

SUPPLY DISRUPTIONS AND RISING OIL PRICES



RYSTAD ENERGY

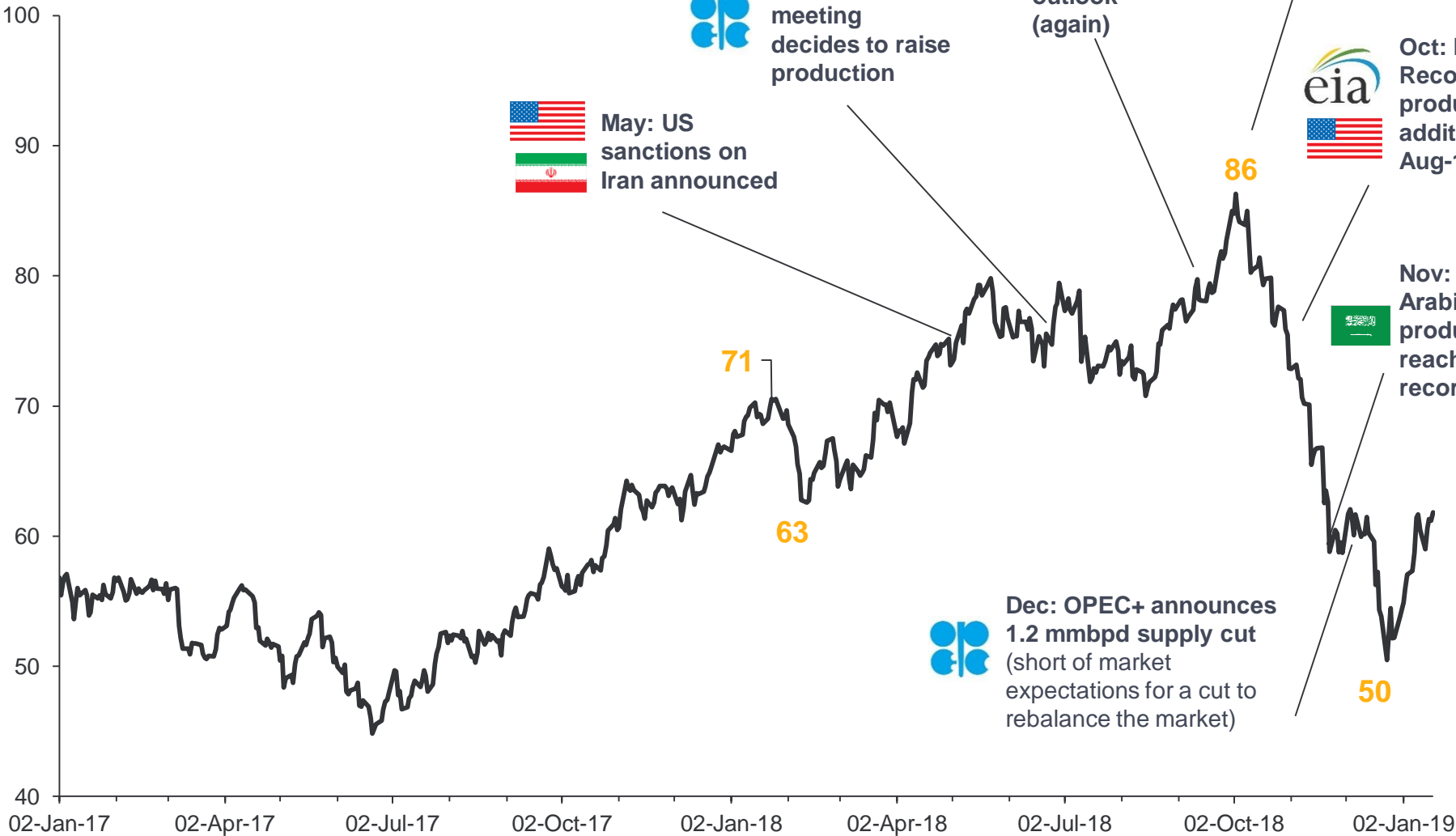
APPEX 2019

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PARTNER

- Why did the oil price drop 25 USD/bbl into December 2018?
- What can we expect in the medium term?
- What will the impact be on future supply?

