



RystadEnergy

Role of Norway in the energy market and P&A outlook

11th Norwegian Plug and Abandonment Seminar

Reza Kazmi, Head of Global Drilling and Wells Research

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Role of Norway in the energy market and P&A outlook

1

Norwegian energy industry is key for Europe's energy security

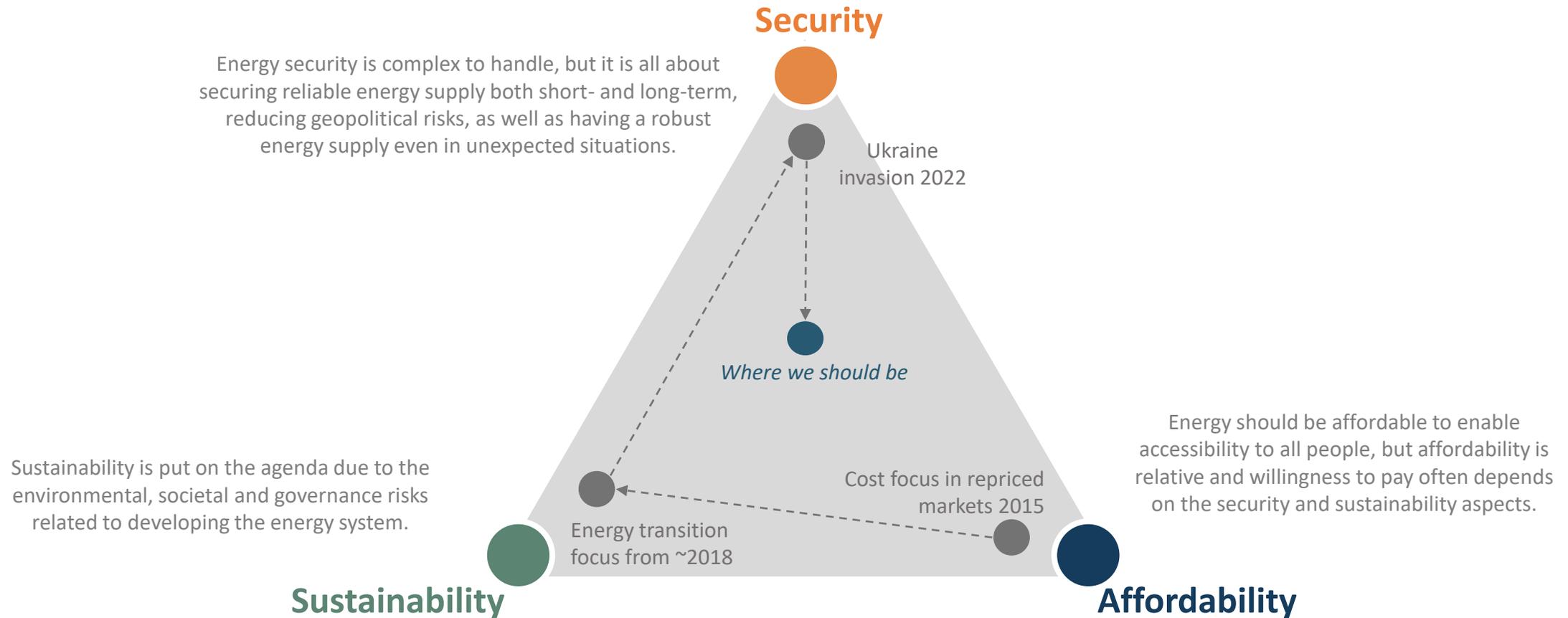
2

How a declining drilling market could push P&A activity higher

3

Industry is making progress on P&A fronts

Energy security has been high up on the agenda over the past 18 months

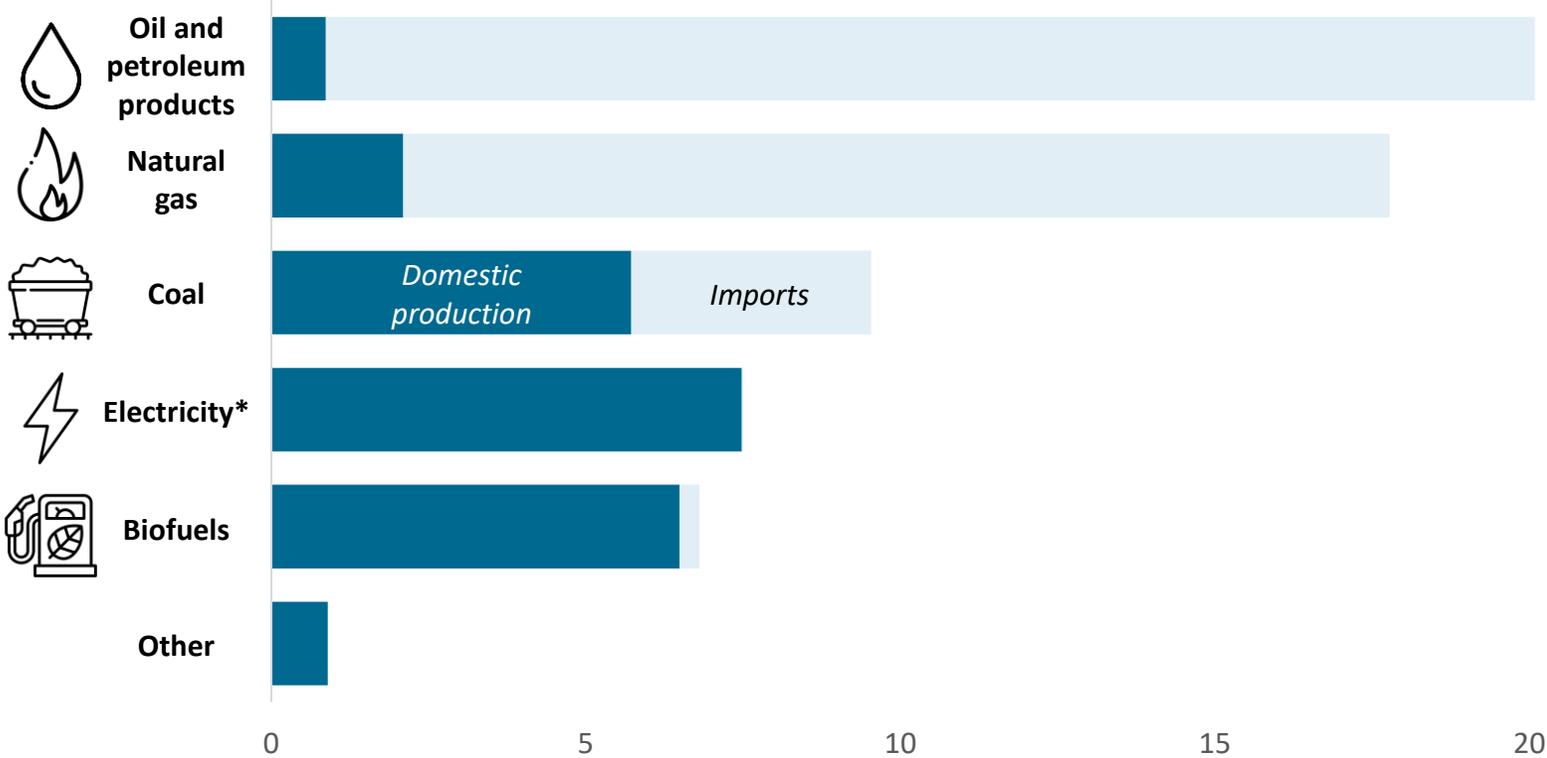


Source: Rystad Energy research and analysis

Europe has been and will still be highly dependent on imports of fossil fuels

EU27 energy demand in 2021

Exajoule



~60 EJ

primary energy demand
in 2021

~75%

fossil fuels

~80%

of fossil fuels are
imported

