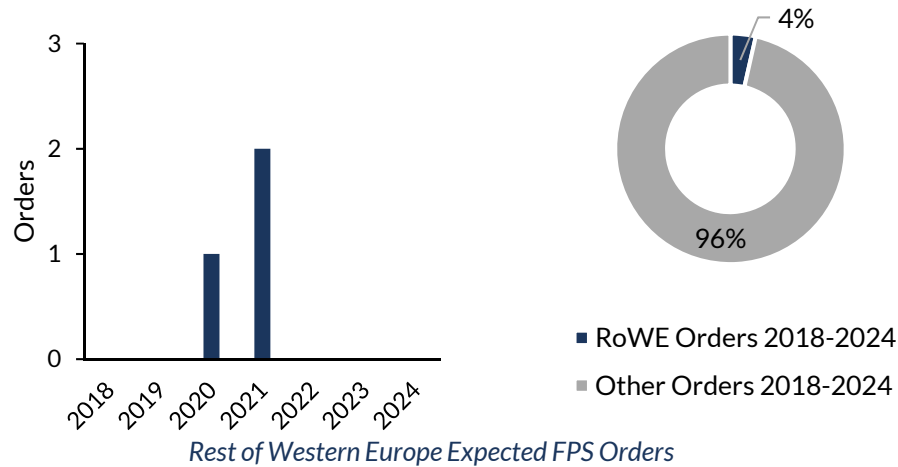


UK Expected FPS Orders

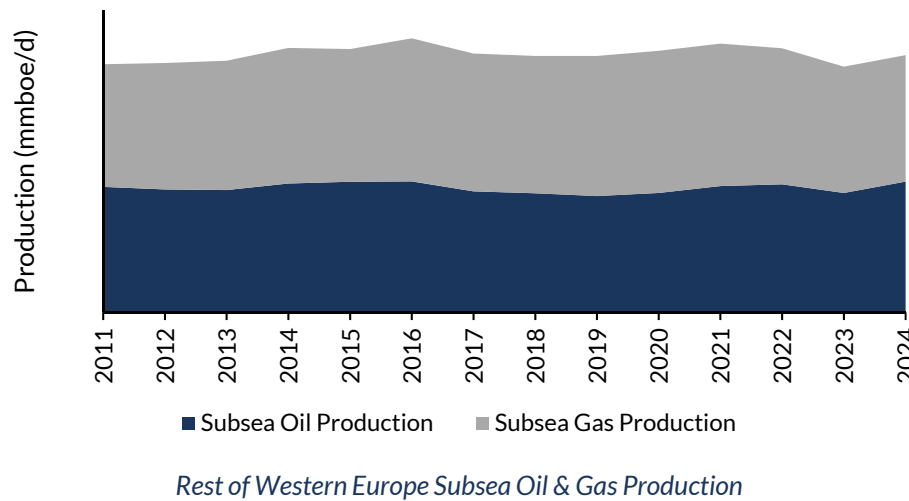


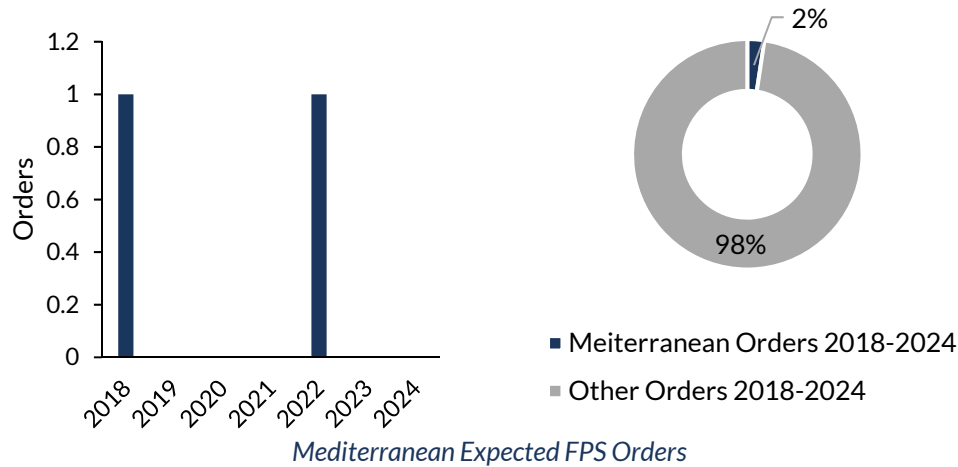
UK Subsea Oil & Gas Production

- 2018 subsea production 104% higher than 2014, projects sanctioned pre-downturn
- Focus on near-field exploration could yield tiebacks
- Penguins redevelopment sanctioning shows continued IOC interest