The oil price has ranged from 50-86 USD/bbl since last years conference

ICE Brent historical 1M prices 2018-YTD
USD per barrel




Source: Rystad Energy research and analysis

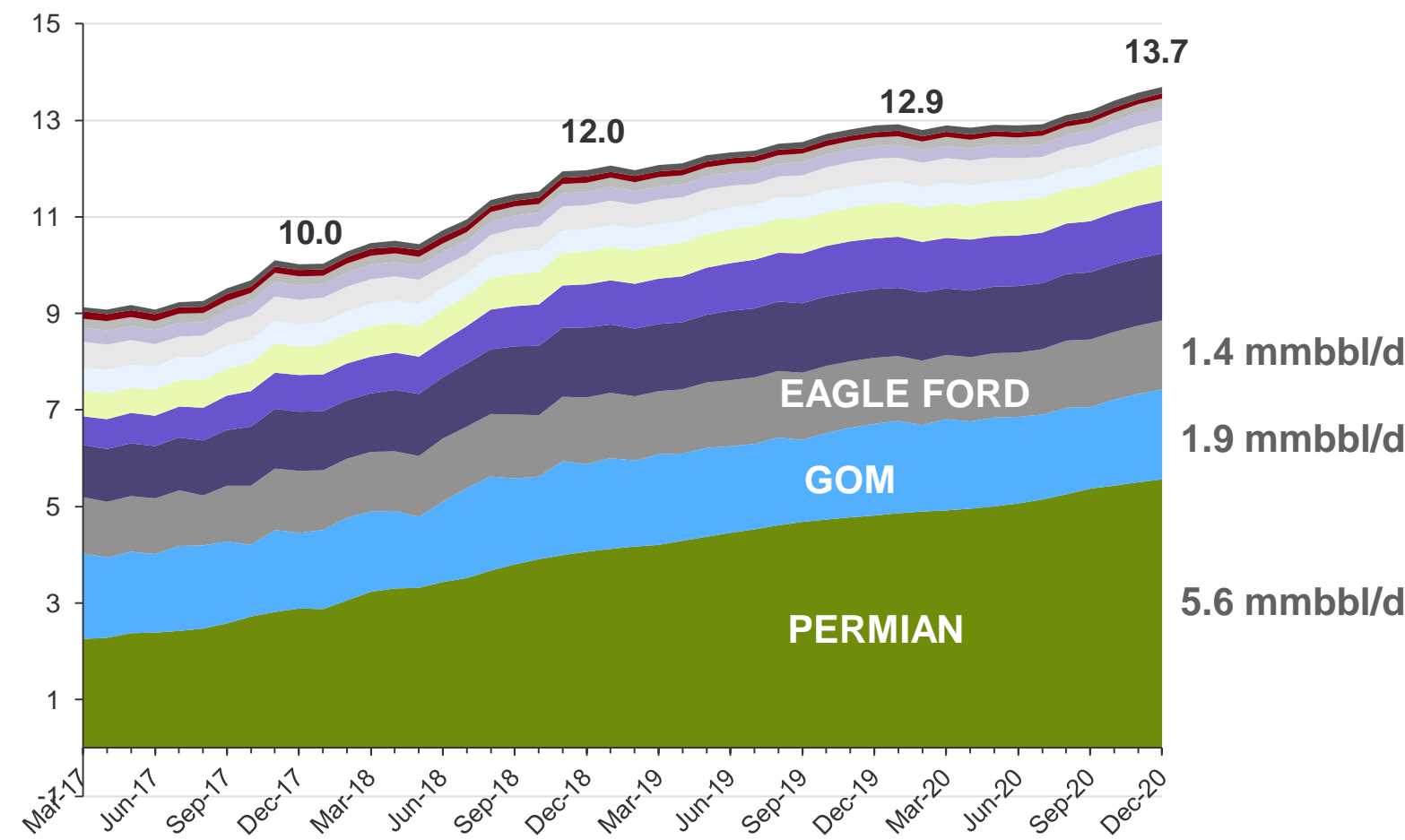
Alongside market selloff and associated demand fear, three supply curveballs caused the drop

Curveball	Key Findings	May-Nov 18 Supply growth	
		Market expectation*	Actuals
IRAN	<ul style="list-style-type: none">Majority of analysts over estimated the initial drop (i.e. affected crude export) in productionUS surprised by giving the majority of relevant importers waivers from the sanctions (180 days, 8 countries: China, India, Japan, South Korea, Italy, Greece, Taiwan and Turkey)	-1500 kbbl/d	-700 kbbl/d
US	<ul style="list-style-type: none">US, driven by shale (also non-Permian) with high production momentumForecasting institutions, like EIA, is behind the curve and unable to foresee the growth	+0.7 kbbl/d	+1.3 kbbl/d
OPEC+ (excl. Iran)	<ul style="list-style-type: none">OPEC and Russia September 2018 production increase confirmedOctober: Al-Falih, Saudi Energy Minister, OPEC in “Produce as much as you can mode”	+1.2 kbbl/d	+1.8 kbbl/d