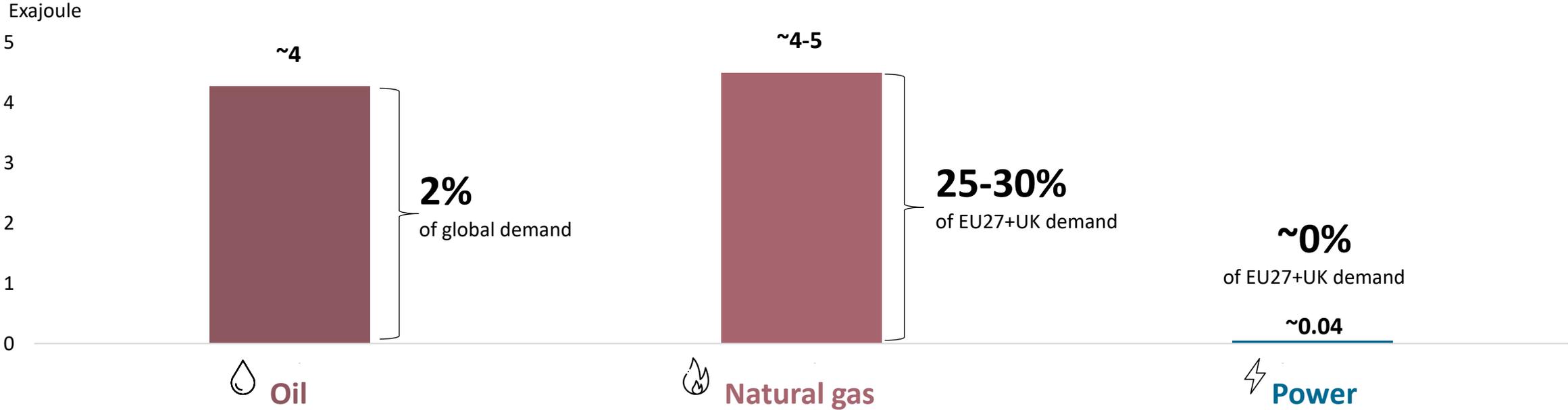


* From renewables and nuclear. Electricity generated from coal and gas are included in the coal and natural gas categories, respectively.

Source: Rystad Energy research and analysis; Eurostat

Norwegian gas export is crucial for Europe while export of oil and power is replaceable

Norwegian 2022 energy export split by source*



Norwegian oil production constitutes about **2% of global demand** for raw oil. Therefore, Norway can be considered as a relatively small and replaceable player in the global oil market. Close to all Norwegian oil production is exported.

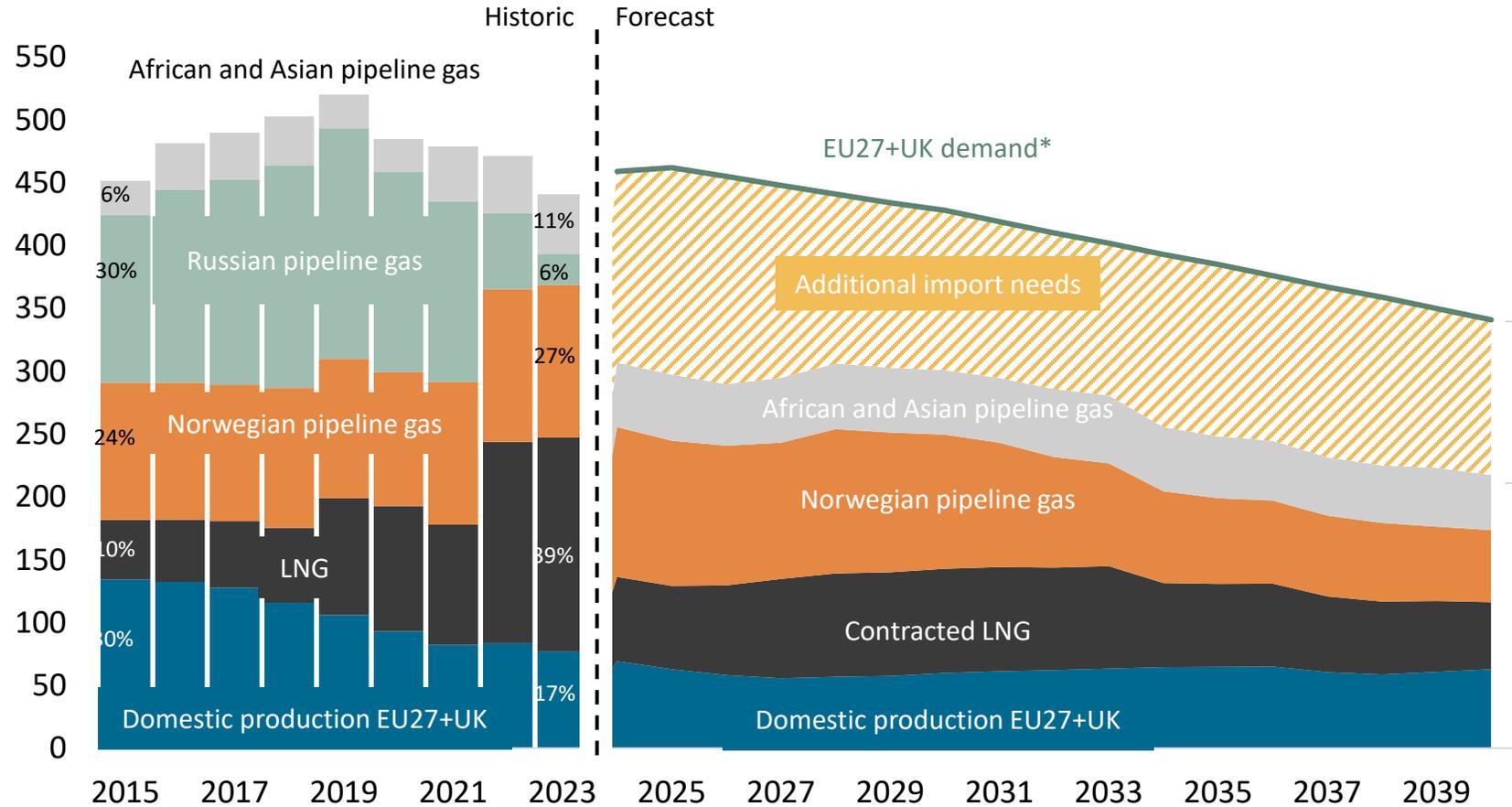
In the past years, Norwegian natural gas export has covered between **25-30% of EU27+UK** gas consumption. This share is likely to increase going forward. Norway is the third largest natural gas exporter after Russia and Qatar.