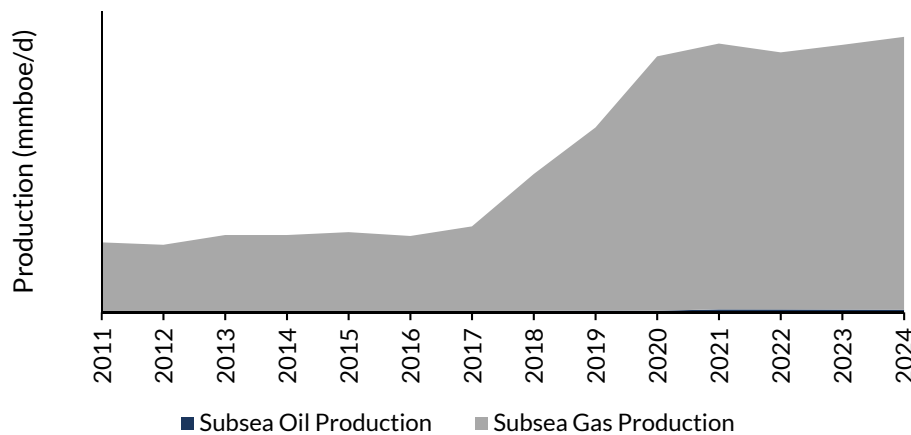


- Many offshore sectors now focused on renewables
- Tyra redevelopment highlights key projects still sanctioned
- Norway to continue traditional subsea dominance
- Subsea cable installation driven by offshore wind will support investment activities in Europe

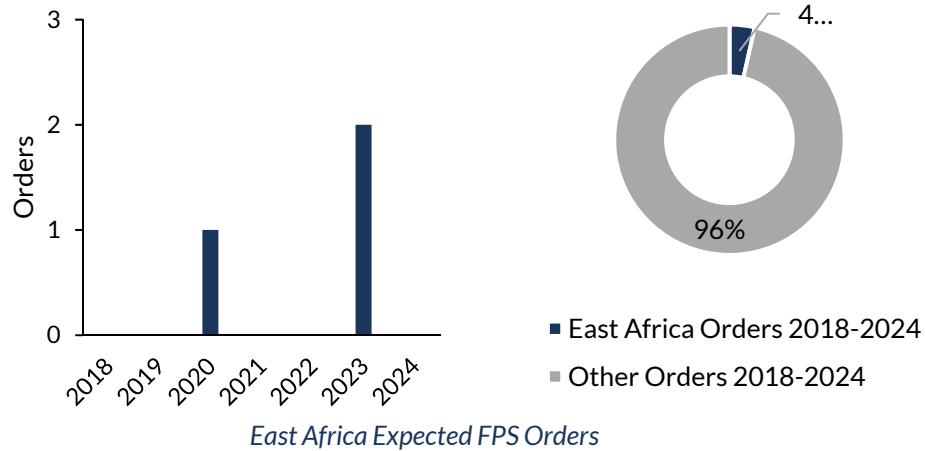




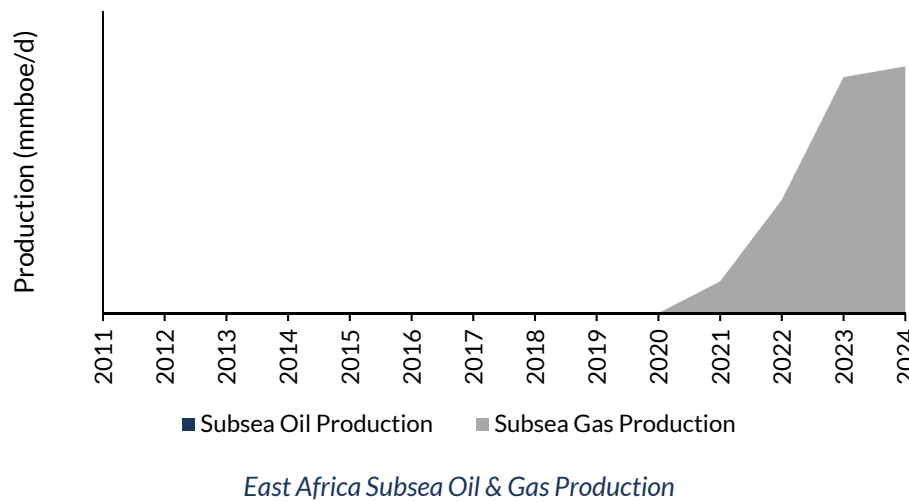
- Immature gas plays in eastern Mediterranean to change fortunes of several countries
- Network of fields in Cyprus, Israel and Egypt to require extensive subsea infrastructure
- Egypt is expected to re-start gas export in 2019