*Rough estimates of ~summer 2018 views: Iran represents the full-effect expectations of several analysts, US represents the EIA forecasts, the OPEC+ is based on Rystad Energy estimates

US production growth set to slow down in 2019, yet delivering ~900,000 bpd y/y by Dec-19

US oil production outlook, base case 
Million barrels per day



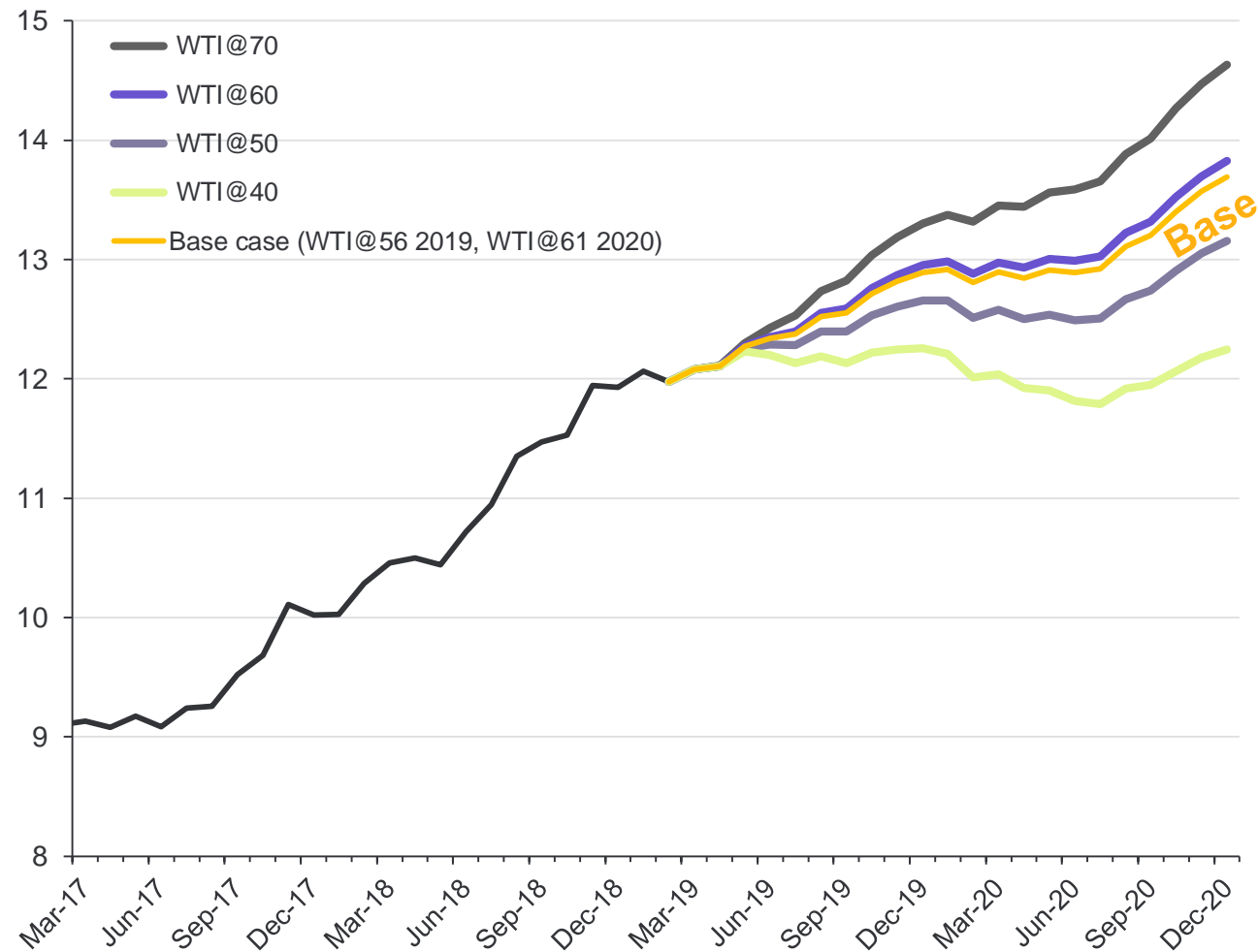
Source: Rystad Energy research and analysis, OilMarketCube

