

# Offshore Oil & Gas Outlook



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**Future of Oil & Gas Conference**

Endeavor Management  
December 2020

**Endeavor**  
Expert Advisory Group

### The future looks bright, especially offshore, for those who can adapt

- Anticipate oil and gas supply, demand and pricing return to 2019 levels by 2022/2023, based on a viable COVID 19 vaccine which is readily available before year end 2021
- Returning to 2019 levels of supply will require significant injection of human and financial capital after drop off in 2020
- Lower carbon footprint will drive the change in energy mix as overall supply and demand continue to grow long term. Oil is expected to remain flat with substantial growth in natural gas (lower carbon fuel), and renewables.

# Agenda

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| Commodity Prices

| Supply & Demand

| Project Sanctions

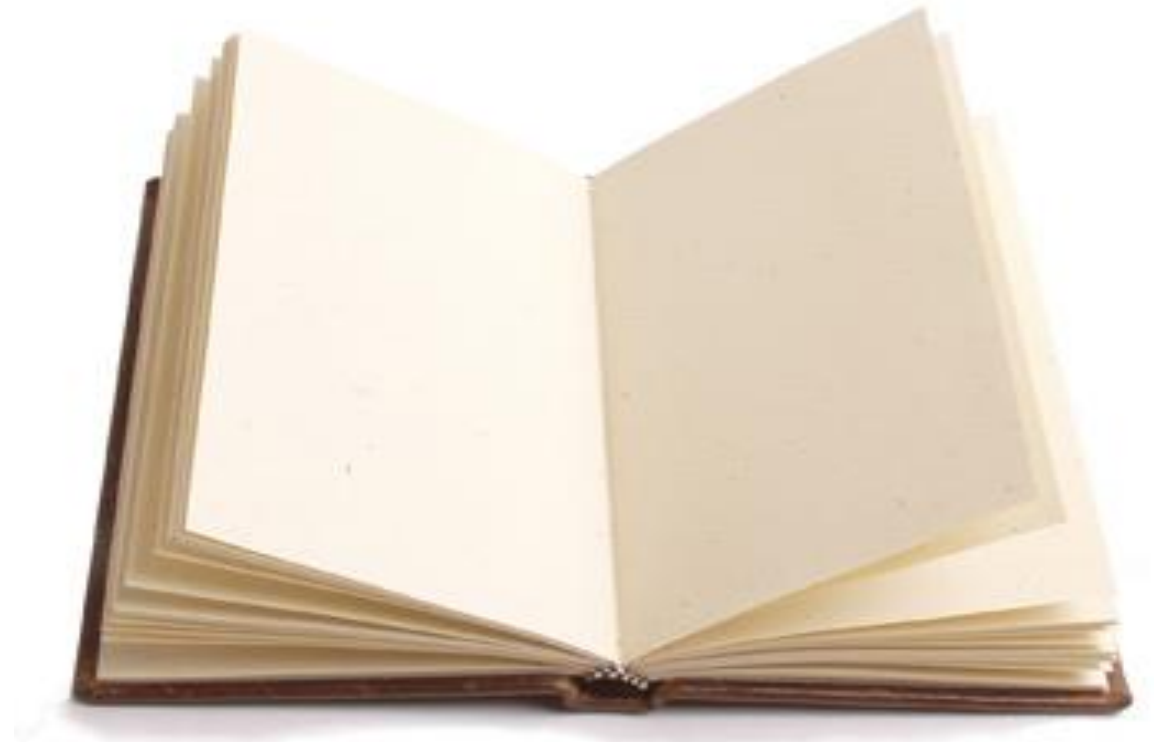
| Offshore Services

| Floating Production Systems

| Offshore Bright Spots

| The Pivot

| Final Remarks



# Agenda

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## **Commodity Prices**

Supply & Demand

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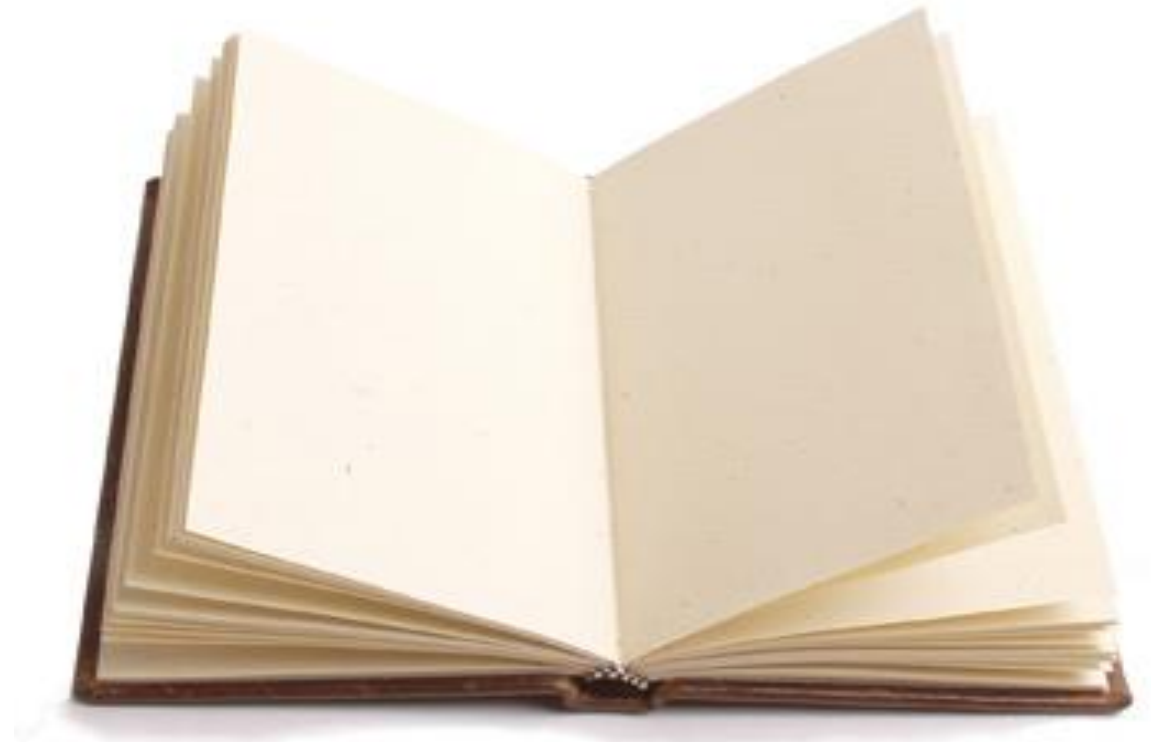
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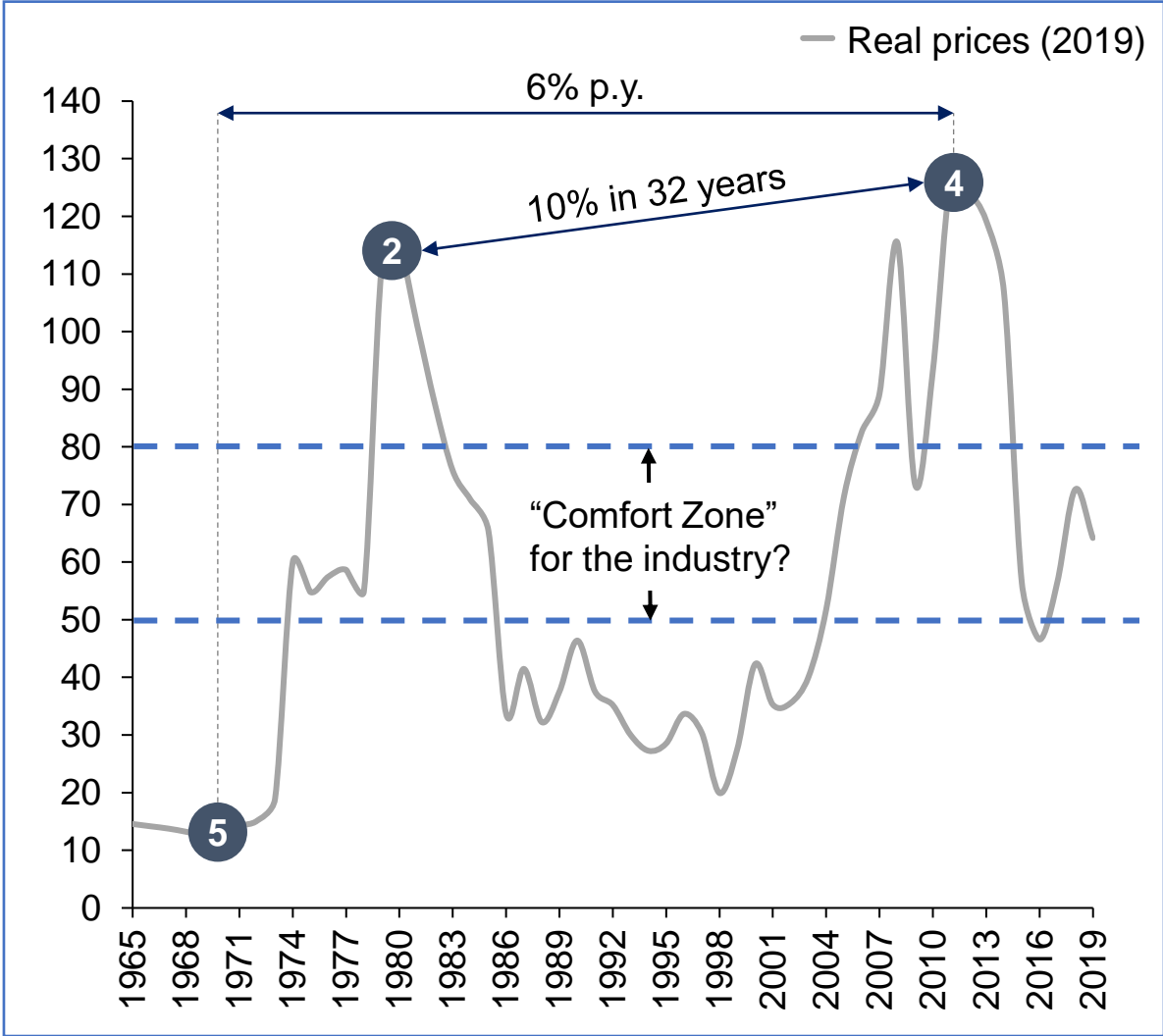
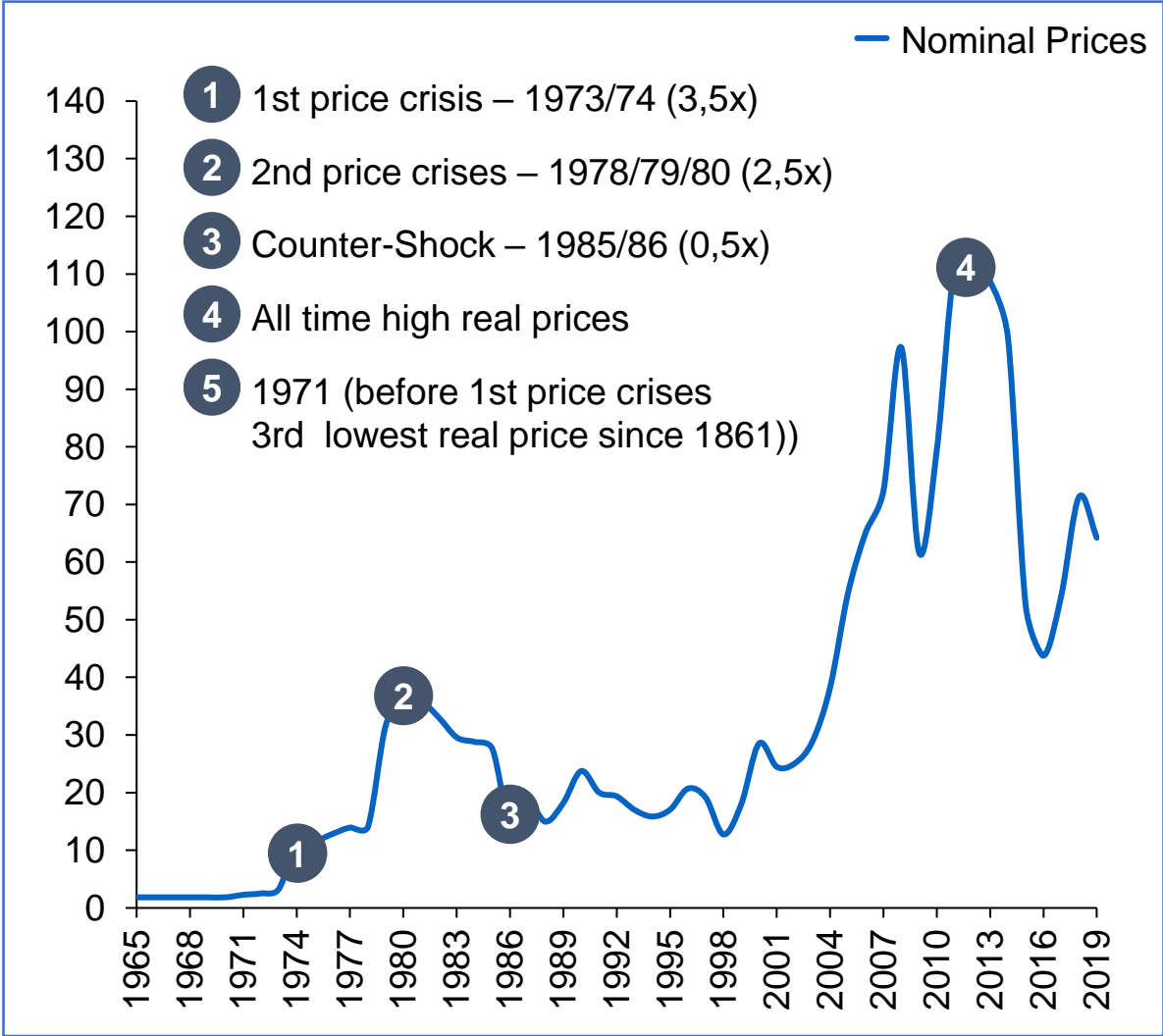
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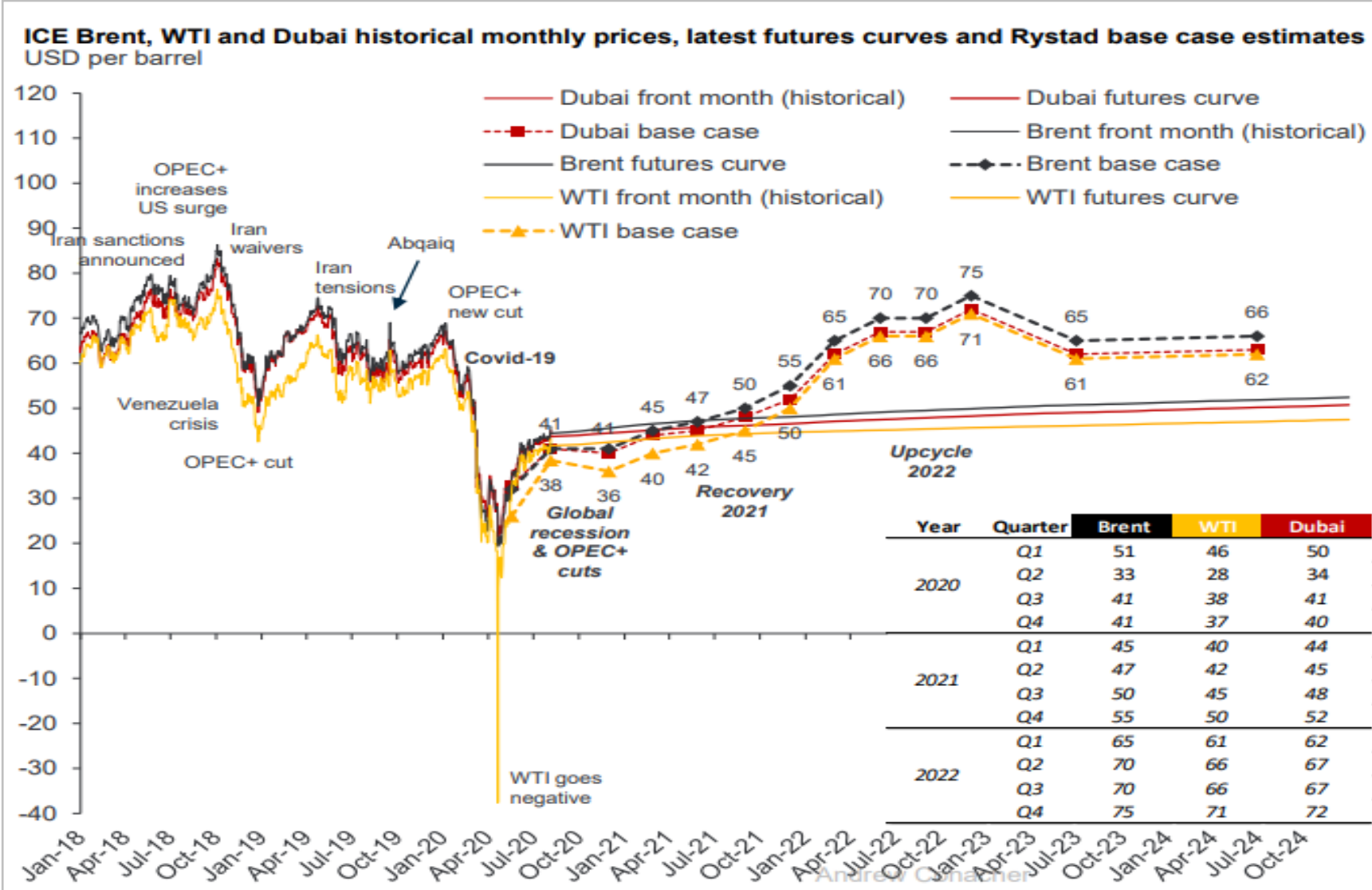
# Crude oil prices have followed clear cycles since the first oil shock in 1973



Source: BP Statistical review 2020



# Market view and crude price estimates



IEA see demand returning to 100 MM bbls/day by 2023, driving a price of \$50/bbl, whereas Rystad are more optimistic at \$65/bbl. We believe the Rystad and IEA forecasts effectively bracket the likely price range.