In 2022, Norway produced 144 TWh and had a **net export of about 12 TWh**, constituting about 8% of total generation. This is very small volumes from a European perspective. Norway exports most power to Denmark, Sweden and Germany.

* Power is converted from TWh to EJ using a conversion factor of TWh = 0.0036 EJ.
Source: Rystad Energy research and analysis; Rystad Energy UCube; Norsk Petroleum; Statnett

Norwegian piped gas likely to be crucial to fill EU27 and UK's long-term gas import gap

EU27+UK gas sources
Bcm



* EU pre-FF55 baseline + UK high electrification.

Source: Rystad Energy research and analysis; Rystad Energy GasMarketCube

Norwegian gas supply is stable and will become more important to European energy security

1

Highly competitive on cost

2

Emission intensity among the lowest in the world

3

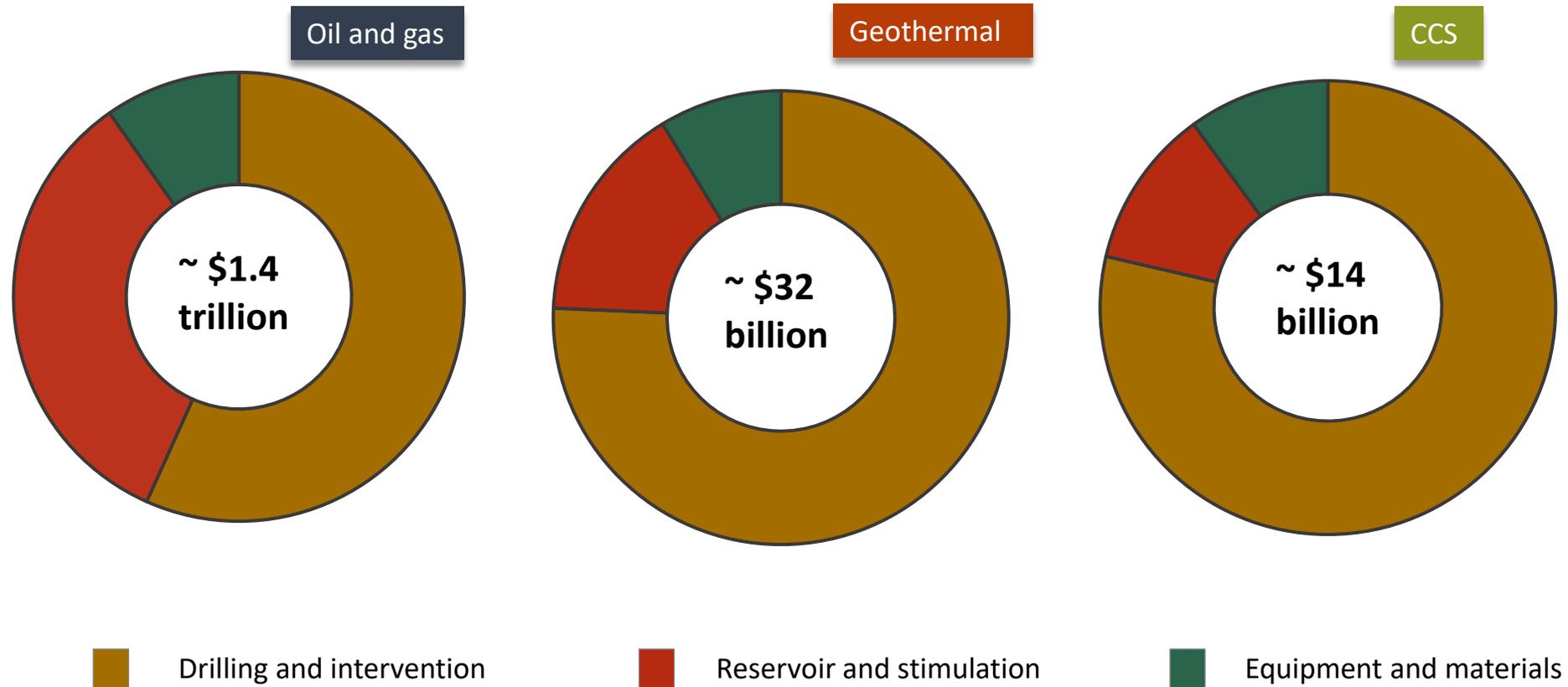
Stable supplier with growing European market share