Short-term US oil production growth will only be halted by sub-40 WTI prices

US oil production growth scenarios
Million barrels per day



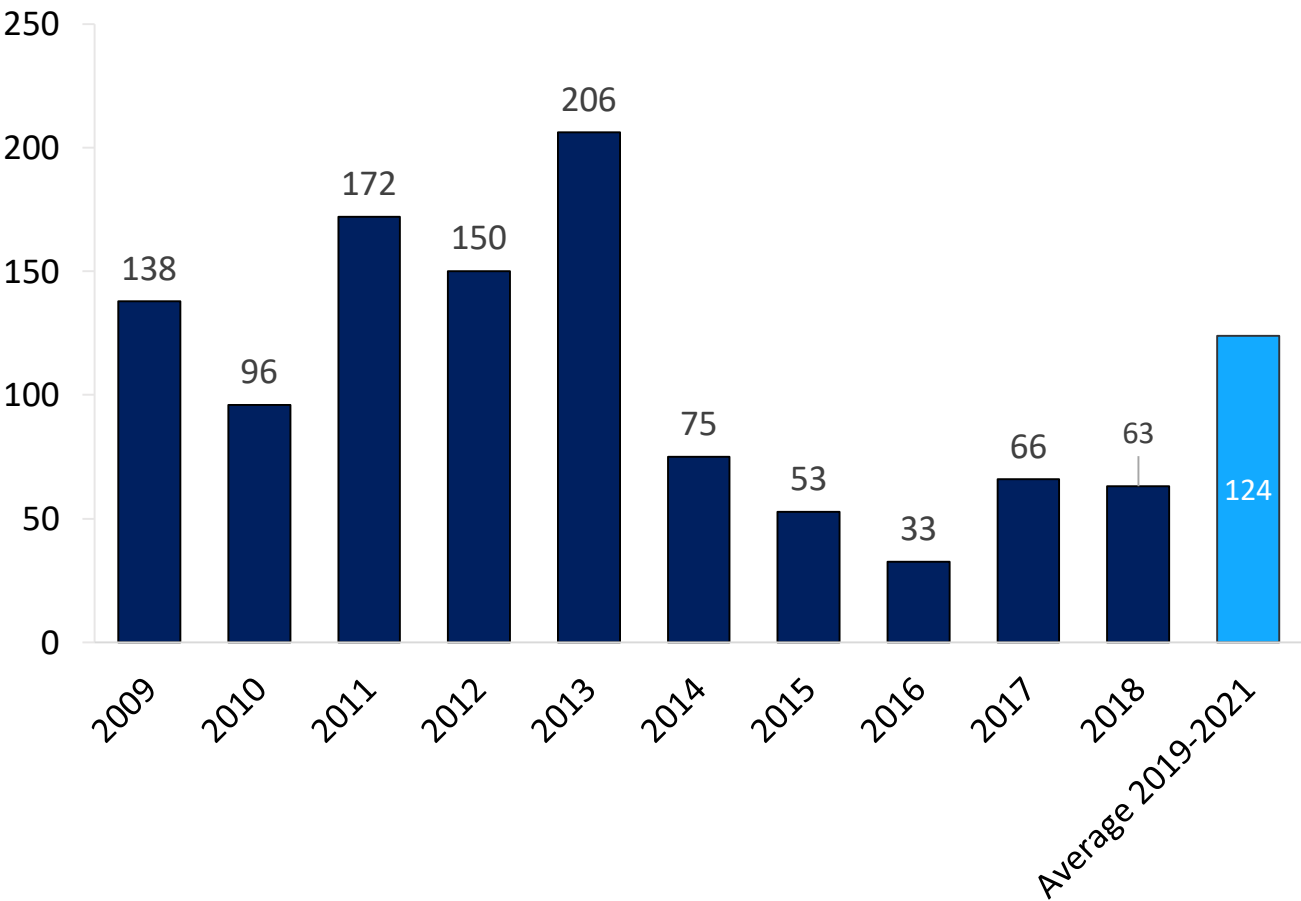
2019 **2019/20**
additions **additions**