Source: Rystad Energy and IEA



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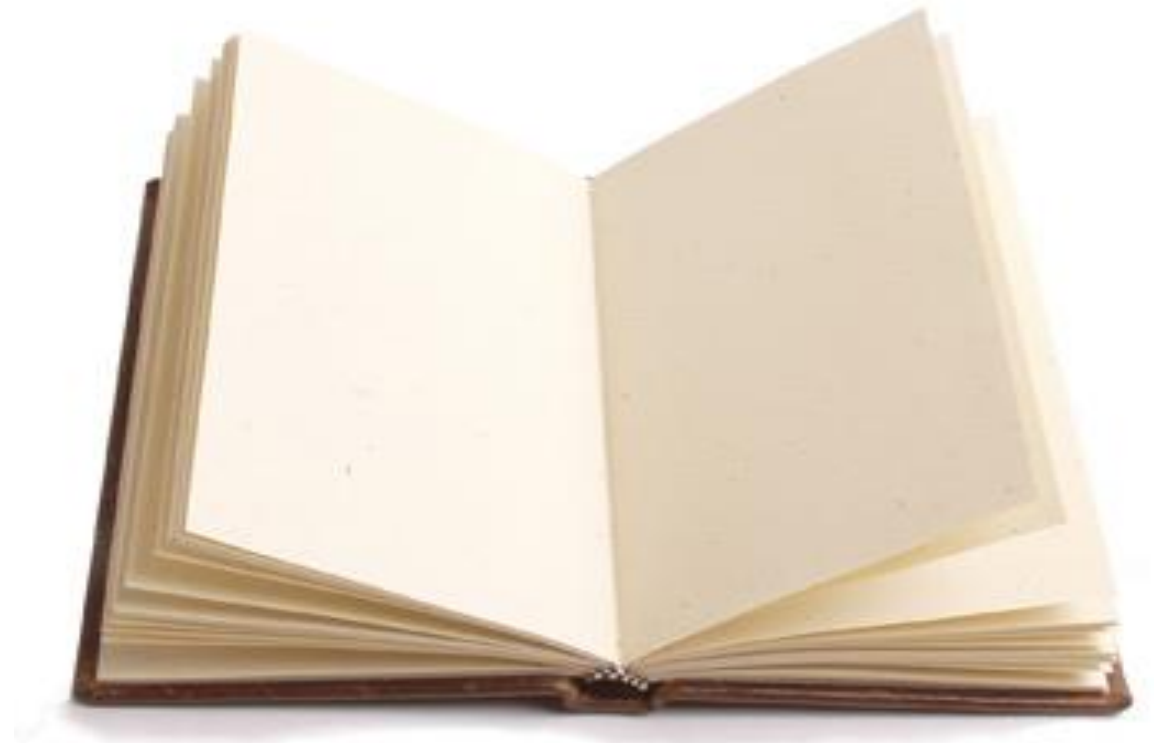
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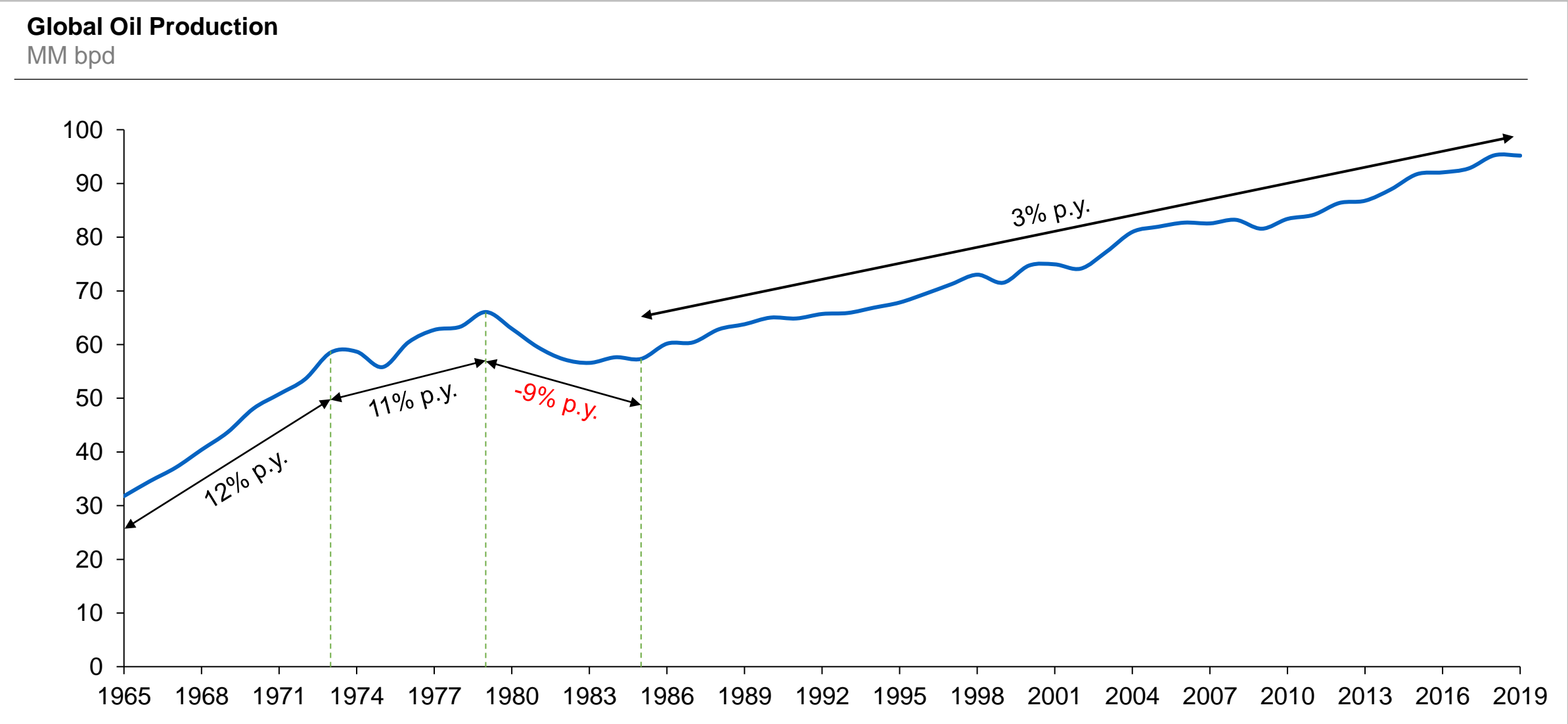
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# Despite all economic turmoil since the 1985 oil prices countershock, production has been growing steadily and faster than pure demographic energy demand increase