4

The call for additional Norwegian gas is strong

Oil and gas drilling will still dominate despite of geothermal and CCS push

Capital expenditures in drilling and well services
USD

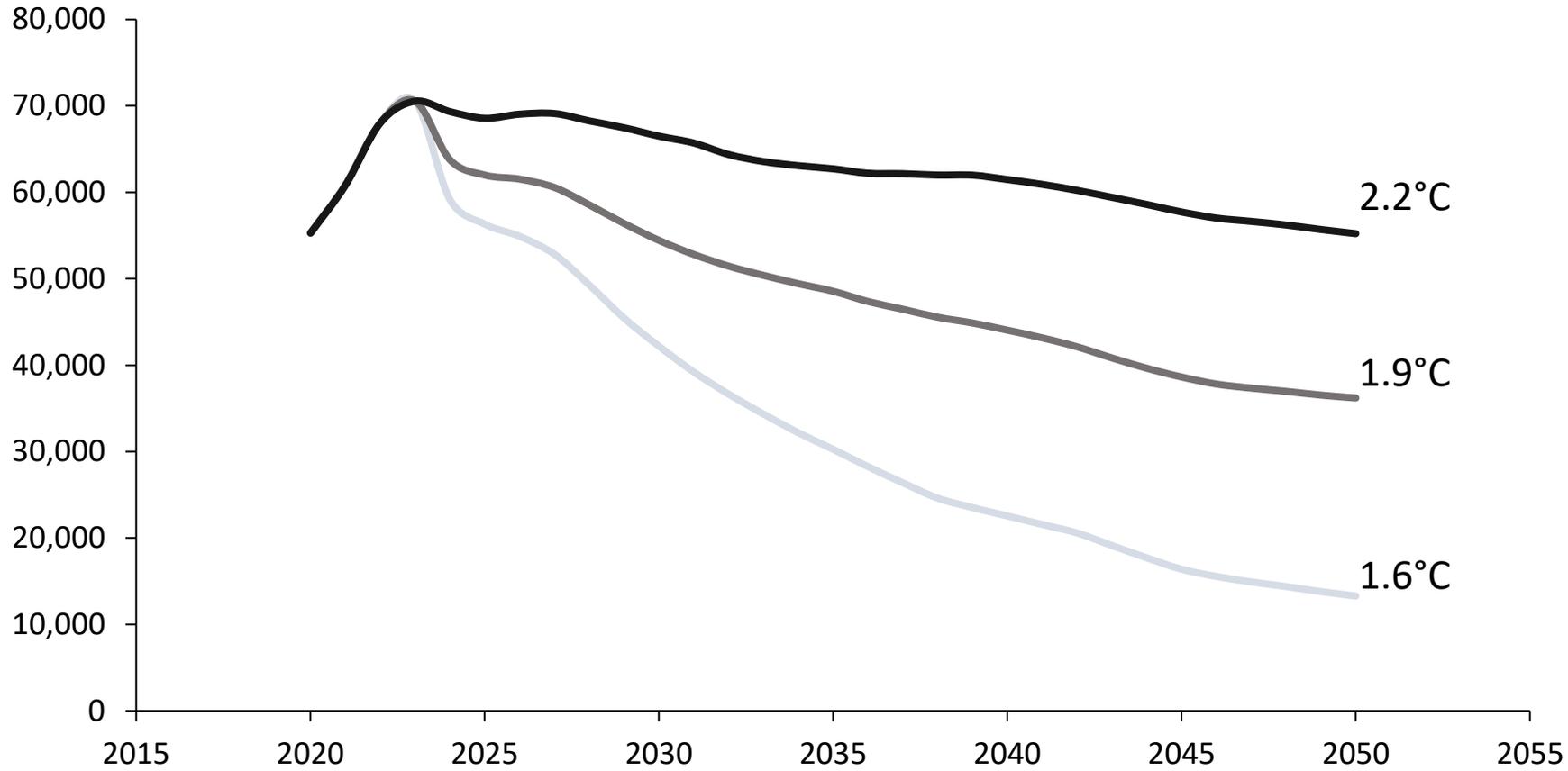


Source: Rystad Energy ServiceCube

Though long term decline is imminent

Wells drilled and completed under different temperature scenarios*

Count



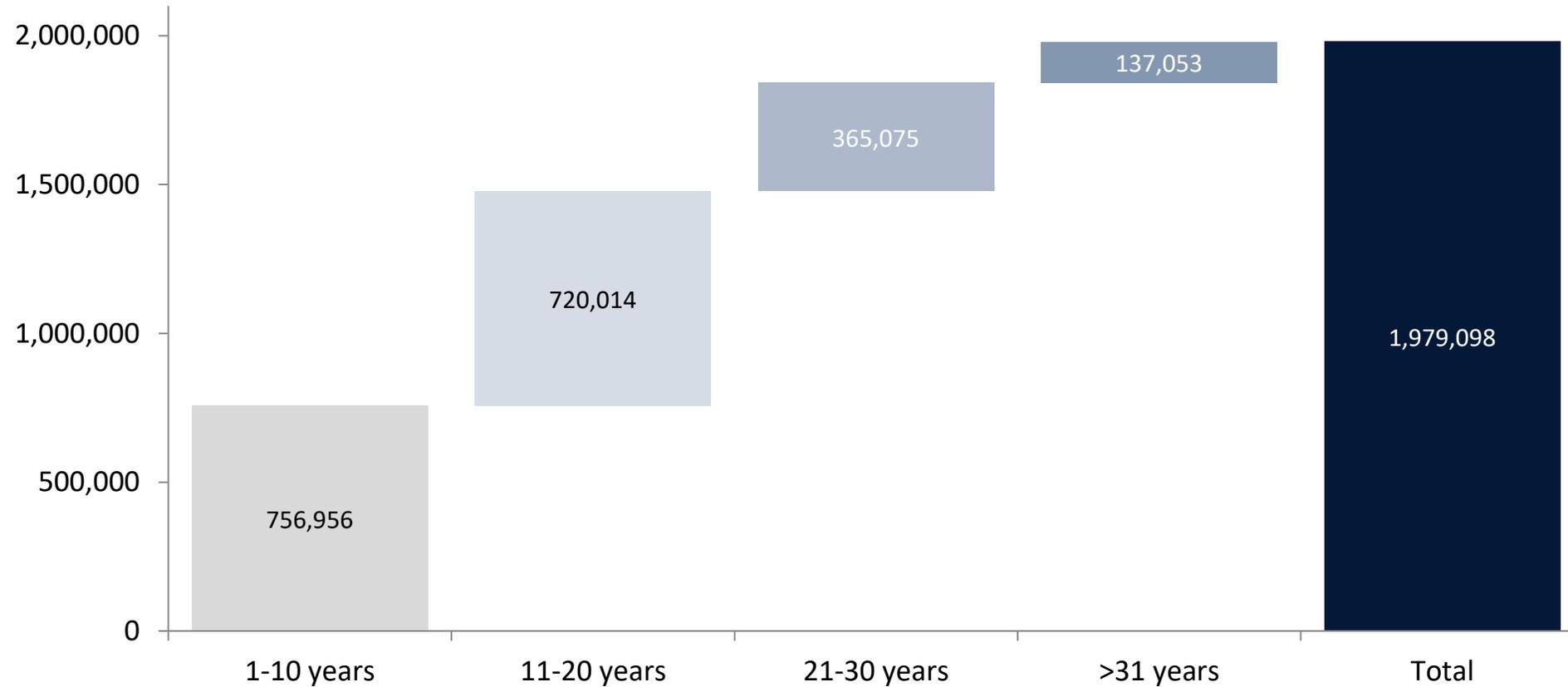
*Scenarios refers to Rystad Energy scenarios of average global temperature rises above pre-industrial levels in degrees Celsius

Source: Rystad Energy Climate Scenario Well Analysis dashboard

So what is the future of oil and gas wells which industry has drilled over several decades?