Source: Rystad Energy research and analysis, OilMarketCube

Committed offshore capex set for solid comeback story

Offshore greenfield capex by commitment year
USD Billion

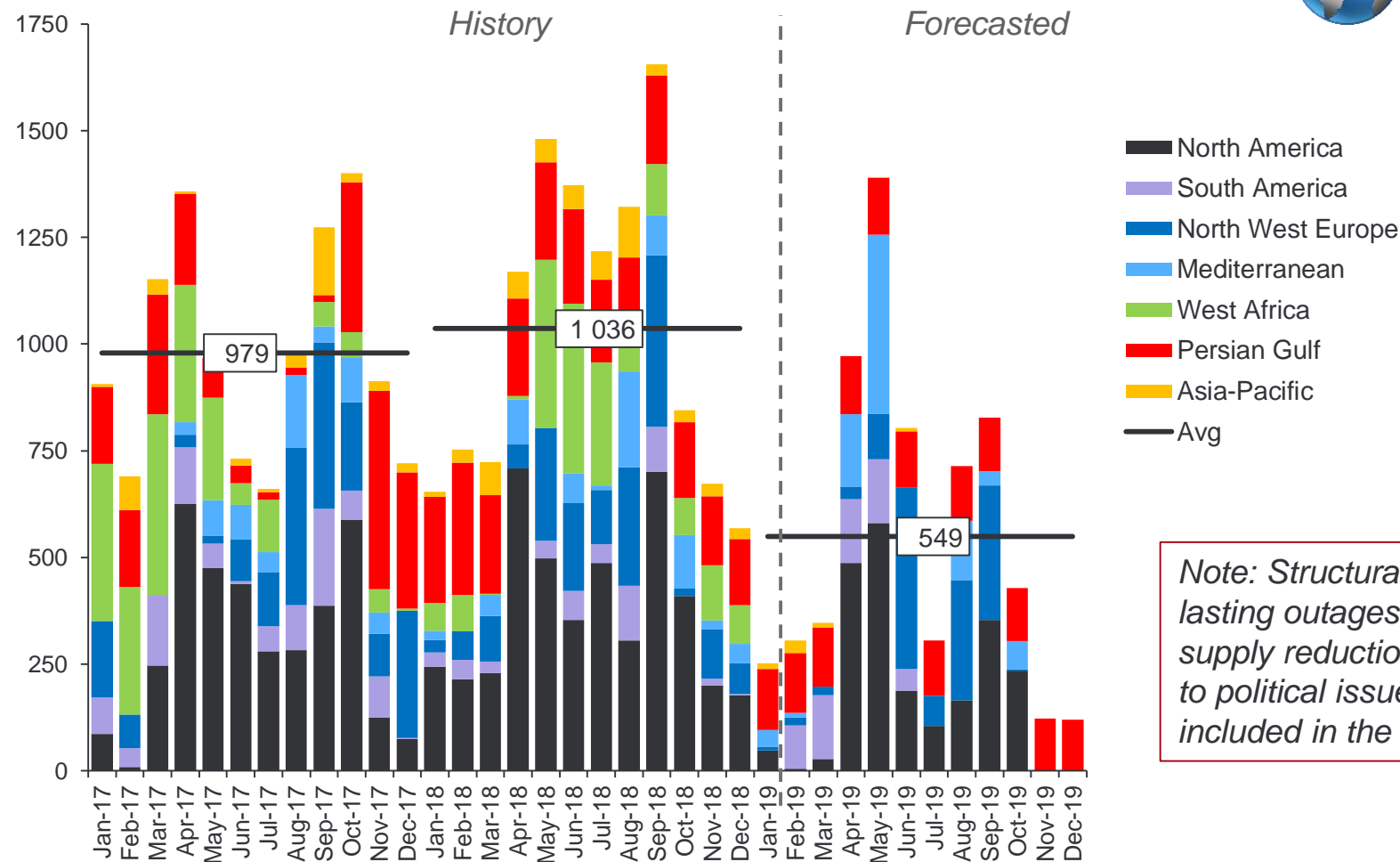


- Chart shows cumulative greenfield capex in projects to be sanctioned/committed each year.
- Peak of the market saw more than 200 bUSD worth of capex being sanctioned. This quickly declined to below 40 bUSD in the trough of 2016.
- Based on a bottom-up mapping of the future lineup of projects, we see an escalating sanctioning pace.