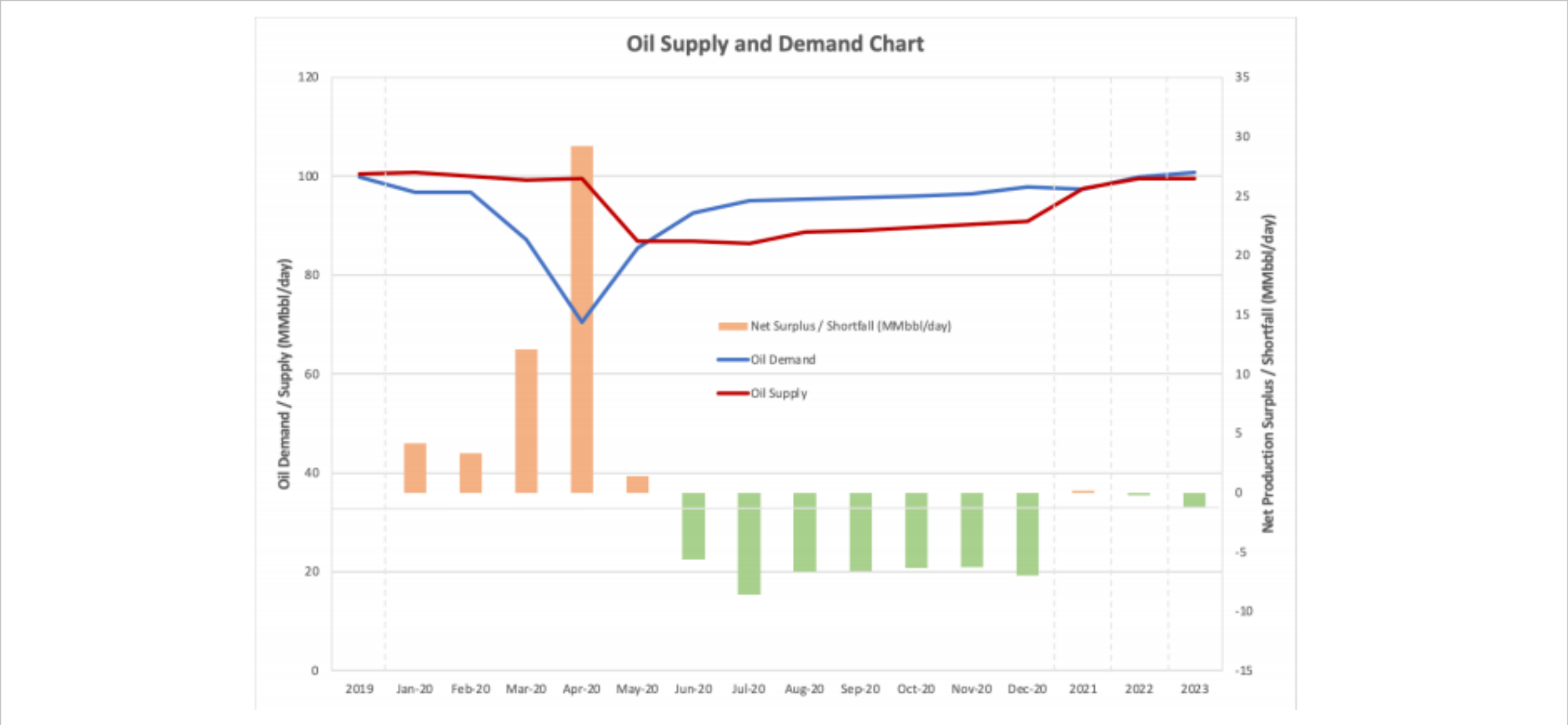


Source: BP Statistical review 2020





# Current levels of production are providing for a draw-down of inventory



Source: Glenloch Energy LLC



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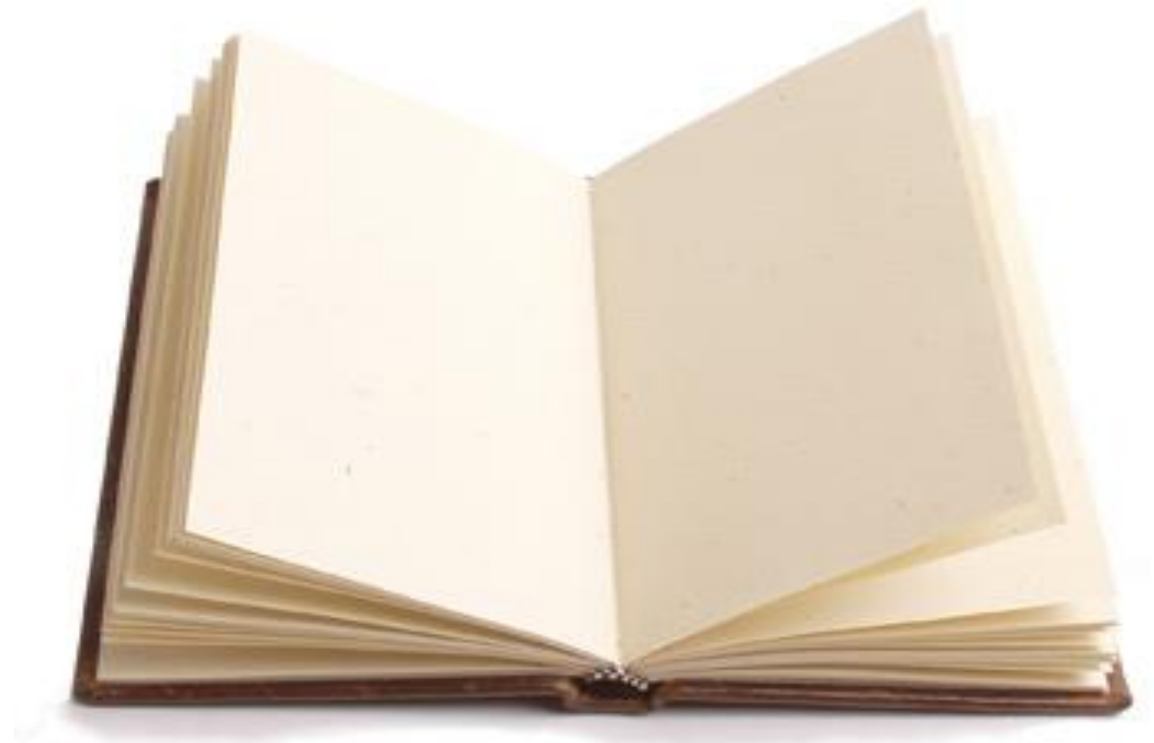
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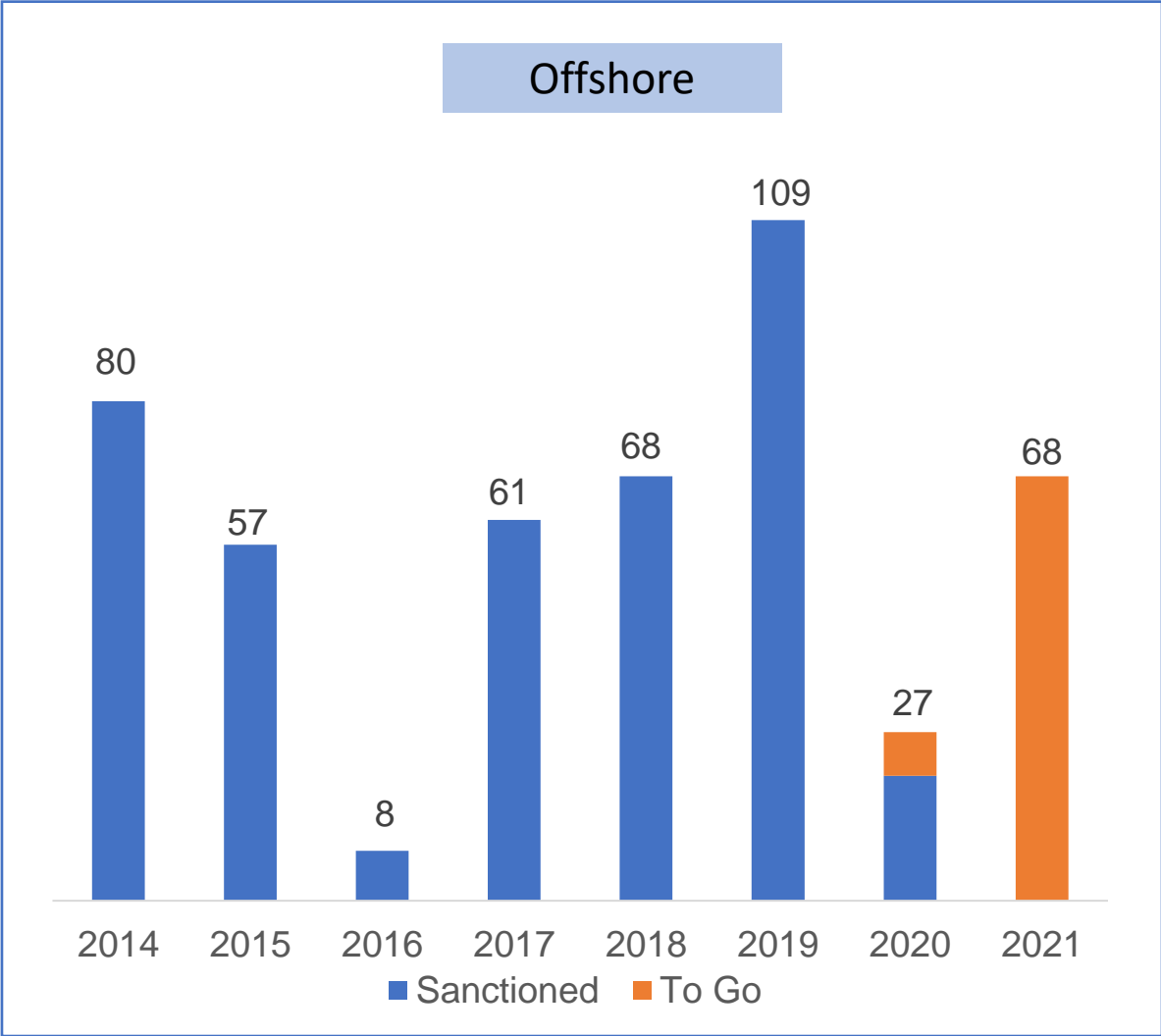
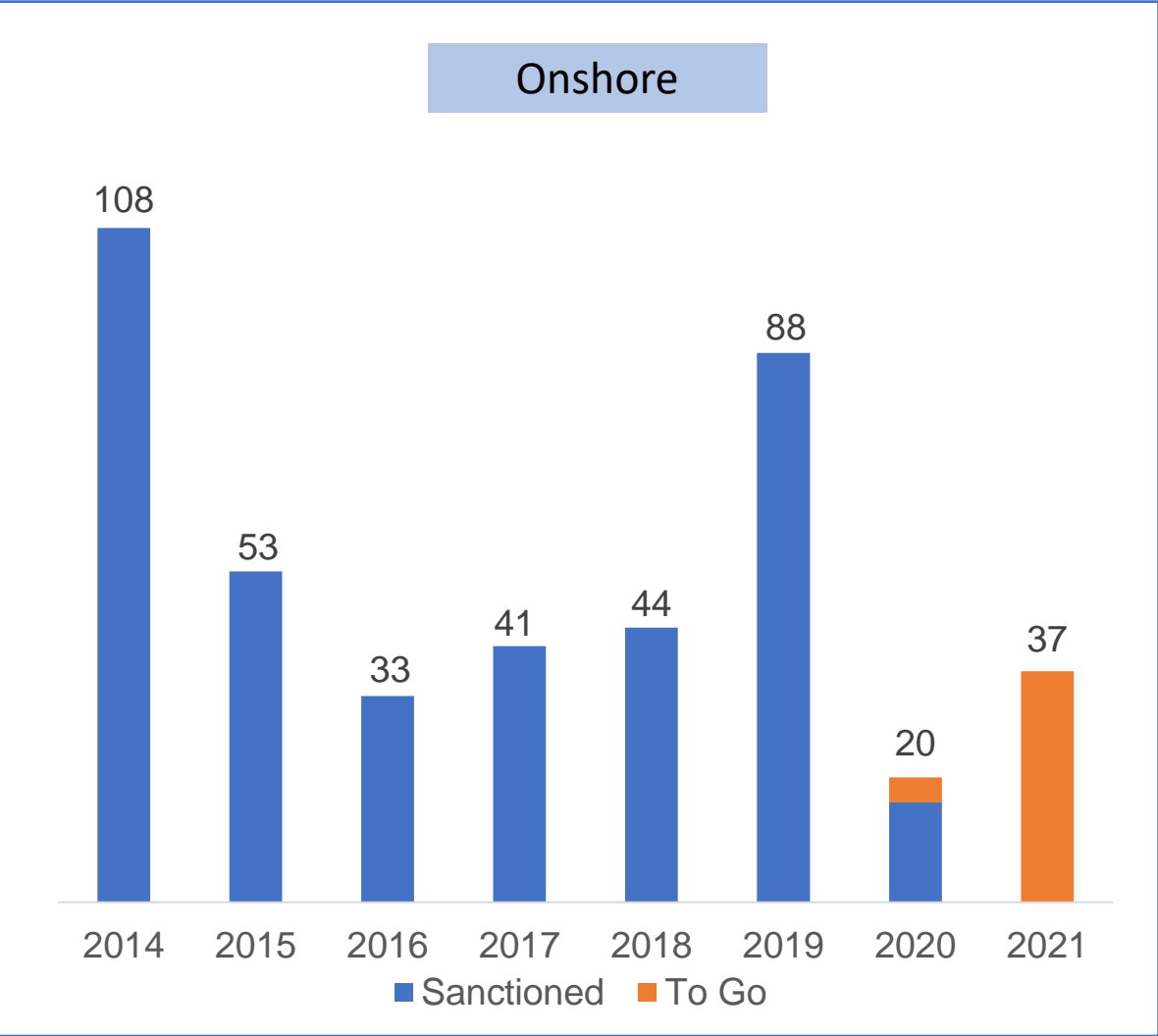
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# Project sanctioning status and forecast by commitment year from 2014 to 2021

There is trend likely to continue: more offshore than onshore projects will be sanctioned

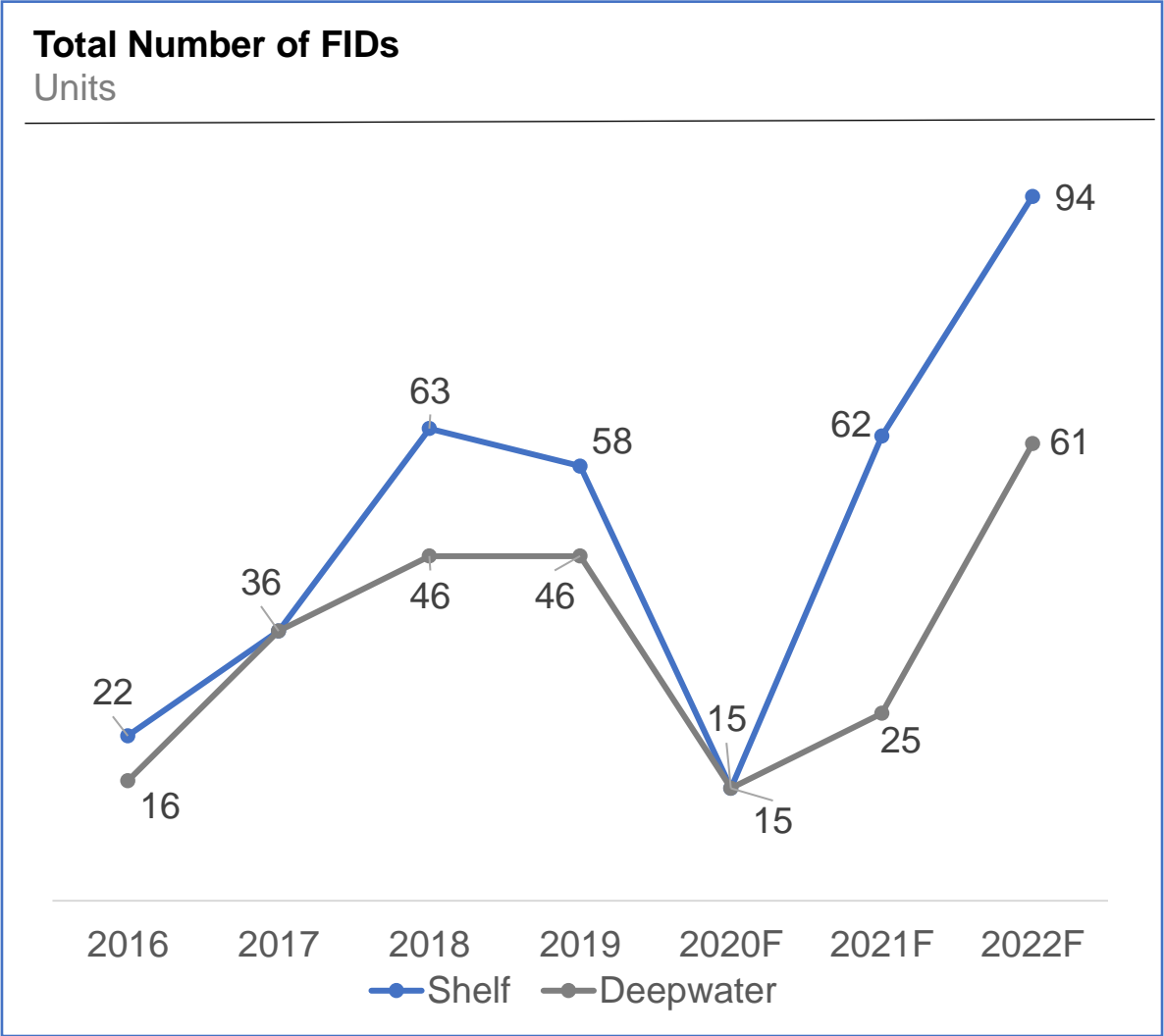
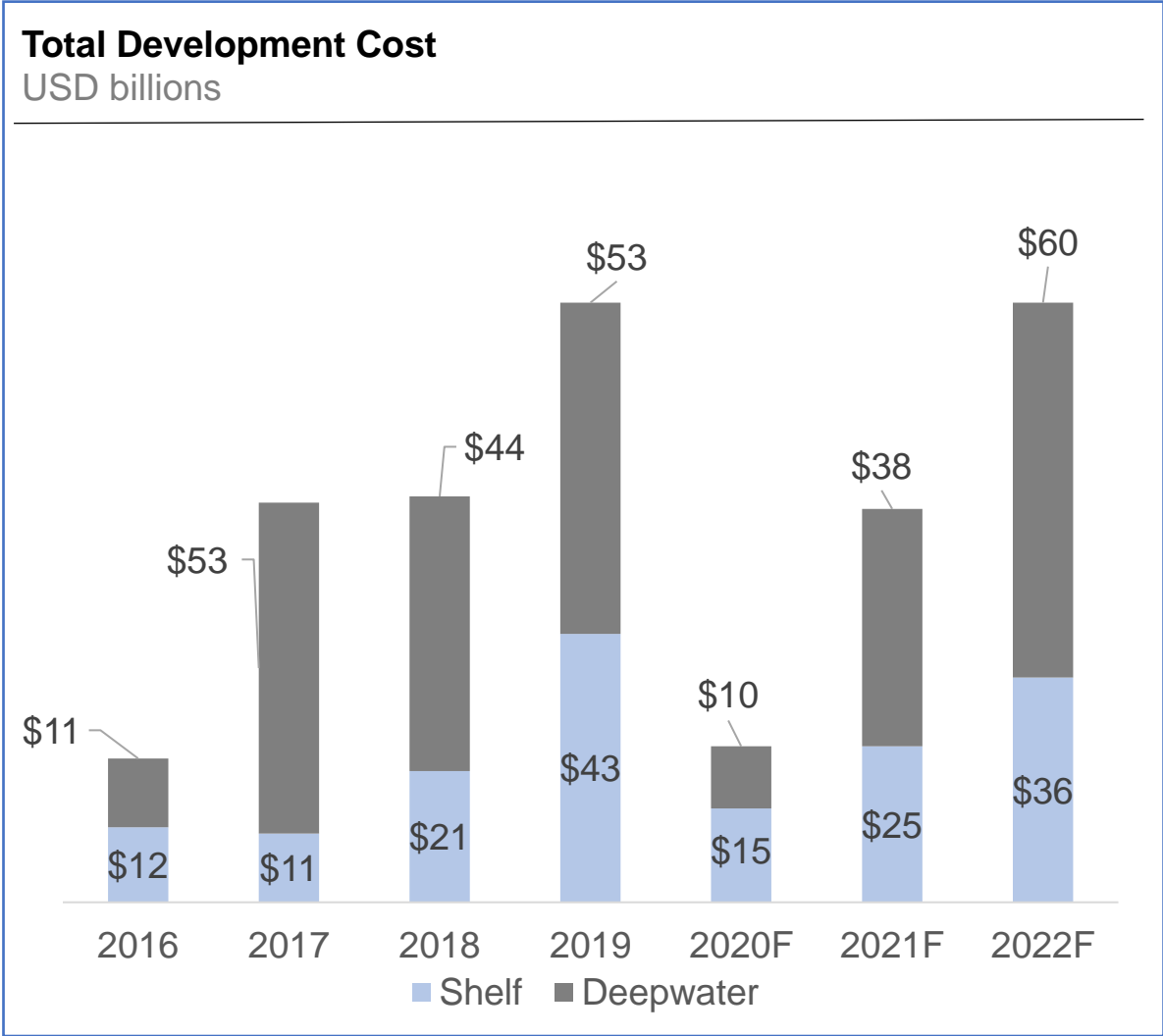


Source: Rystad Energy



# Offshore greenfield FIDs

YoY: deepwater FID spending forecast to decline > 80% in 2020. Rebound anticipated late 2021



Source: Rystad Energy

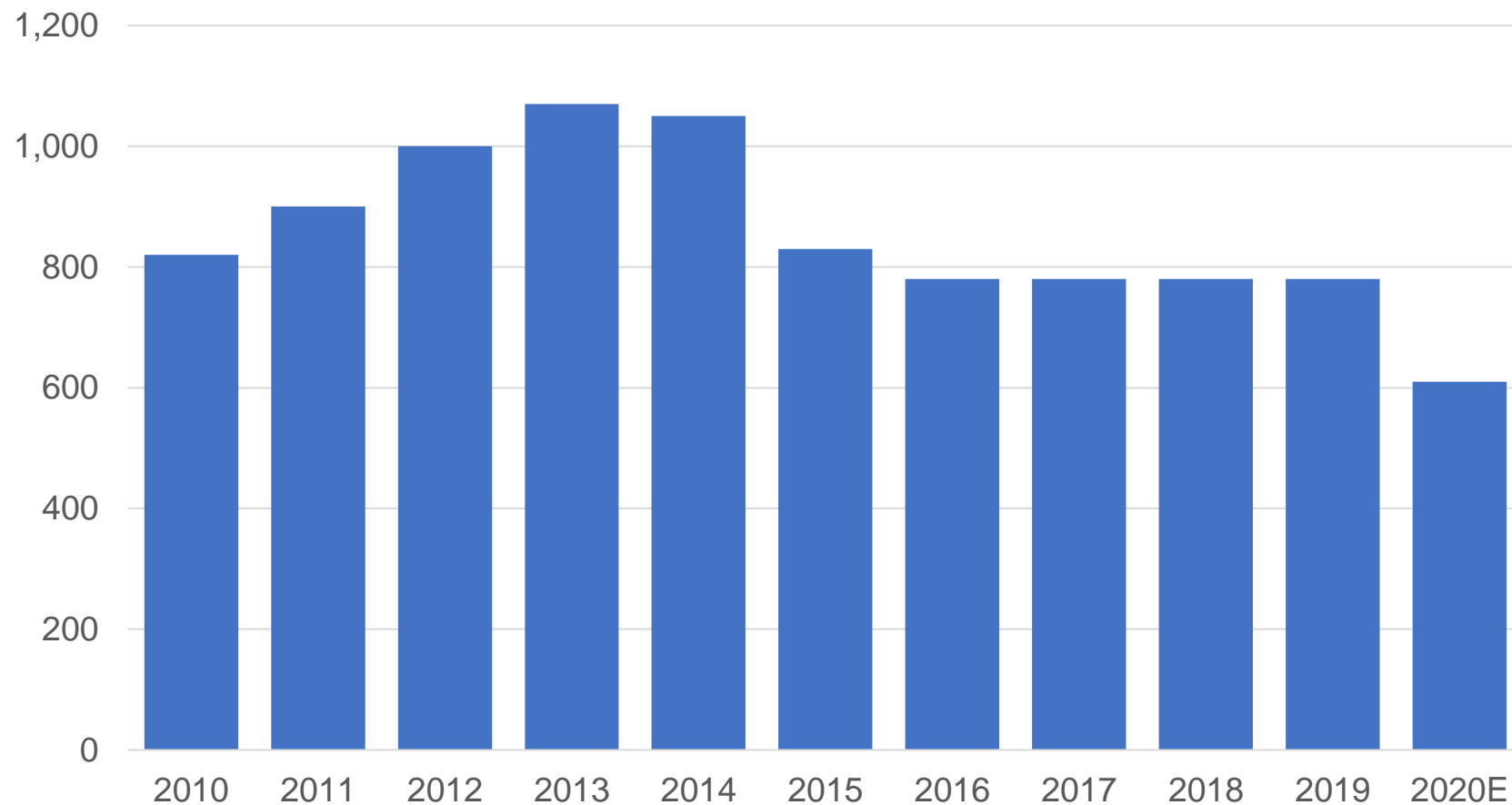


# OFSE headcount as reported by year end and 2020 expectation

## Top 50 OFSE companies

### Headcount

'000 employees



- Total headcount has been steady since 2015, and COVID-19 in 2020 has caused the destruction of roughly 200,000 Jobs in the OFSE industry
- In line with the scenario of crude oil price recovery by 2022/23, it is expected that headcount comes back given the increase of project sanctions; however, it is unclear when it would reach 2015 levels
- Another concern of the OFSE industry will be the replacement of senior / experienced personnel