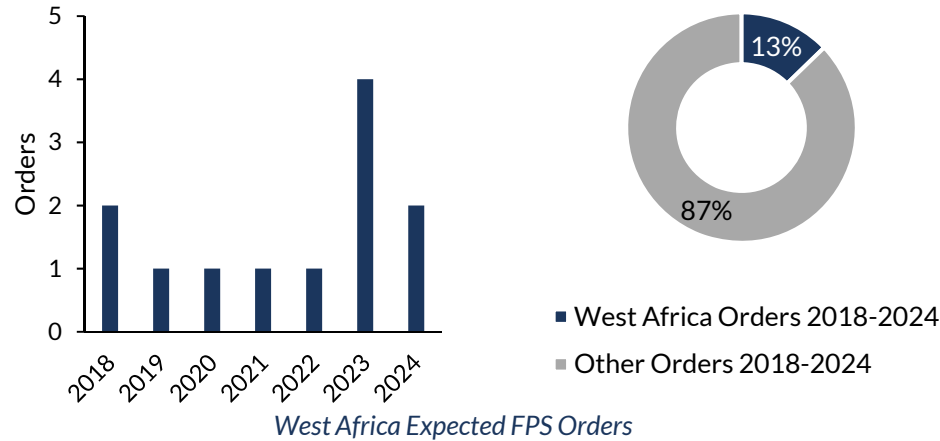


Mediterranean Subsea Oil & Gas Production



- Oil in steep decline, gas to show sharp growth
- FLNG opportunity due to lack of existing subsea infrastructure
- Mozambique to dominate spend
- Subsea to grow from 31% of total gas production 2020 to 80% by 2024.

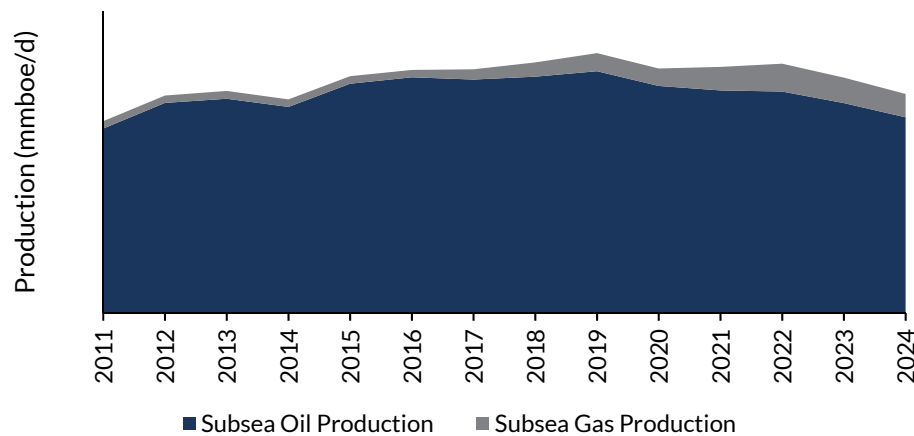




- Pre-down contract awards supports near-term production

- Region at start of relative barren spell

- Nigerian PIB delays + oil price crash responsible



- No long-term recovery for Angola

- Nigerian recovery towards end of forecast but high risk area

West Africa Subsea Oil & Gas Production



05

Conclusions



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- Oil price recovery is positive for the industry particularly when combined with lower costs for equipment, engineering and services
 - The recovery is fragile, however and everything hinges on OPEC
 - Subsea and FPS market has improved markedly in 2017 with a resumption in project sanction.
 - E&Ps remain focused on capital discipline and supply chain pressures will remain with substantial excess capacity throughout the offshore supply chain.
 - Deepwater activity continues and returns in some fields are more attractive than onshore shale.
 - Costs continue to tumble in offshore wind and many O&G supply chain firms are participating.
 - Positive outlook for 2018 albeit all eyes on OPEC for continued discipline
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06

Questions?

Presentation Title

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