Active producing wells in 2023

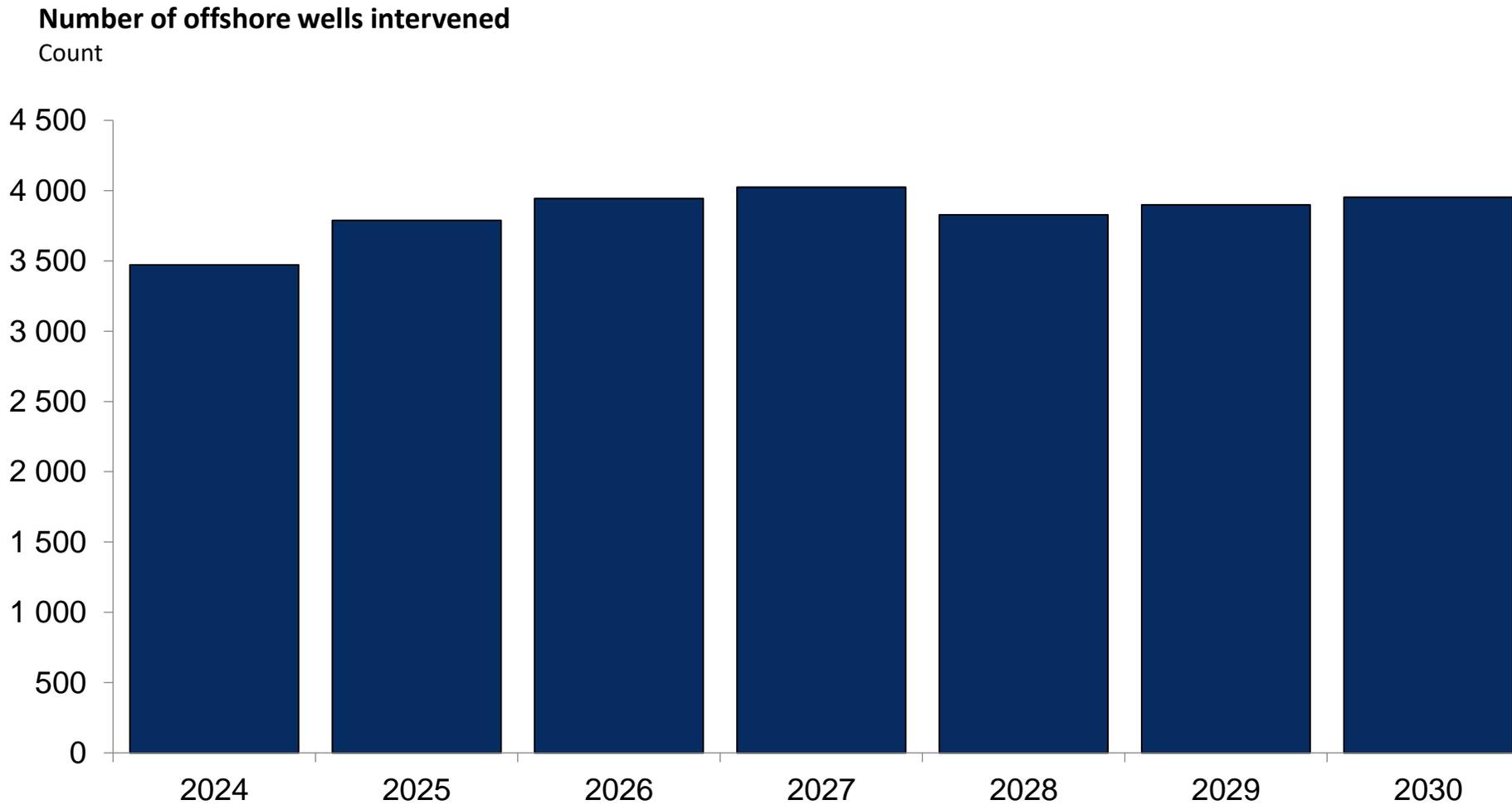
Count



*Scenarios refers to Rystad Energy scenarios of average global temperature rises above pre-industrial levels in degrees Celsius

Source: Rystad Energy Climate Scenario Well Analysis dashboard

One – these wells will require maintenance and thus intervention market will be more resilient

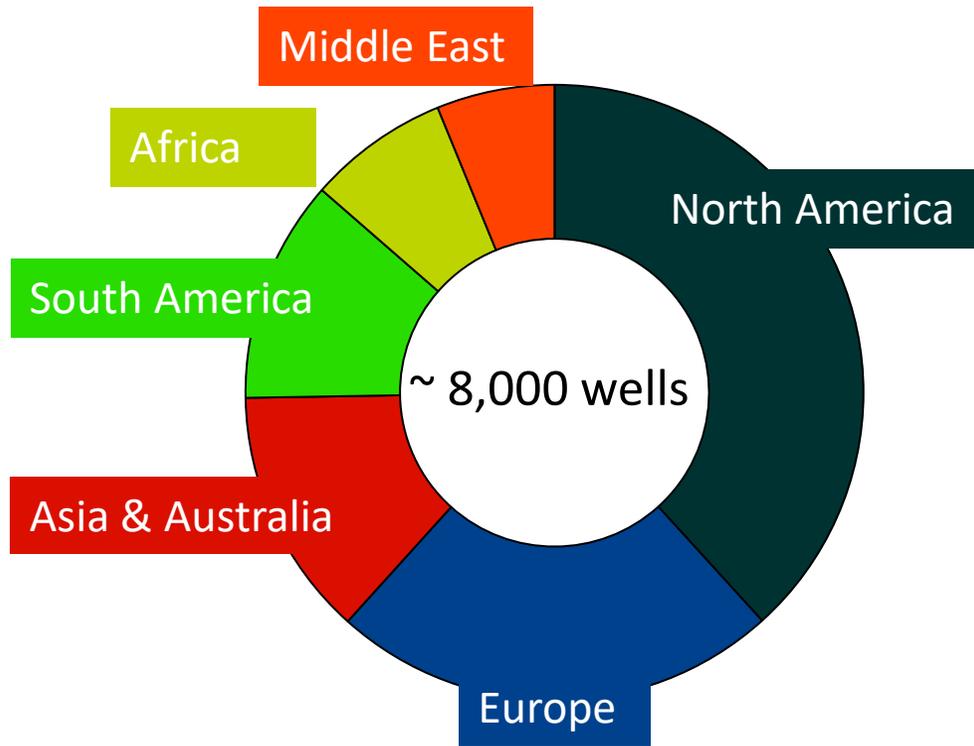


Source: Rystad Energy WellCube

Second – these wells have to be permanently abandoned at some point

Number of well abandonments (2024-2030)