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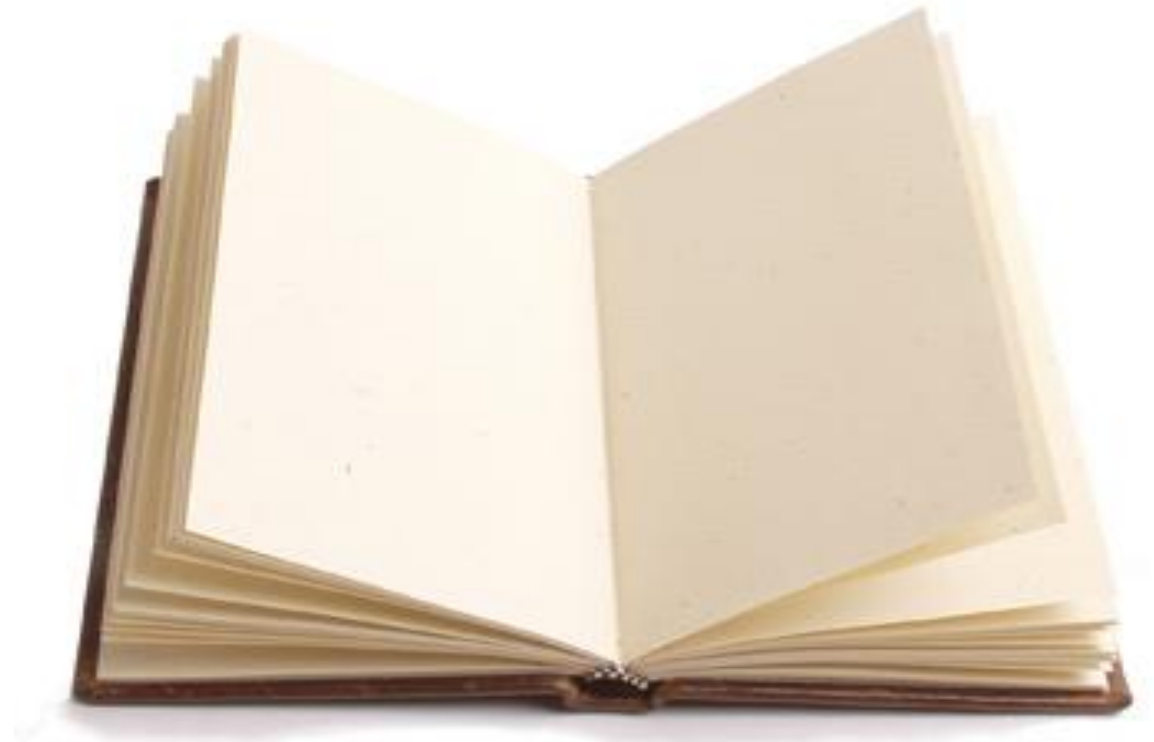
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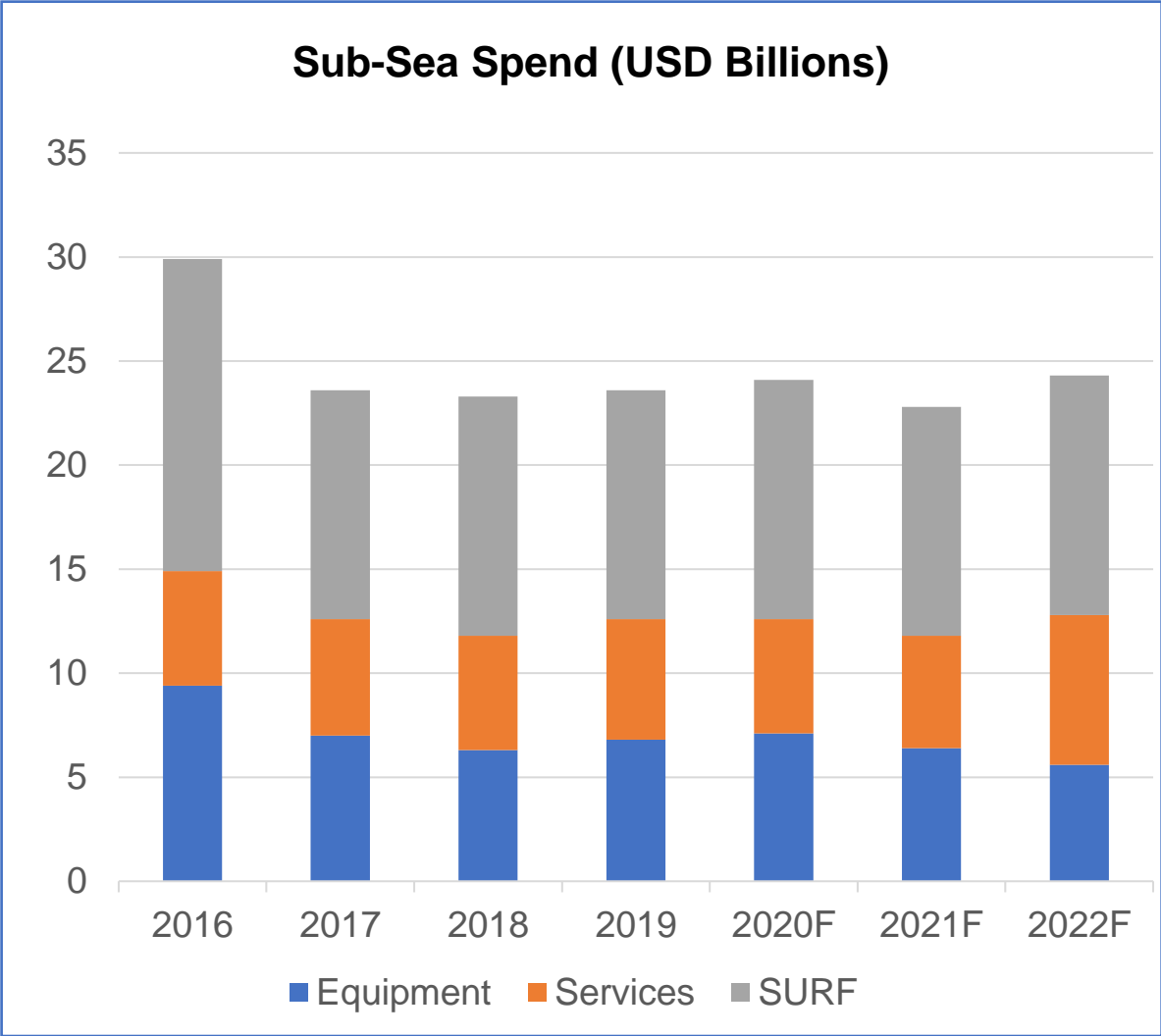
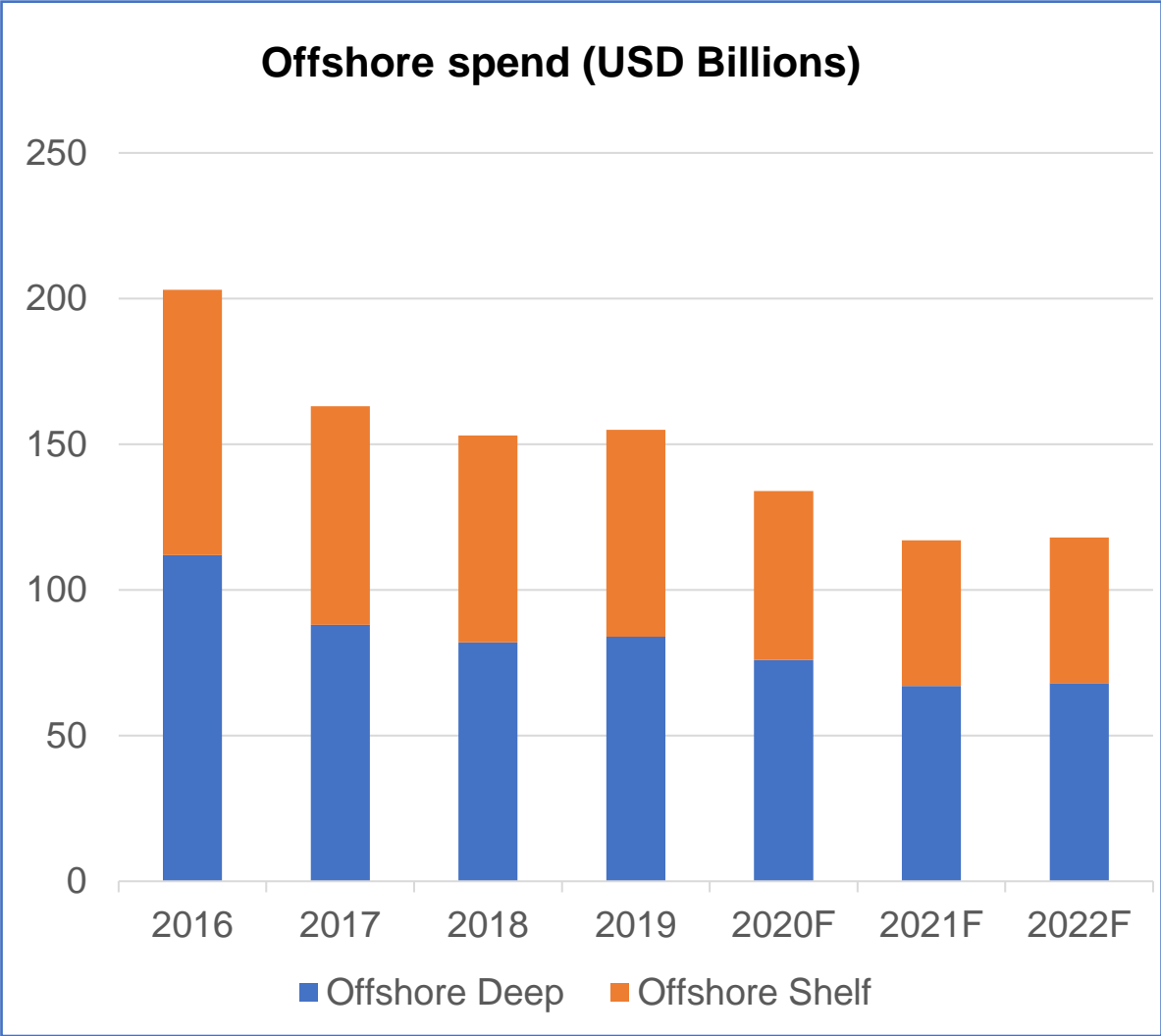
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# Offshore spending forecast

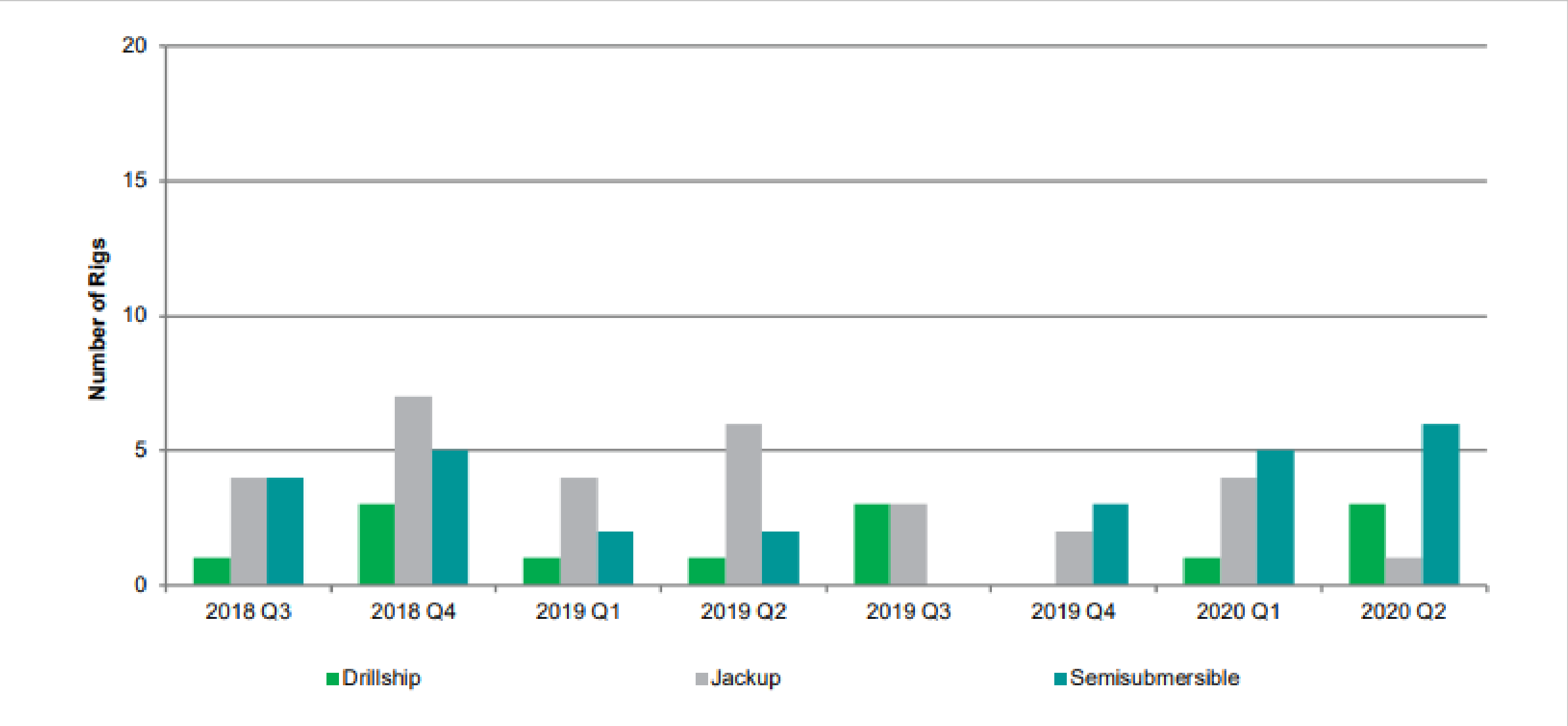
YoY: investment declines ~7%; subsea purchases increases ~7%



Source: Rystad Energy



# Global rig attrition



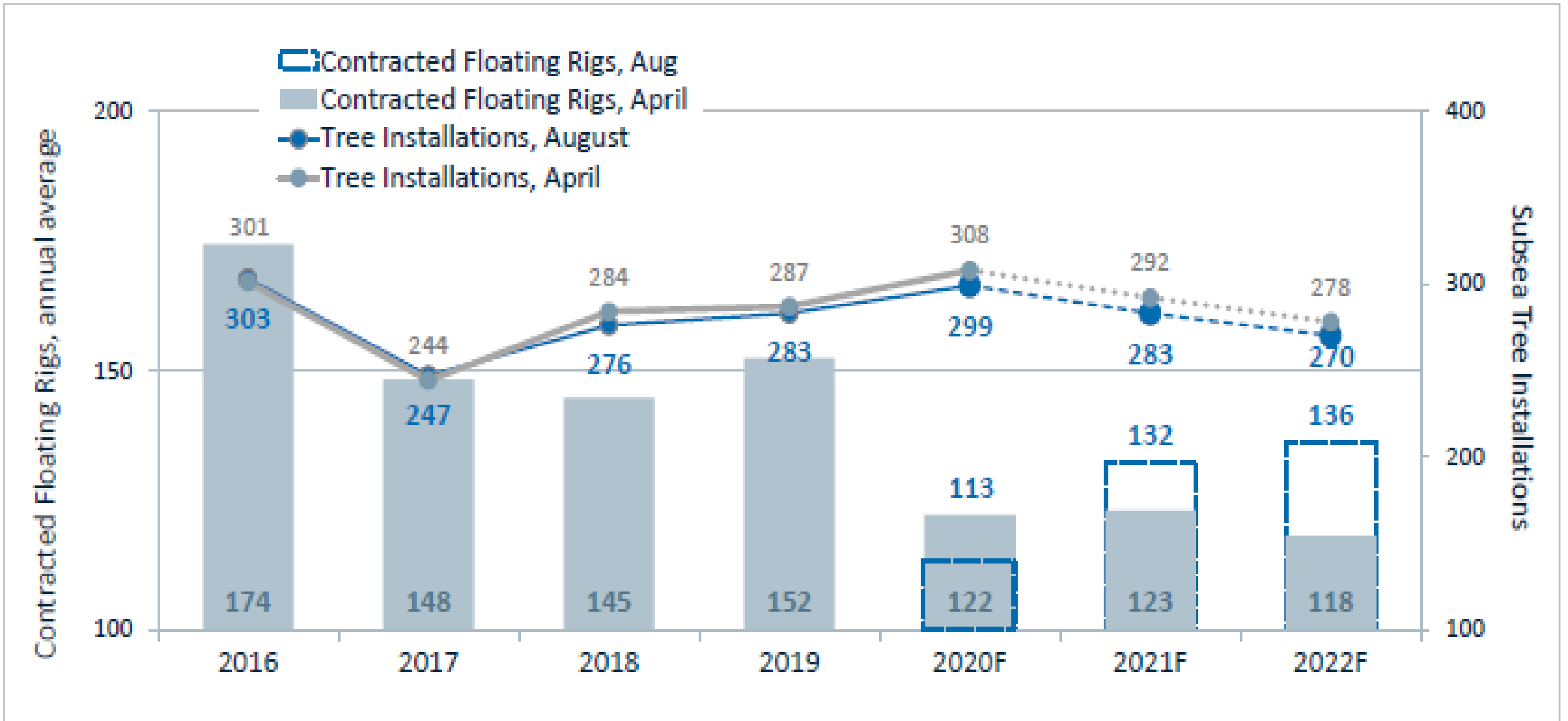
Source: RigPoint by IHS Markit





# Offshore activity forecast

Floating rig demand declining ~25%YoY; tree installations holding steady

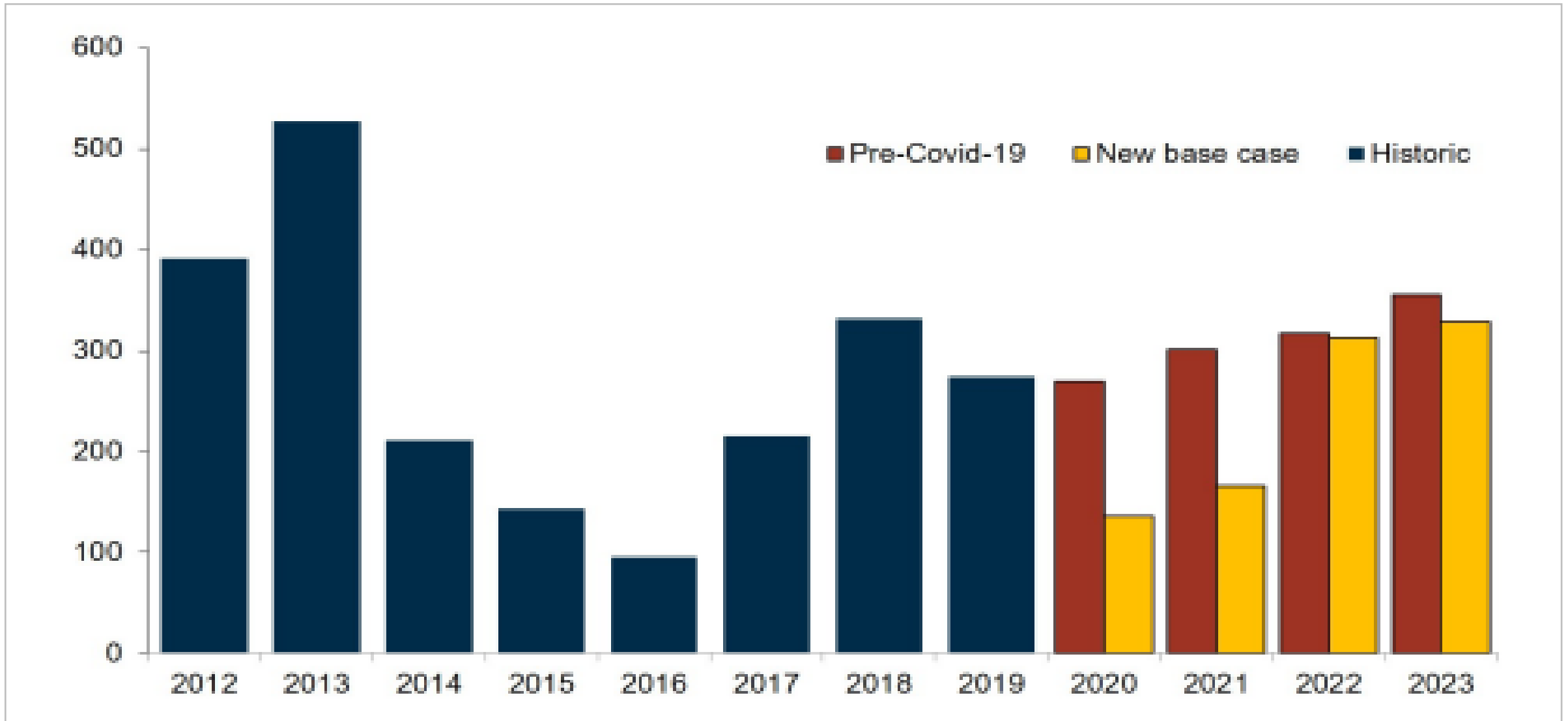


Source: RigData; IHS Markit World Rig Forecast: short term trends; Tree data, Rystad Energy



# Subsea tree awards could drop to 2016 levels as projects are postponed

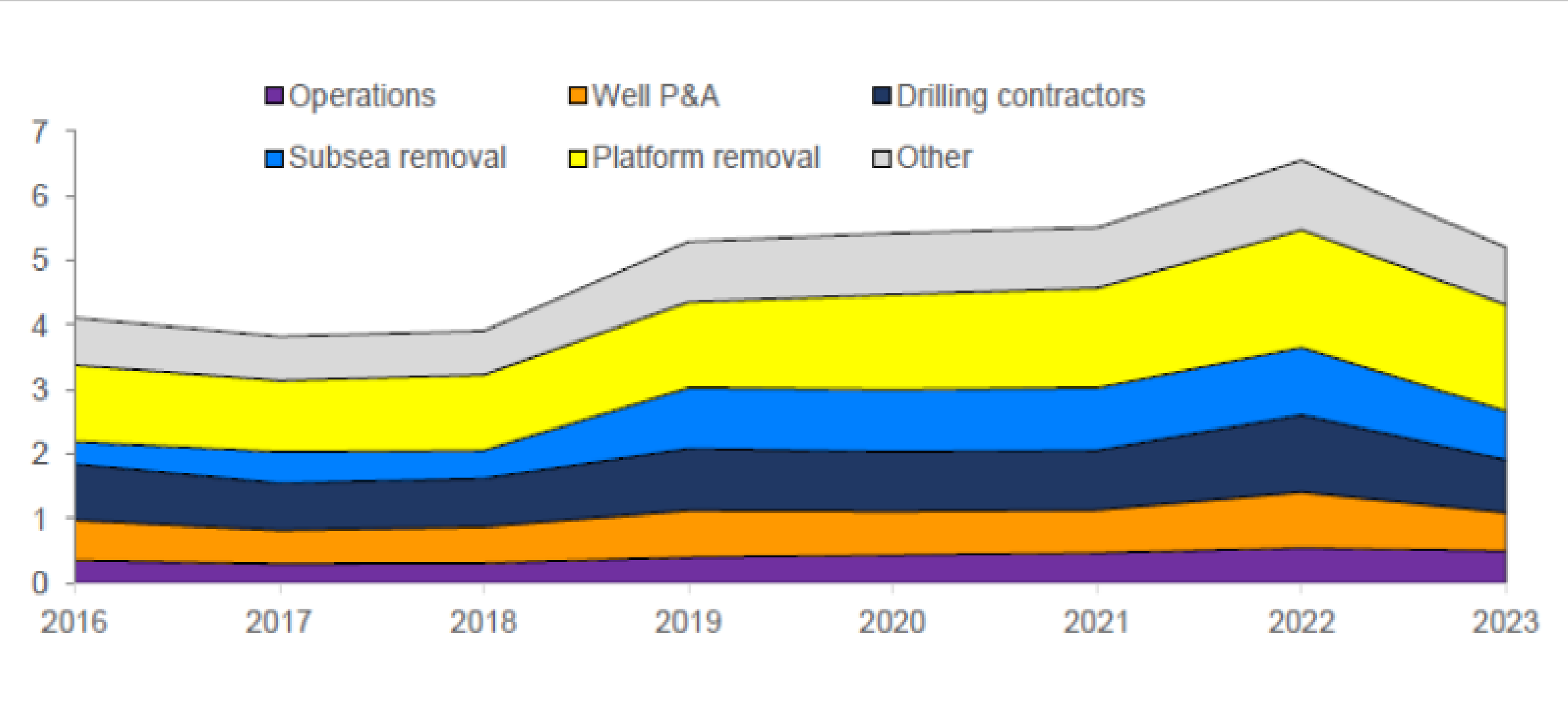
If crude oil prices stay below USD 50 / bbl, ~ one-third of the projected demand may not happen



Source: Rystad Energy SubseaCub

# Decommissioning expenditures

Billions USD



Source: Rystad Decommissioning report May 2020



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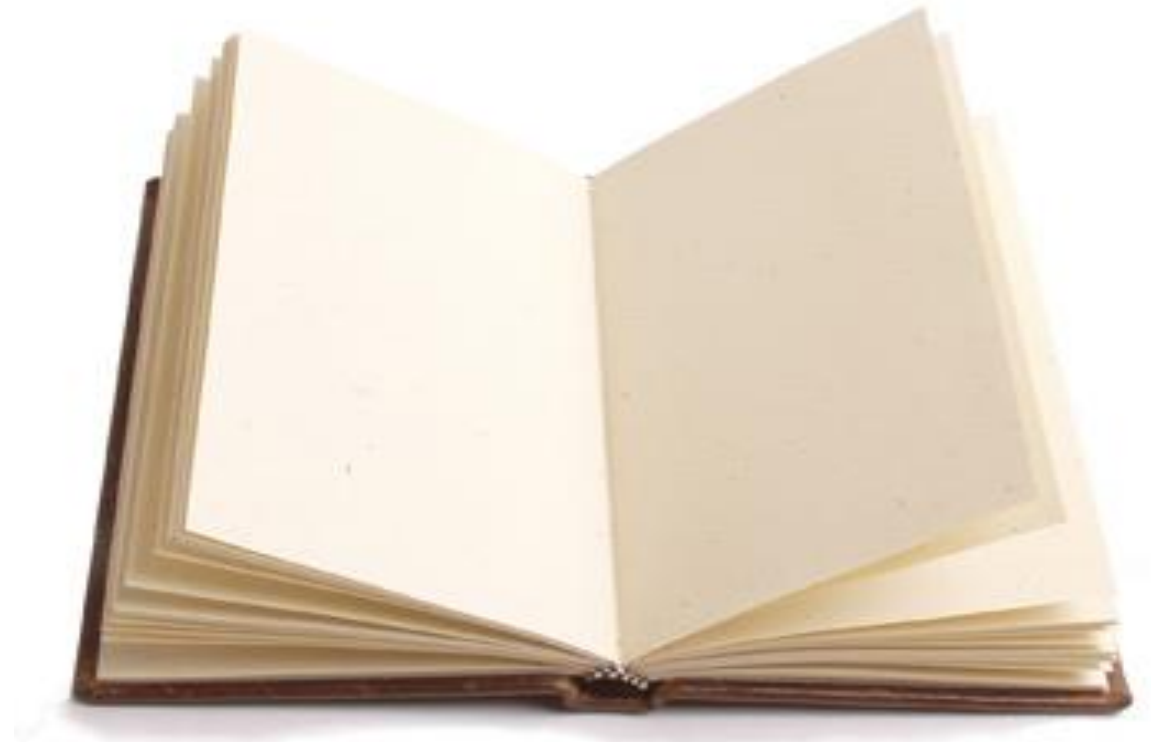
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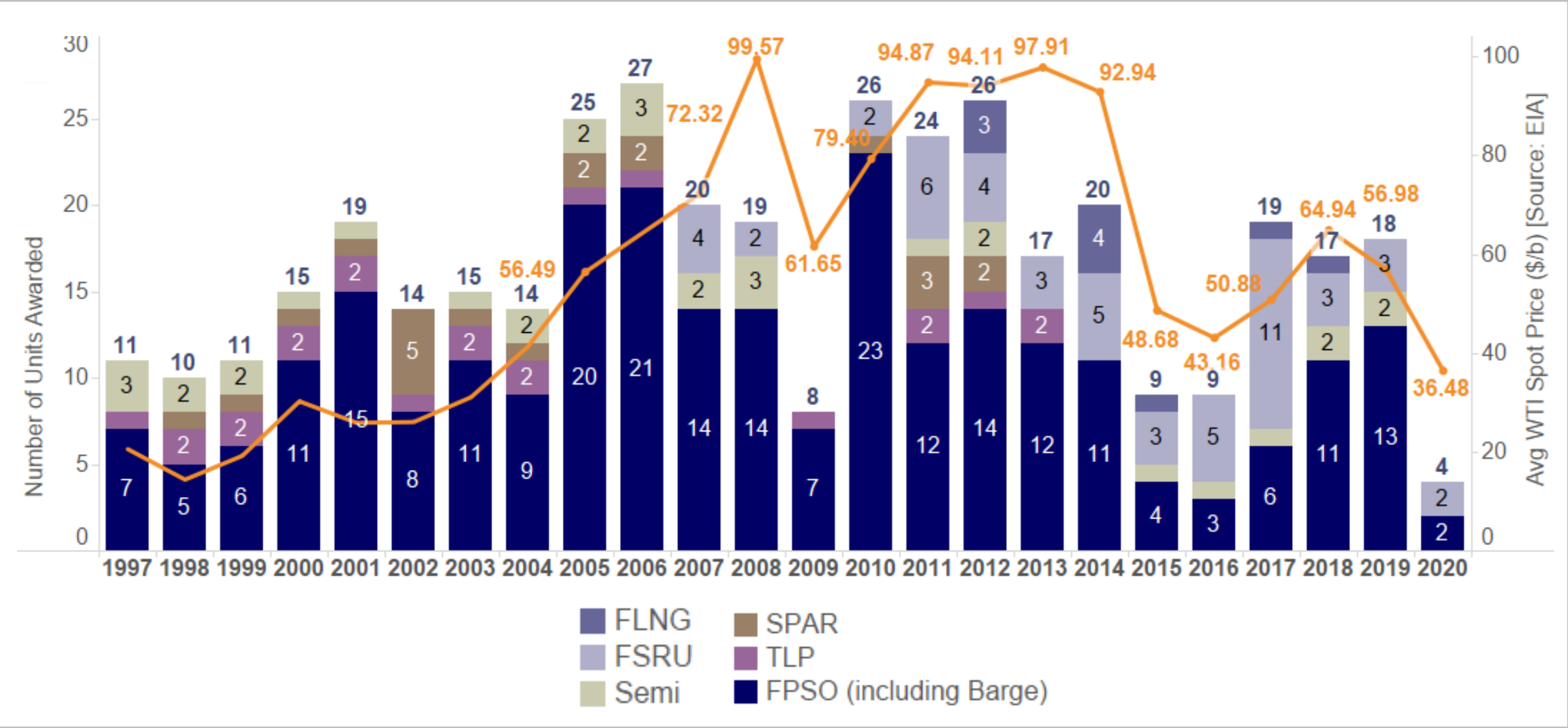
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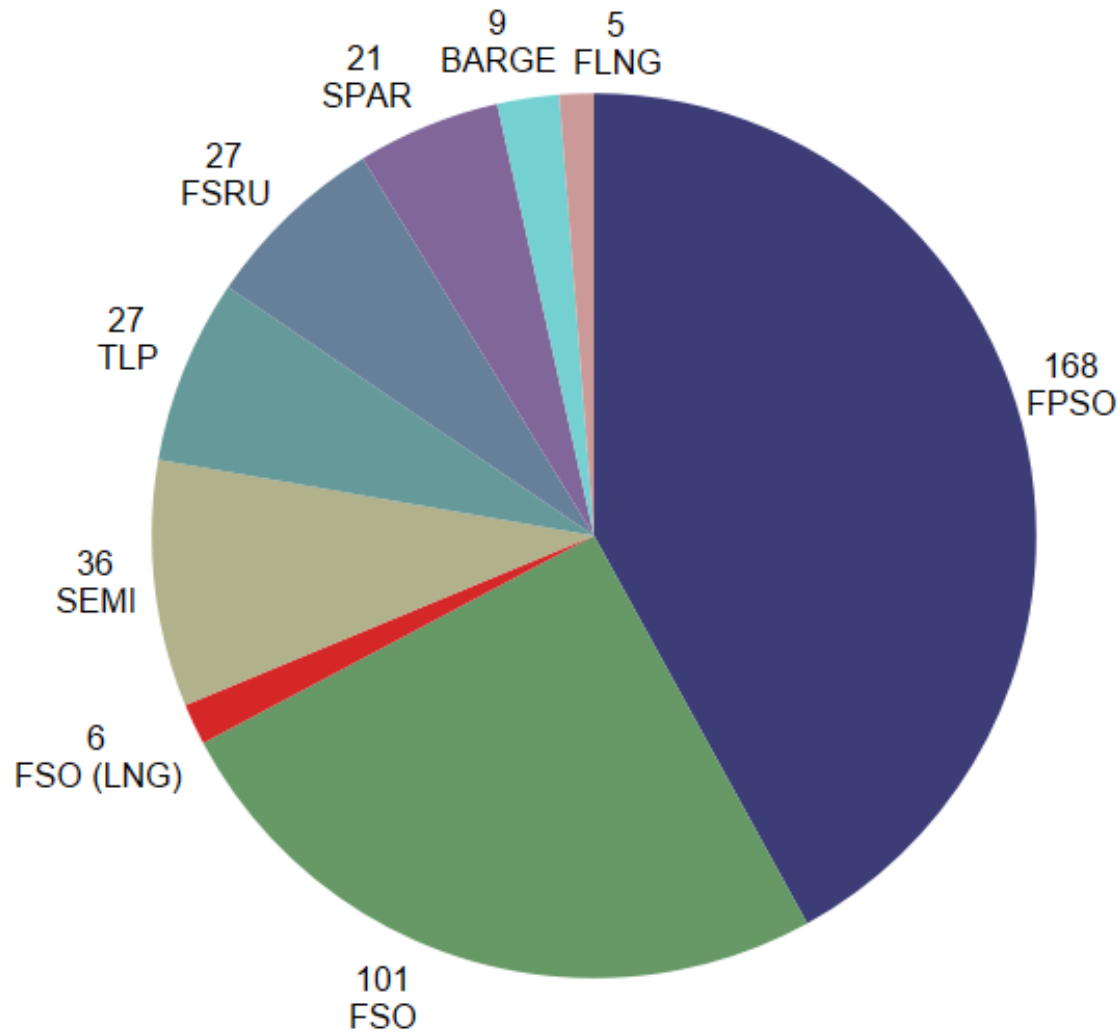
# Historical FPS awards vs Average WTI price (annual, excludes FSOs and MOPUs)