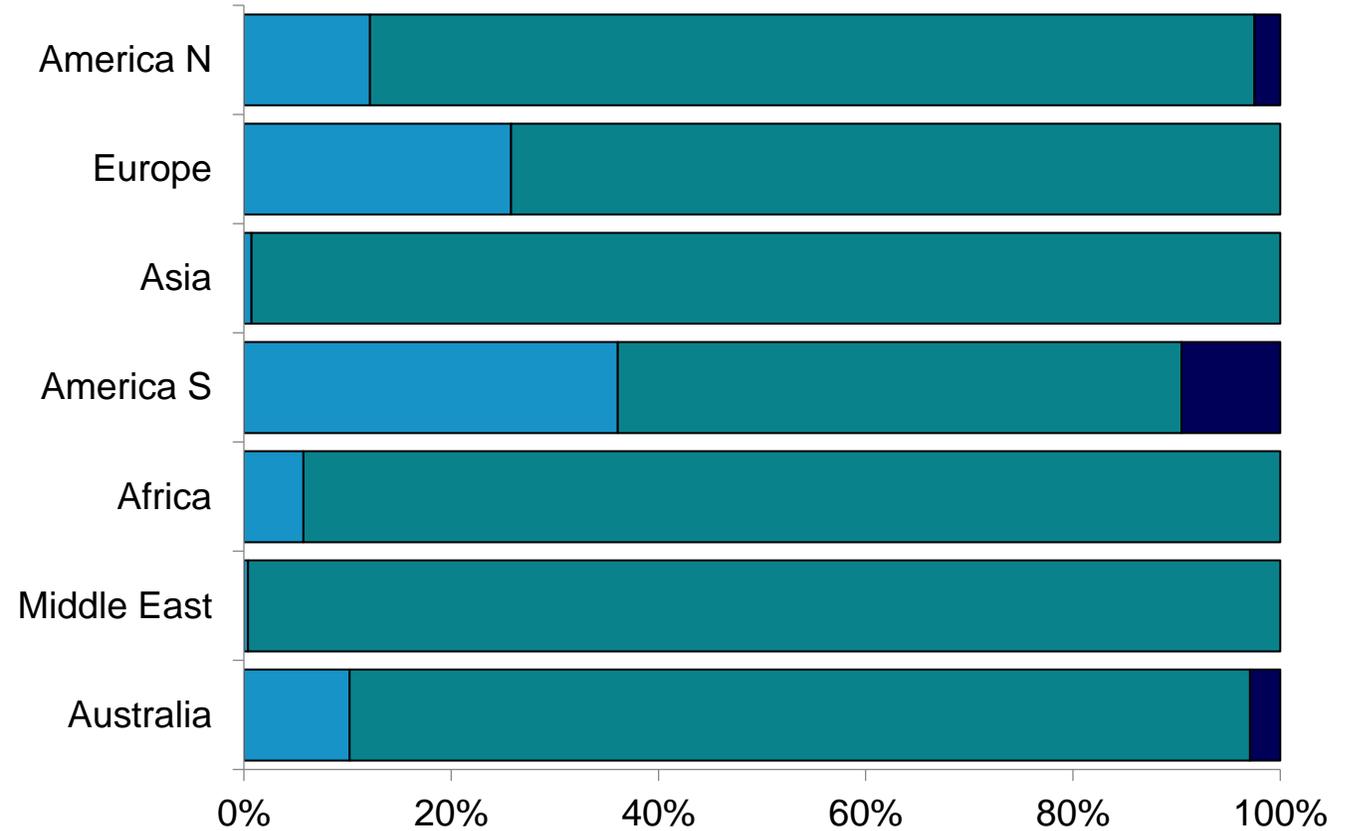
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Number of well abandonments (2024-2030)

Percentage

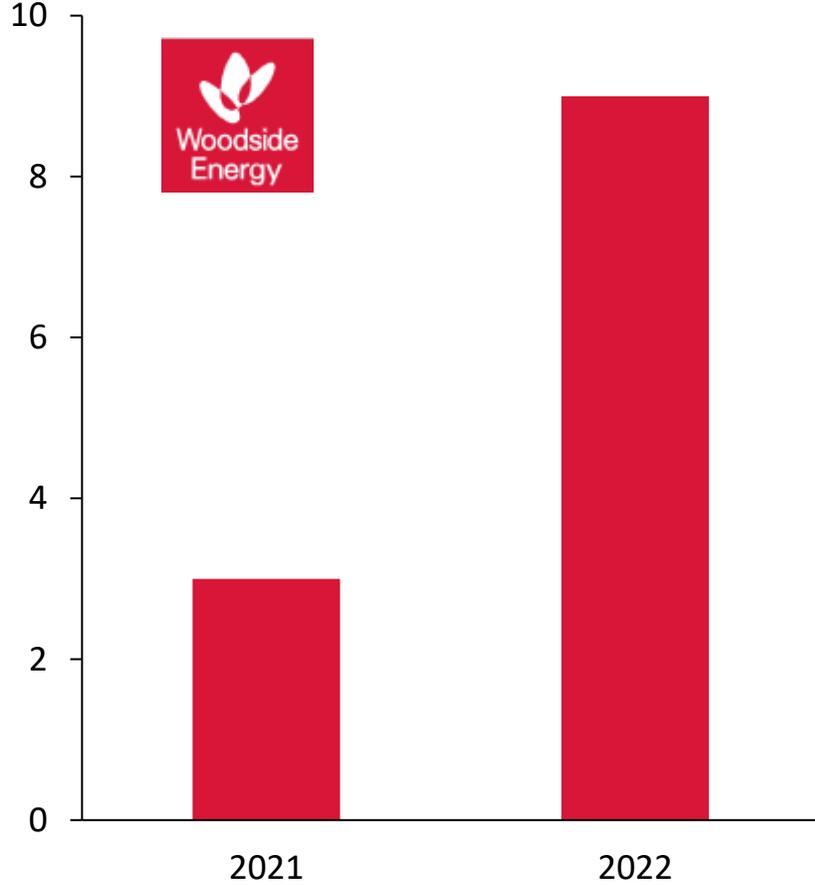
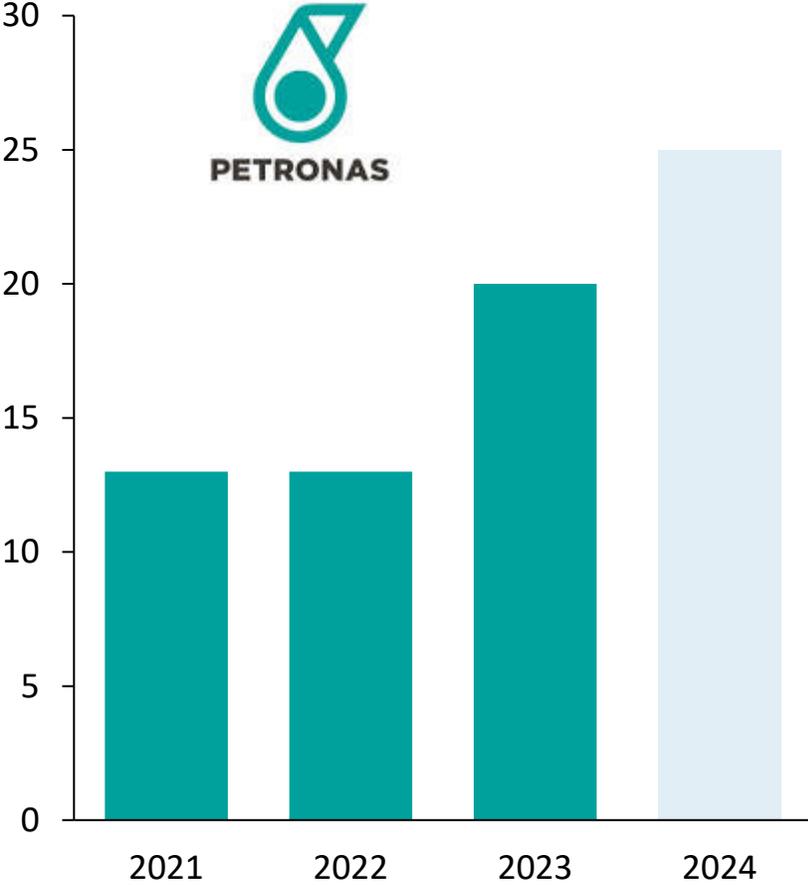
- Deep water (125-1500 meter)
- Shelf (to 125 meter)
- Ultra deepwater (1500+ meter)