Source: EMA



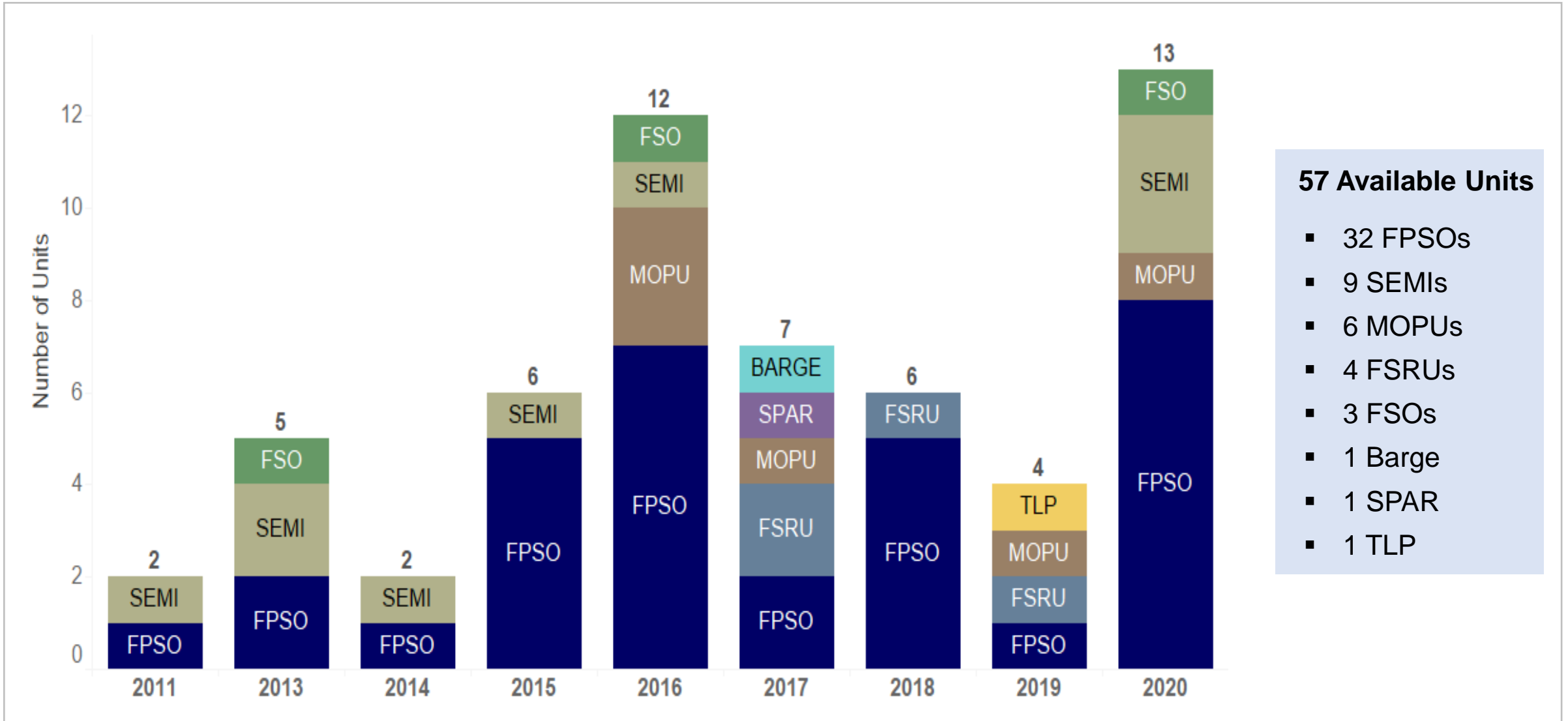
# Total installed units by FPS type (excluding MOPUs and LNG Regasification Vessels)



- Floating tankers account for 2/3 of total number of FPS installed in the world today
- It is connected to the fact that exploration and production have been moving over the last 25 years to water depths above 5,000 feet. There has been some exploratory wells at 10,000 feet
- We anticipate that the demand for FPSOs will increase in this decade given the main “bright spots” of the industry are located at (ultra) deep water fields



# Available FPS Units by year of Lay-up and Unit type



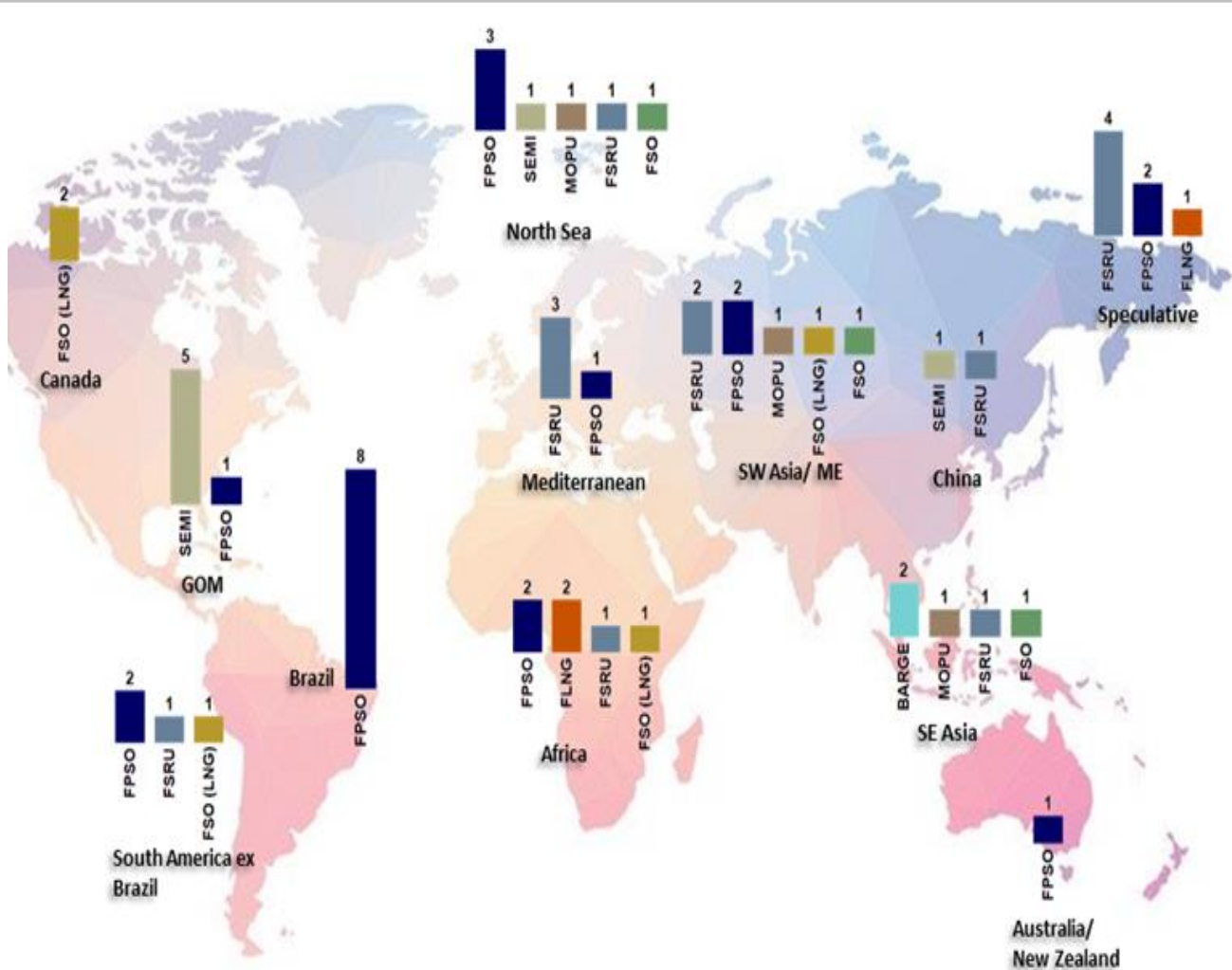
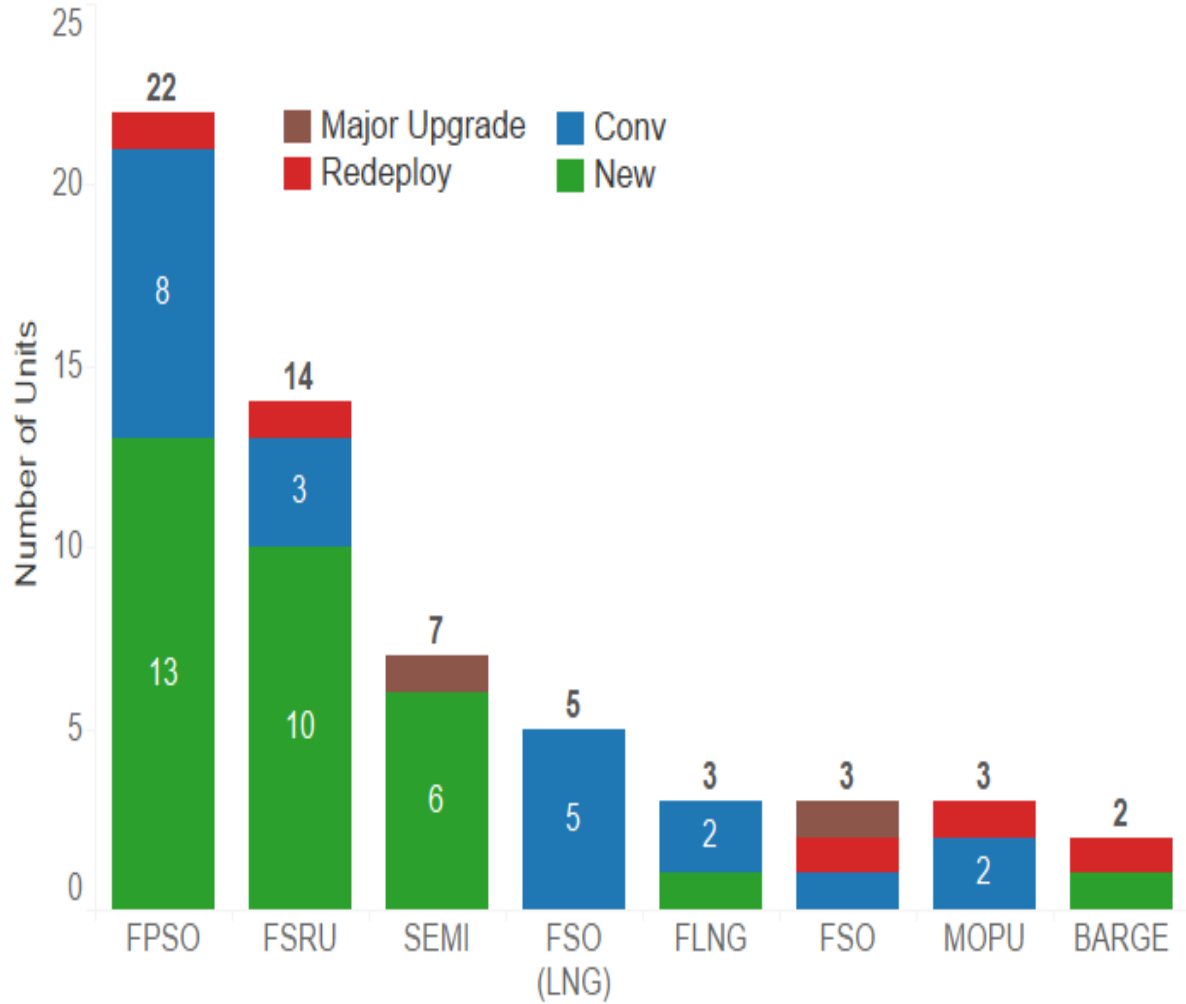
- 57 Available Units**
- 32 FPSOs
  - 9 SEMIs
  - 6 MOPUs
  - 4 FSRUs
  - 3 FSOs
  - 1 Barge
  - 1 SPAR
  - 1 TLP

Source: EMA 2020 June FPS Report



# On Order: 48 FPS + 8 FSOs + 3 MOPUs

FPS Units On Order by Hull Type



Source: EMA 2020 June FPS Report





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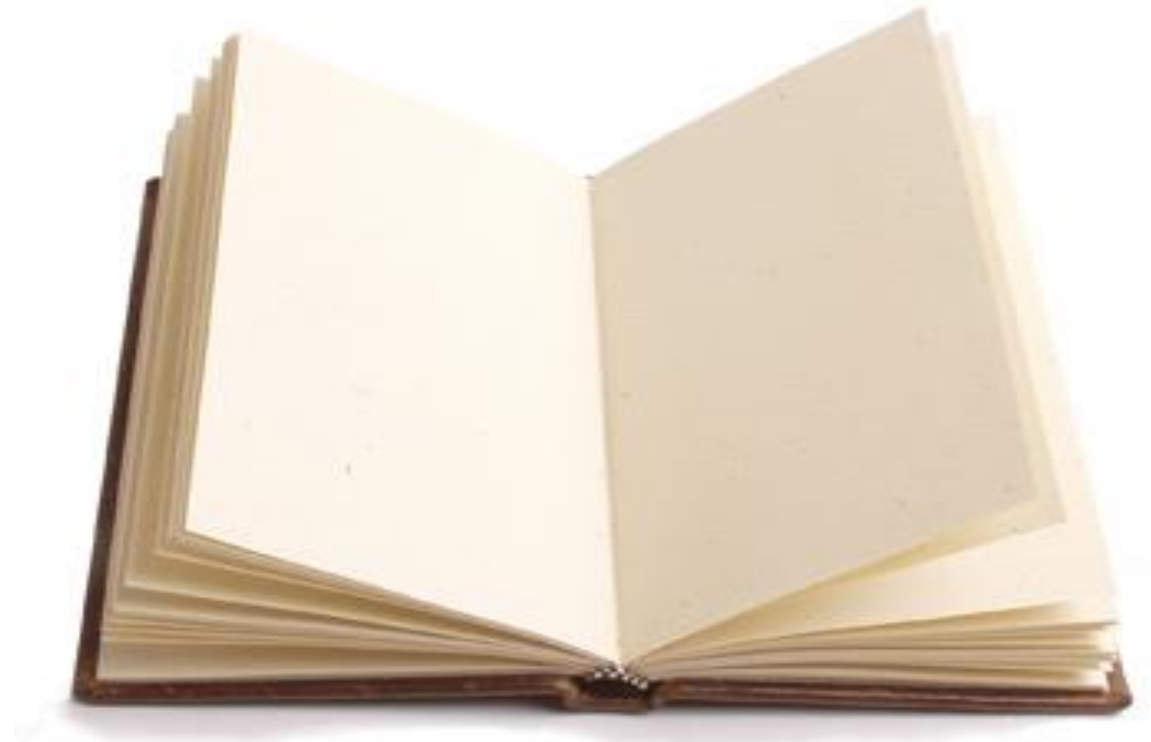
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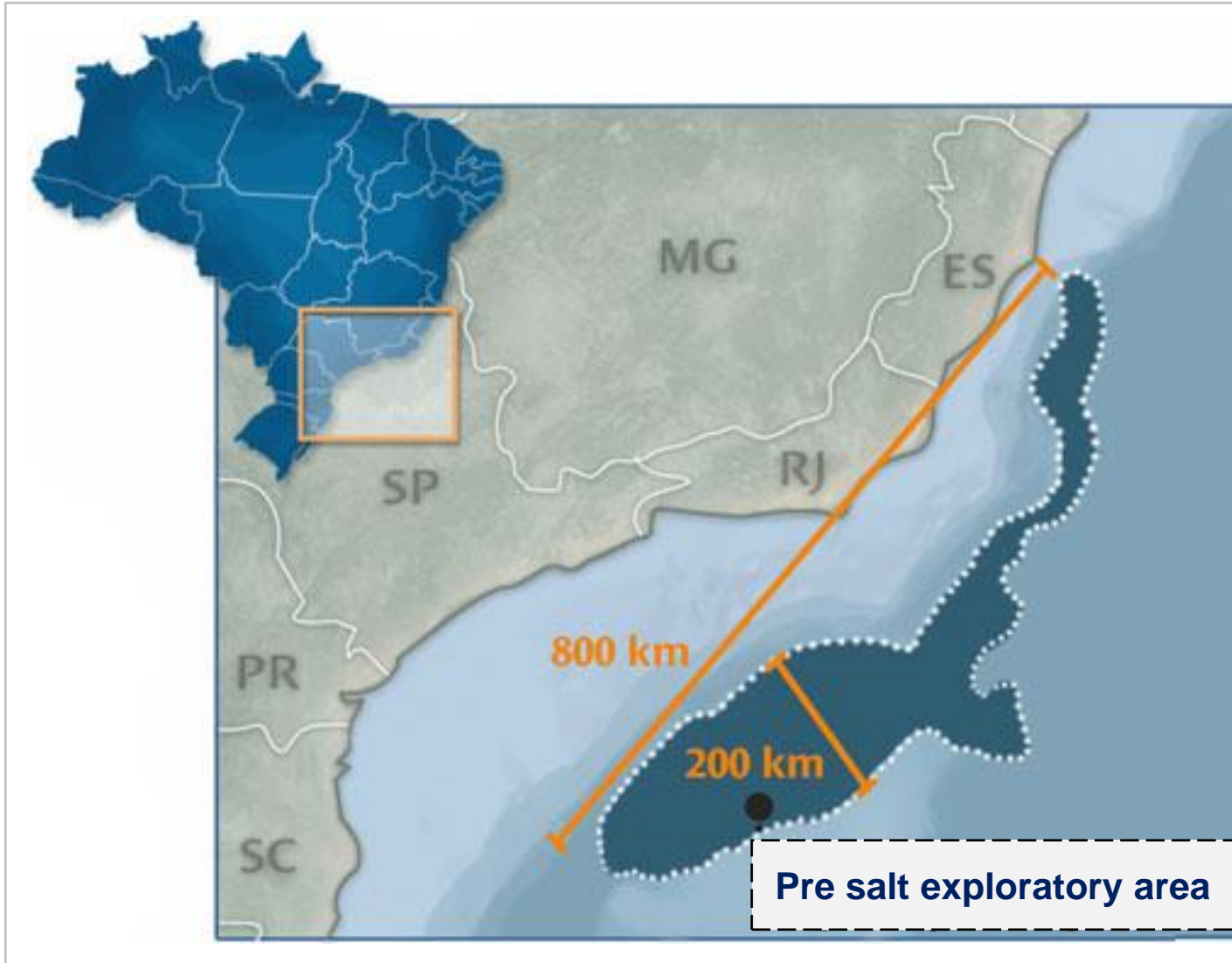
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# Pre salt exploratory area is located off the coast of SE Brazil

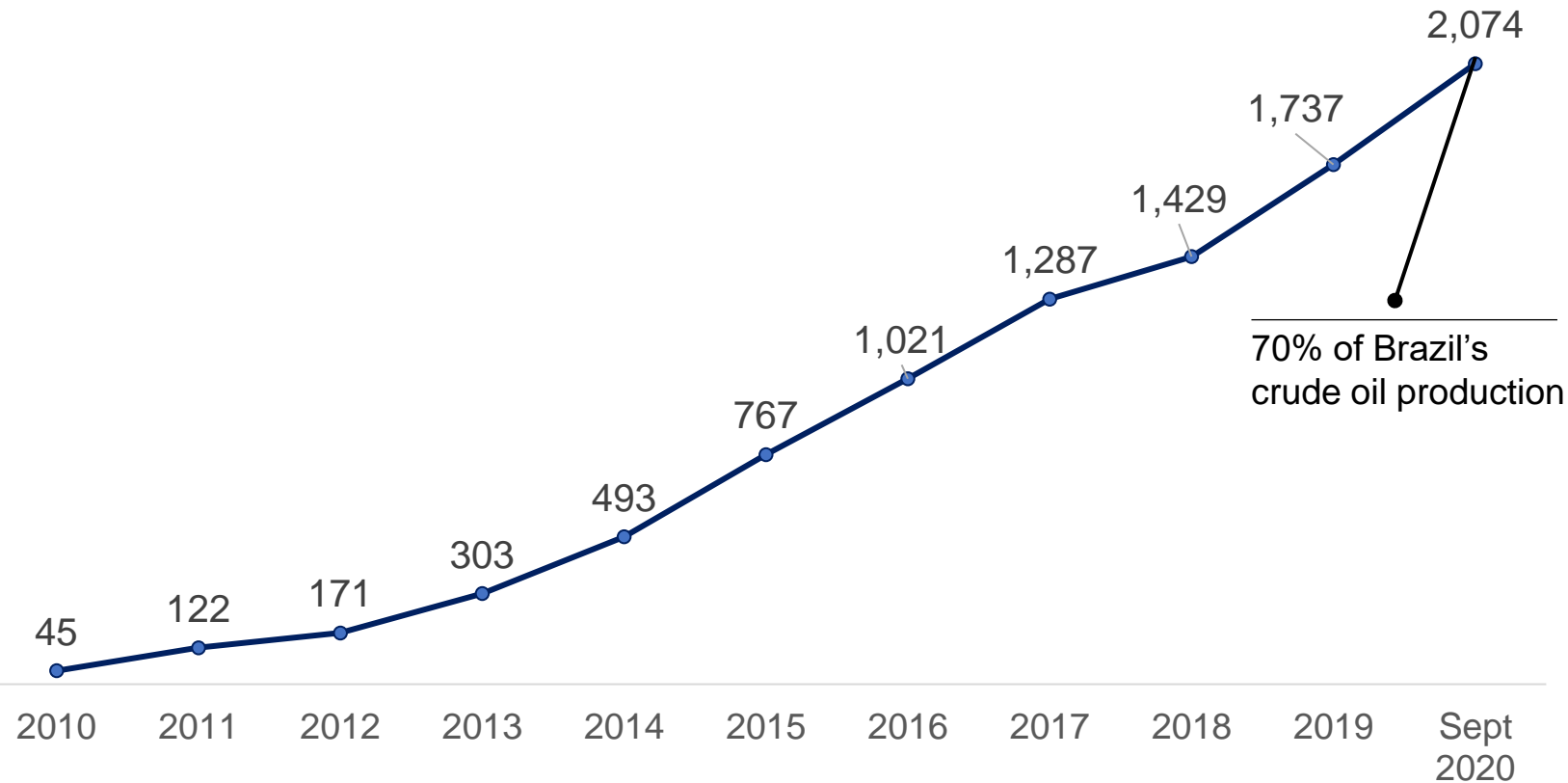


- Brazilian NOC Petrobras has mapped the hydrocarbons potential in the offshore pre salt layer of SE Brazil in the 1970s, but only in the 1990s technologies started being developed in order to obtaining proper seismic imaging and drilling techniques to overcome a 2,000 m thickness salt column
- Exploration of the pre salt area began in 2001 with the biggest seismic acquisition of offshore history at the time. First exploratory well was drilled in 2006, it took almost 1 year and costed more than USD 250 MM.
- In 2007, Petrobras announced the discovery of Lula field, the 1<sup>st</sup> super giant oil field in the pre salt – up to 8 bn boe of recoverable HC.
- Pre salt fields have medium/light crude oil and high natural gas content.

Pre salt oil production in September 2020 reached 2,074 k bpd, since its first FPSO in 2010; considering natural gas, September 2020 production was 2,586 k boe / d

### Pre Salt Oil Production

k bpd



- The most valuable lever in the pre salt fields is well productivity
  - The “best” well in the pre salt currently produces 70 k boed
  - In September, only 3 wells in Búzios field produced over 200 k boe/day
- Economic feasibility of pre salt fields are very robust. NPV break-even is below USD 45 / bbl and Opex normally ranges between USD 4-7 / boe
- Since 2016, pre salt production has doubled especially due to 5 FPSOs installed in Búzios field (~15 bn bbl recoverable reserves)

# Pre salt production can reach 5 MM bpd by 2030

- **Super giant fields under development:** the backbone for the continued pre salt production growth in this decade are the super giant fields Búzios and Mero that have combined recoverable reserves ~15 billion boe. Current plans for these fields include the installation of ~10 new FPSOs by 2030, with crude oil processing capacity of 180,000 bpd or higher. These “jumbo FPSOs” are related to high well productivity in these fields (above 45 k boed per well) and the need of high natural gas compression and injection capacity
- **Participation of IOCs:** other majors e.g Shell and Equinor are also present in the pre salt as field operators and it is expected that they will order ~5 FPSOs. Total added production capacity from these FPSOs can reach 850,000 bpd. There are challenges to be overcome by these players, especially the lack of offshore infrastructure (natural gas pipelines) and onshore infrastructure (natural gas processing facilities).
- **Extensive exploratory area:** Brazil has also adopted the PSA regulatory framework for specific pre salt areas. Currently there are more than 4,250 mi<sup>2</sup> of exploratory acreage in pre salt opportunities under this regime. Exploratory work in this areas is beginning, and an interesting fact is that 90% of this area is operated by other companies rather than Petrobras. Nevertheless, unless (super) giant fields are discovered in this areas, they should not contribute to pre salt production growth by 2030
- **Potentially the next super giant field:** Petrobras has acquired in 2019 an exploratory area of 1,700 mi<sup>2</sup> in pre salt area where the expectations for the discovery of another super giant field are high. Exploratory work has not started yet, and also this area should not contribute to production growth by 2030.

# The Guyana-Suriname Basin is in the Equatorial Margin, of the NE coast of South America, and may have similar oil fields as its “correspondent area” in Africa<sup>1</sup>









- Exxon announced its Liza 1 discovery in May of 2015 with estimated reserves of 2.5 billion BOE.
- Liza 1 production began in Dec 2019
- In subsequent discoveries with its various partners, Exxon have announced total recoverable reserves of 8 billion boe and production forecast at 750,000 bbl of oil per day by 2025
- Rystad Energy predict Guyana production could reach 1.2 million bpd by 2030.
- According to a [USGS study](#) dated 2012, the Guyana-Suriname Basin is estimated to contain ~13,5 billion bbl of undiscovered oil

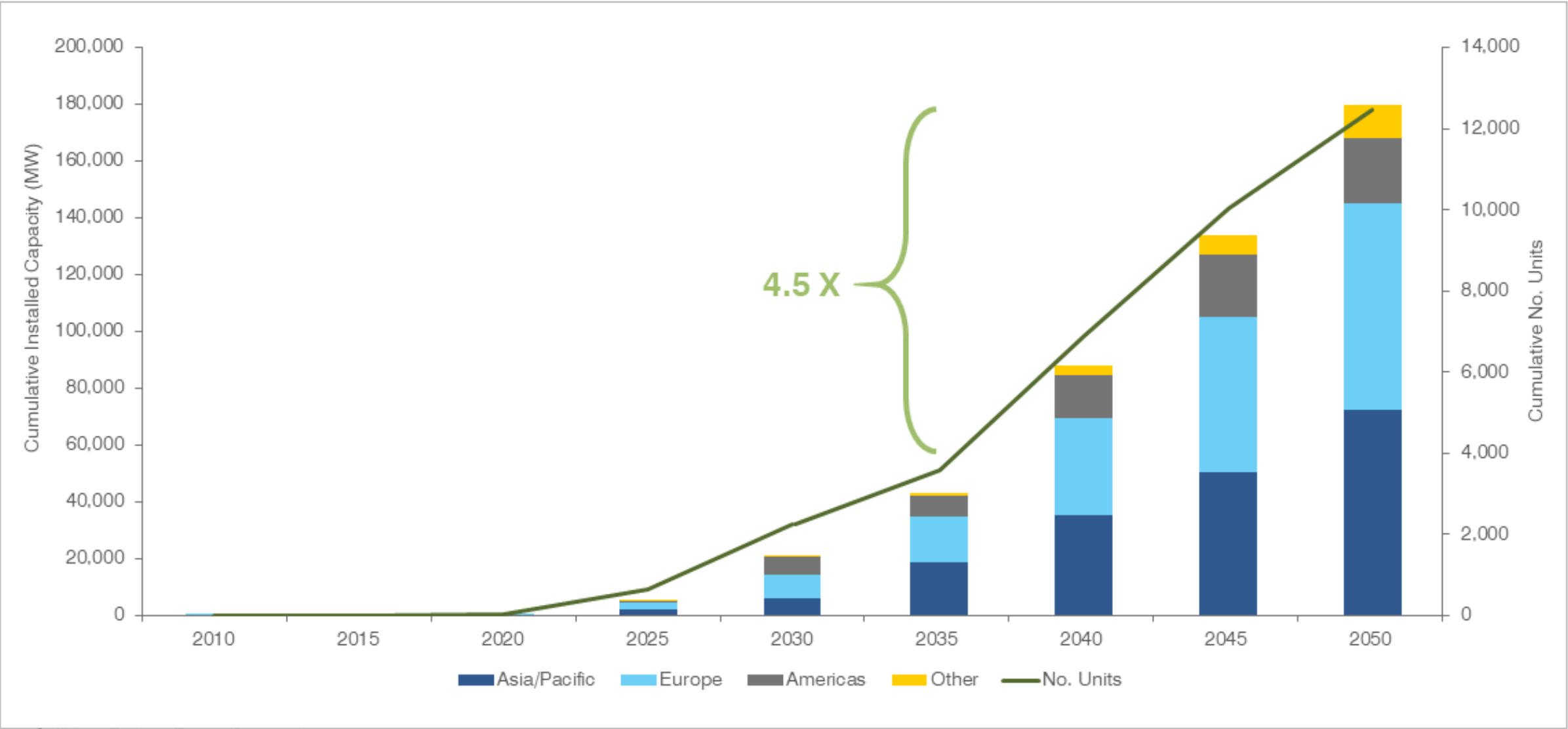
1 - Africa and South America were one single continent that was split a million years ago, so similar geological formations can be found in both continents. There is evidence that each geological system existent at that time was also split between the continents.