Source: Rystad Energy WellCube

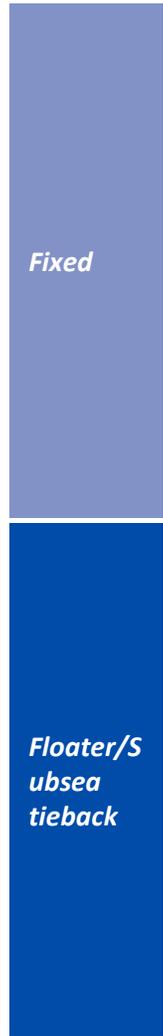
And we are seeing operators stepping up on P&A activity globally

Number of well abandonments
Count

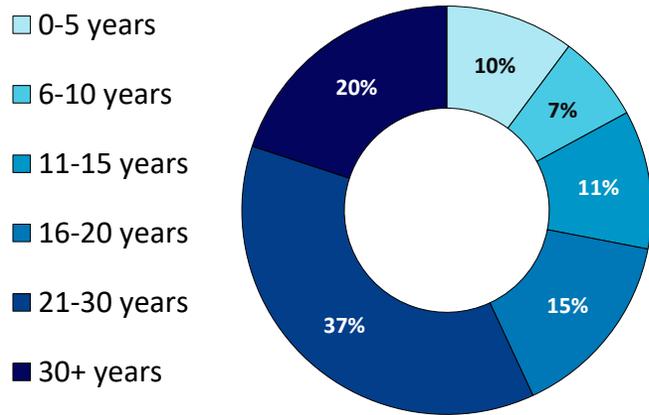
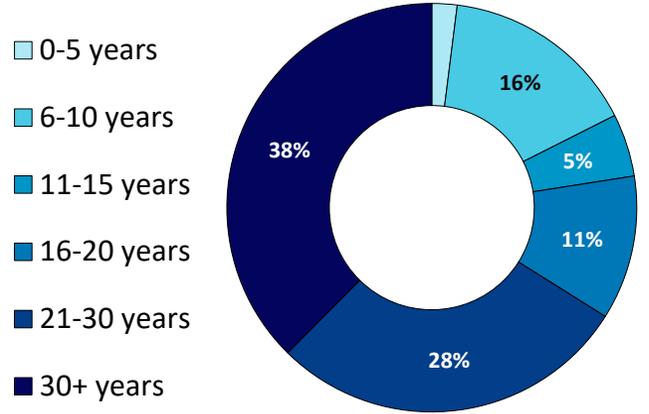


Source: Rystad Energy research and analysis, Company reporting

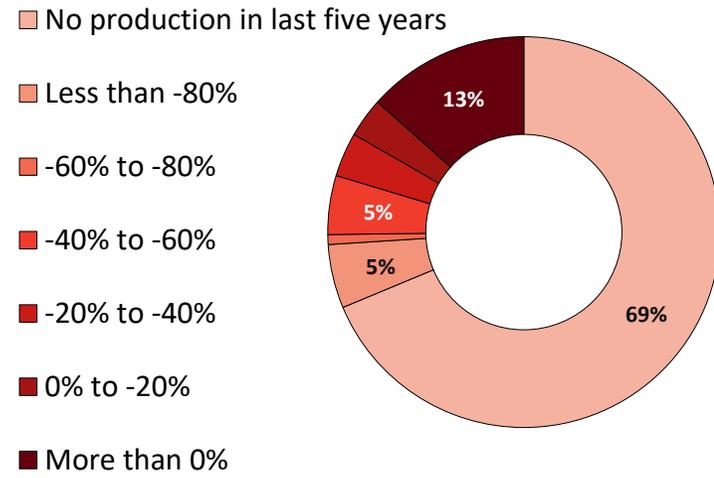
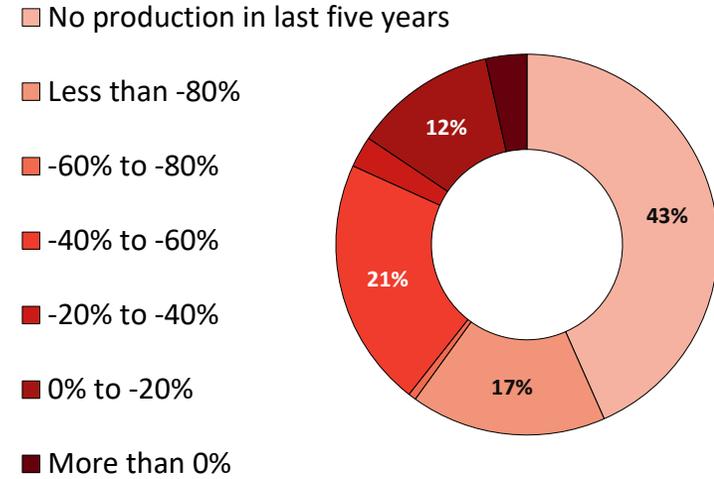
30+ years old wells and fields that ceased production for 5+ years are key drivers for P&A activity on UKCS



Age of wells at abandonment



Field production change** prior to abandonment



***Production change on the field in the five years prior to well abandonment
 Source: Rystad Energy WellCube; Rystad Energy research and analysis