# Impairments were very relevant in 2020 and influenced oil companies' financial results

Billion USD

	9M 2020 Results	Impairments	Impairments as a % results
	-21,245	11,800	55%
	-4,877	1,575	32%
	-3,089	2,930	95%
	-10,353	13,758	133%
	-17,635	24,718	140%
	-8,154	8,394	103%

# Huge potential defined for floating wind



Source: Q Vision; Equinor Energy Perspectives



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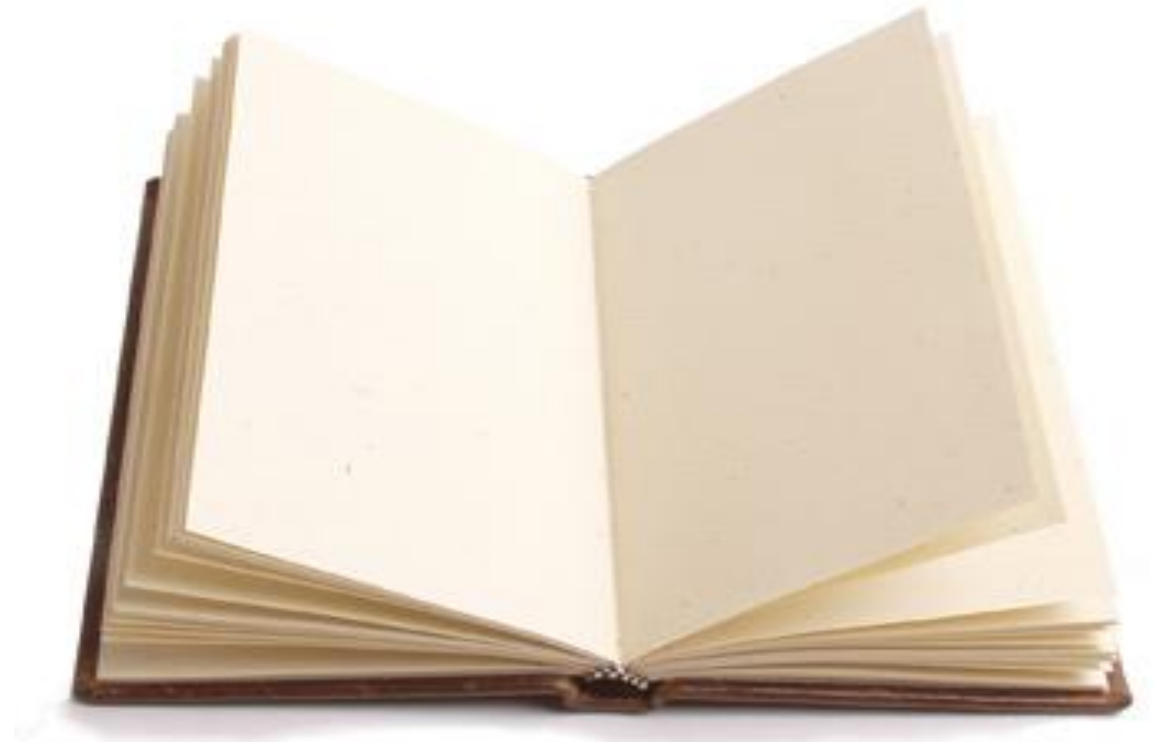
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# Majors are showing signs of a gradual transition from “IOCs to IECs” focusing on decreasing its carbon footprint, and there are different alternatives for this transition



“Our ambition is to be a net zero company by 2050 or sooner. And to help the world get to net zero. Within 10 years, bp aims to be a very different kind of energy company by: increasing low carbon investment to around \$5 billion a year - 10 times what we invest today; Building energy partnerships with 10 to 15 big cities; Reducing our oil and gas production by over 40% and no exploration in new countries. We are also aiming to cut the carbon intensity of the products we sell by 50% by 2050 or sooner.”



“Chevron’s focuses on the following areas to address the energy transition and climate change: lowering our carbon intensity cost efficiently, increasing use of renewables in support of our business and investing in the future targeting breakthrough technologies”



“We’re cutting emissions from our oil and gas activities and investing ambitiously in renewables. We aim to cut emissions in Norway towards near zero in 2050 and reduce our net carbon intensity by 50% by 2050.”



“Here are some examples of our 10 commitment to sustainability: zero emissions growth by 2025; zero natural gas flaring by 2025; reduction of 32% in the carbon-intensity of our upstream operation by 2025; increase 30% our reutilization of processes water by 2025



“For society to achieve a 1.5° Celsius future, the world is likely to need to stop adding to the stock of greenhouse gases in the atmosphere – a state known as net-zero emissions – by around 2060. That is why Shell has set itself an ambition to become, by 2050 or sooner, a net-zero emissions energy business. This is accompanied by our ambition, by 2030, to provide a reliable electricity supply to 100 million people in the developing world.”

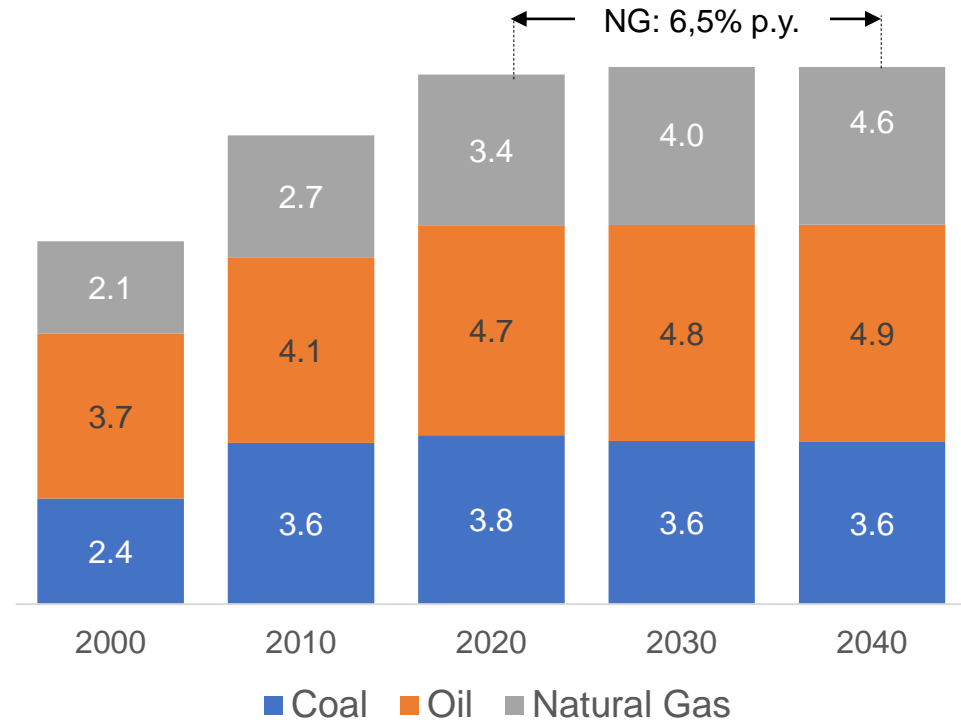


“At Total, as a major energy player, we have integrated climate into the core of our strategy. It is now our ambition to get to net-zero emissions by 2050 together with society, a goal aligned with our purpose to provide energy that is more reliable, affordable and clean to as many people as possible. [...] ... offering an energy mix with gradually diminishing carbon intensity, developing new technologies and supporting initiatives that address climate challenges”

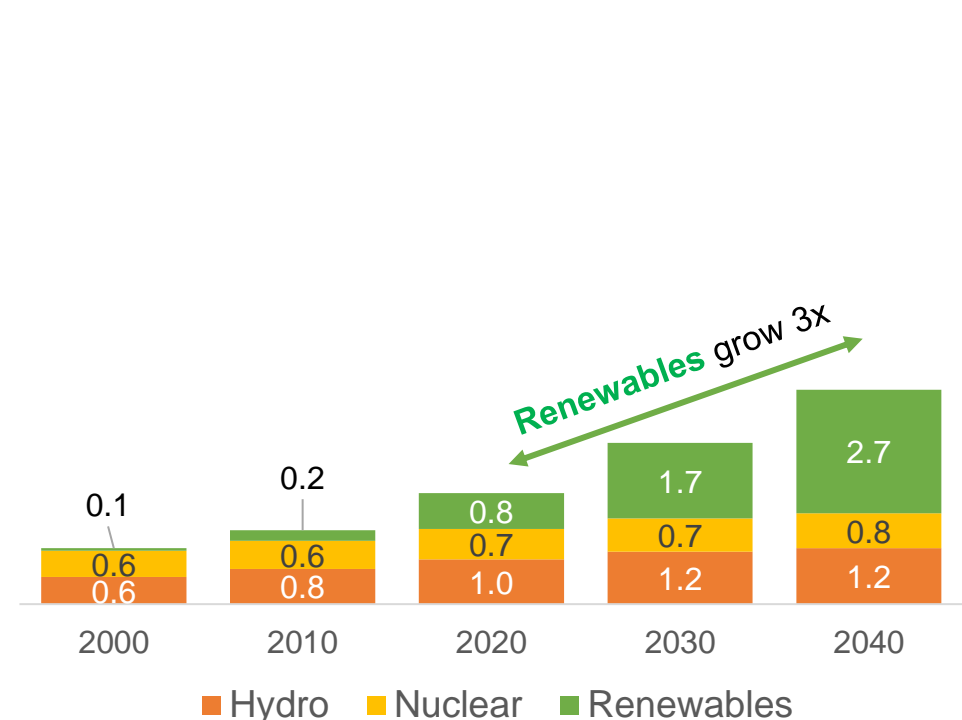
# Primary energy consumption and % share of each of the main sources of energy

By 2040, three quarters of primary energy consumption shall come from fossil sources of energy

**Primary Energy Consumption – Fossil sources**  
Billion toe



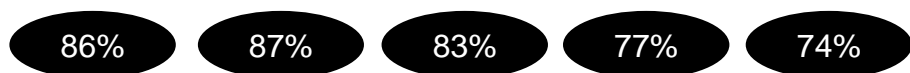
**Primary Energy Consumption – Non-Fossil sources**  
Billion toe



**Market Size**



**Fossil sources as % total consumption**



Apparently, energy transition will be a long process



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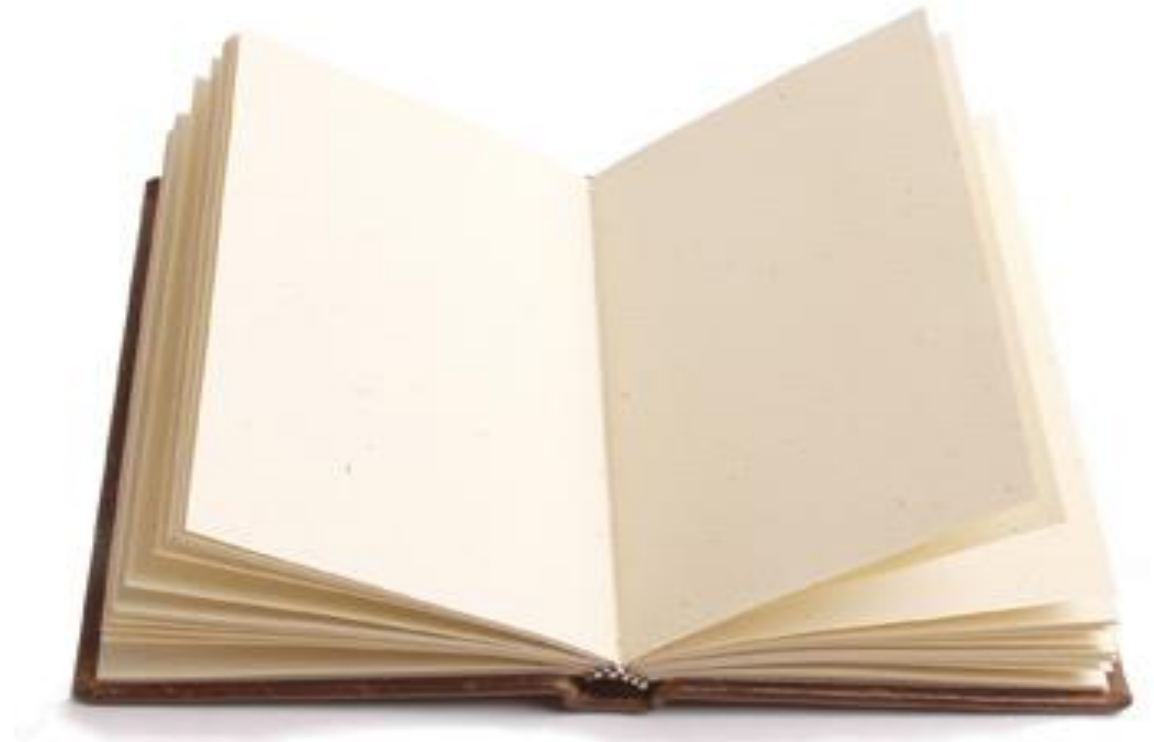
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# Thoughts about the O&G Industry: past, present and future

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- **O&G industry is among the most resilient industries in global economy.** It is a backbone for global GDP, and in the last 50 years, the industry has navigated through all the turmoil and has always found a way to get back on track meaning production growth above demographic demand growth for primary energy.
- **The range USD 50-80/bbl has been mentioned as “good for everybody”.** The market dynamics have never been straightforward given the existence of a powerful cartel, but at the same time OPEC’s ability to sustain bold moves (oil price shocks in the 1970’s, OPEC+) is limited because the “Petro Nations” that compose OPEC have their own needs for a price level that clears their economic needs, so prices in the long term cannot be low. In equilibrium, these fundamentals tend to remain until there is a structural change in the primary energy global matrix.
- **Demand recovery forecast (post COVID) to hit 100 MM bbls/day (likely 2022-2023).** In this scenario, prices should quickly revert to a range of USD 50- 70 / bbl level, unlocking FIDs. However, project financing and personnel needs are likely to be constraints on supply growth.
- **It is very likely that the oil supply will flatten out in the future given the rise in natural gas and renewable sources of energy, but it will take time.** The process has to be smooth given the fact that the global economy has to be able to accommodate such a structural change.

## The future looks bright, especially offshore, for those who can adapt

- Anticipate oil and gas supply, demand and pricing nearing 2019 levels by 2022-2023
- Returning to 2019 levels of supply will require significant injection of human and financial capital after drop off in 2020
- Lower carbon footprint will drive the change in energy mix as overall supply and demand continue to grow long term. Oil is expected to remain flat with substantial growth in natural gas, (a lower carbon fuel) and renewables.

# Endeavor

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