UKCS is making good progress on P&A front



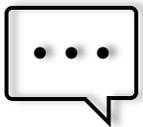
£8bn actual spend between 2017-2022/23



25% cost reduction from 2017 baseline



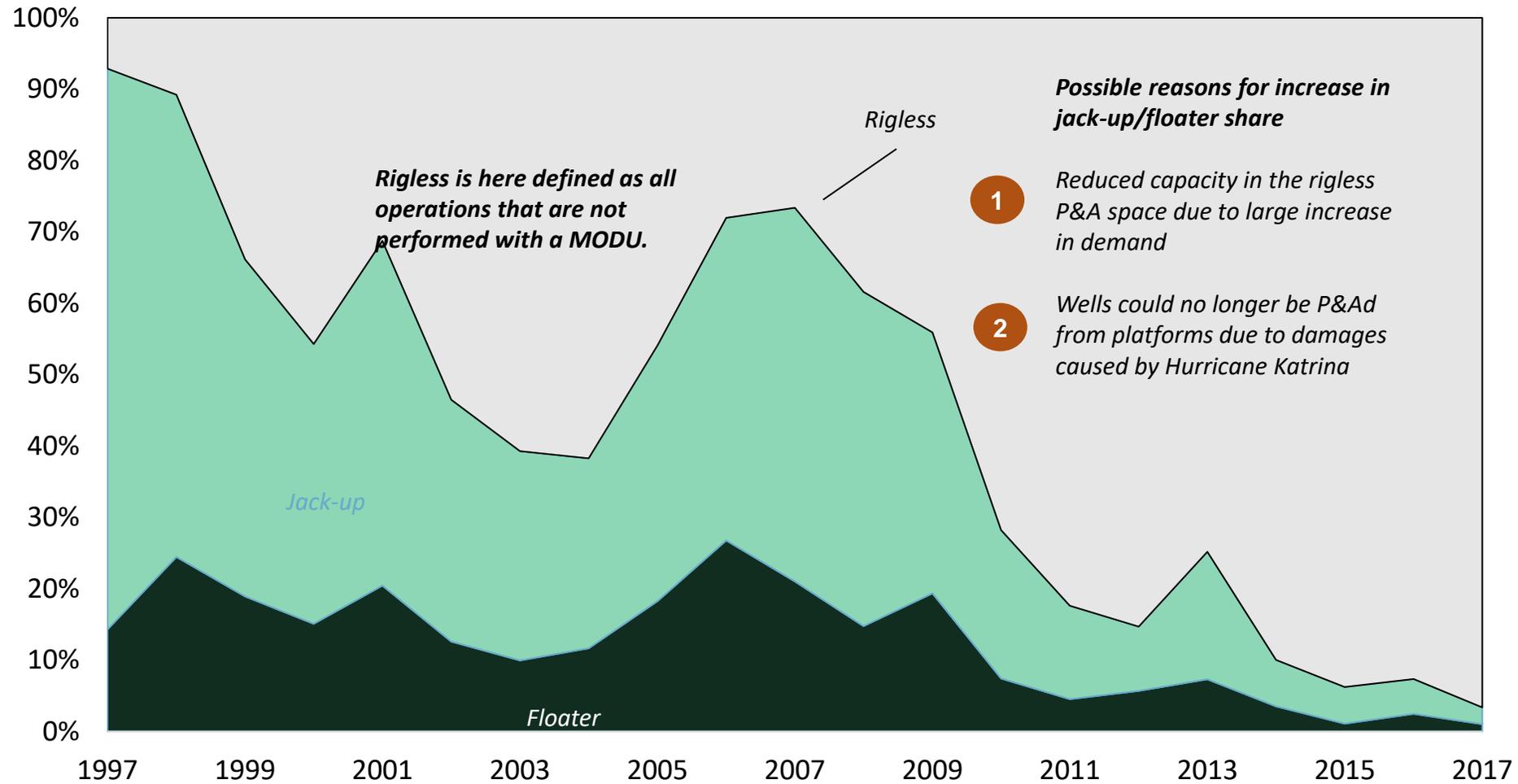
10% cost reduction by 2028



Push boundaries of traditional contracting models and relationships between operators/owners and supply chain

Source: Rystad Energy research and analysis, NSTA Decommissioning cost and performance report

We have also seen a structural shift towards rigless P&A in US Gulf of Mexico

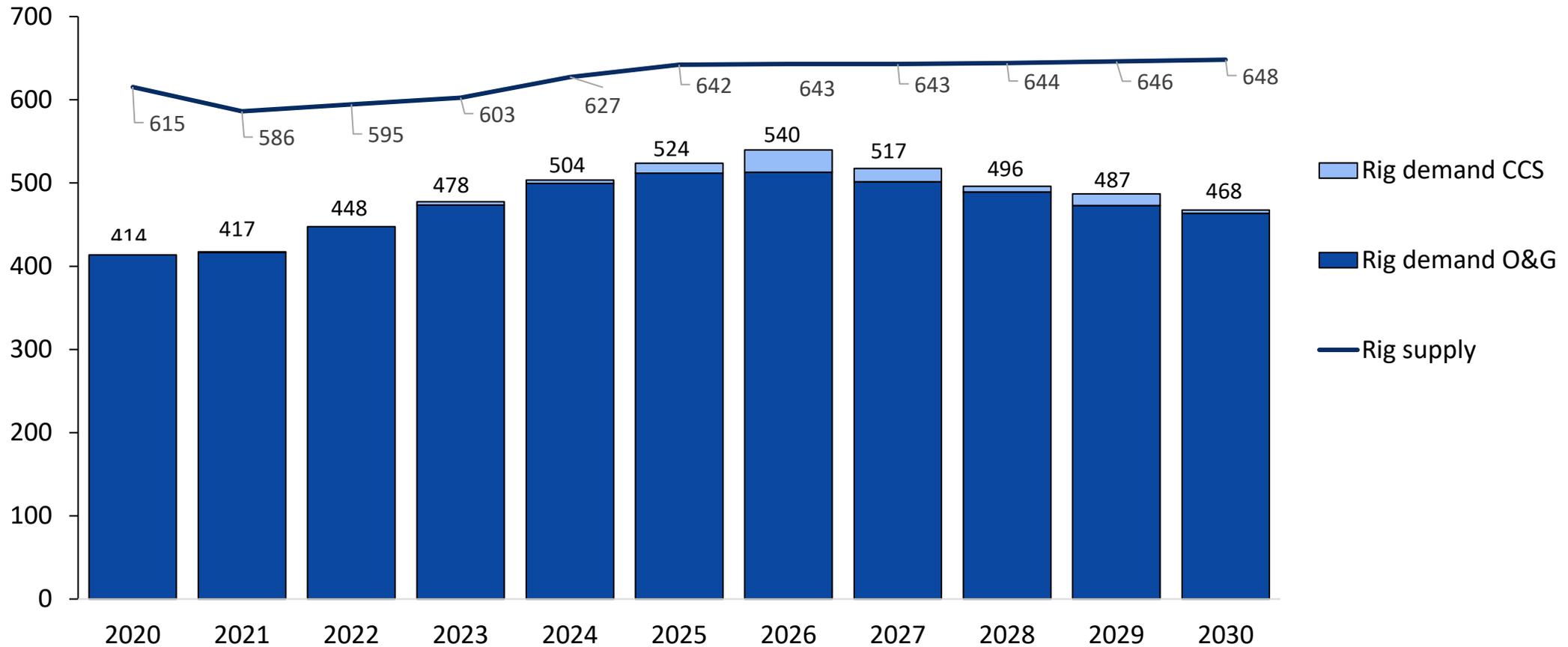


Source: BSSE; Rystad Energy research and analysis

Do we have enough capacity to absorb growing P&A activity?

Rig demand and supply

Years



Note: Includes demand for Floaters and Jackups

Source: Rystad Energy RigCube



RystadEnergy

Navigating the future of **energy**

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Headquarters: Rystad Energy, Fjordalléen 16, 0250 Oslo, Norway

Americas +1 (281)-231-2600

EMEA +47 908 87 700

Asia Pacific +65 690 93 715

Email: support@rystadenergy.com

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