Source: Rystad Energy ServiceDemandCube released Feb 14, 2019

Production outages has averaged around 1 mmbbl/d since 2017

Production outages (planned and unplanned) by export region
Thousand barrels per day



Note: Structural long-lasting outages and supply reductions due to political issues not included in the overview*

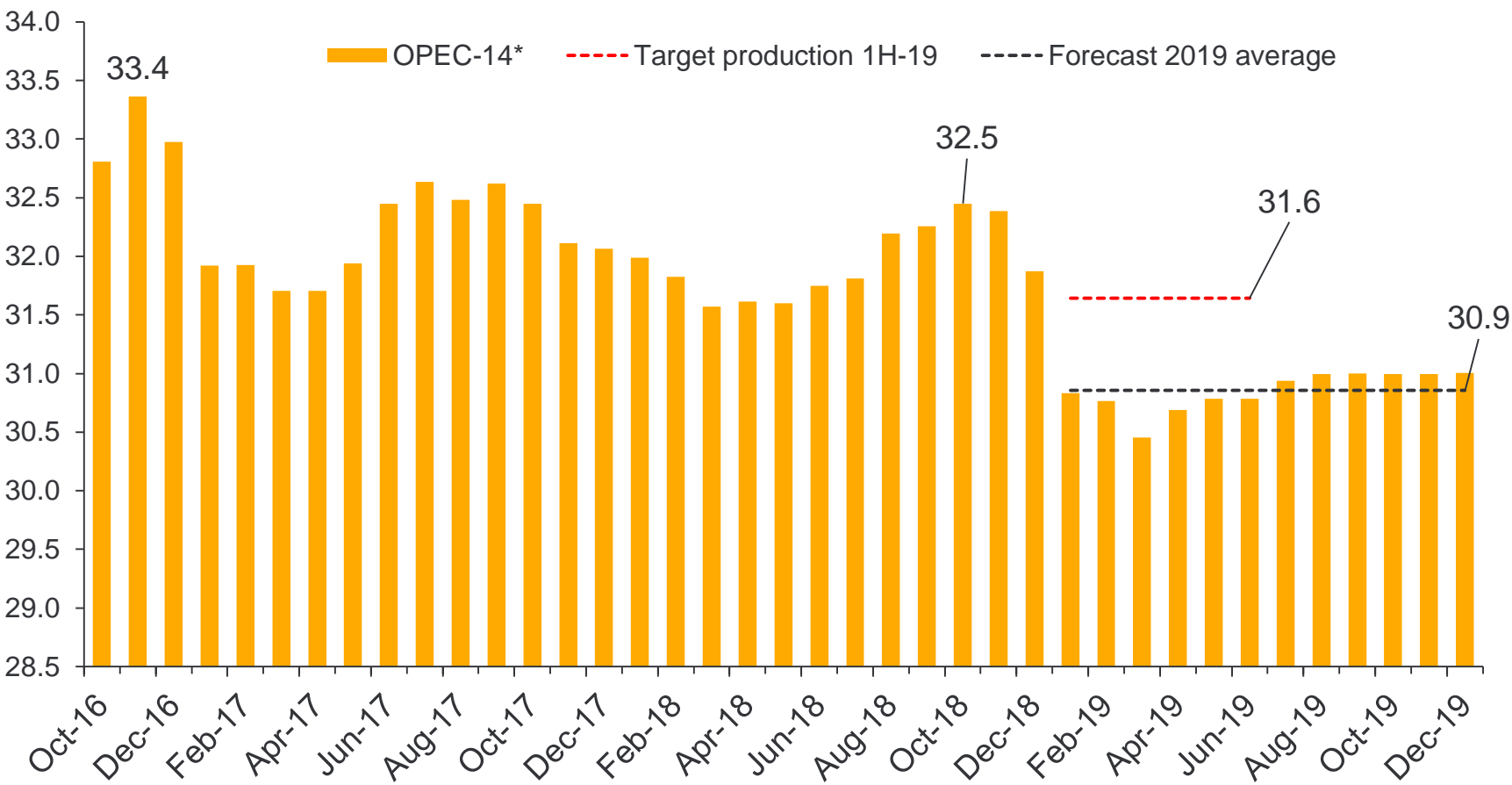
This includes collapsing oil output in Venezuela due to structural production problems and inability to find purchasers, continued force majeure at El Sharara in Libya due to civil unrest, regulatory cuts in heavy oil production in Canada, and Saudi Arabia's Safaniyah field maintenance outage where production losses were compensated from other fields. Source: Rystad Energy research and analysis, OilMarketCube

OPEC production to drop to 30.4 million bpd for Mar-19, 2.0 million bpd below Oct-18 output



OPEC-14 crude production through 2019, monthly

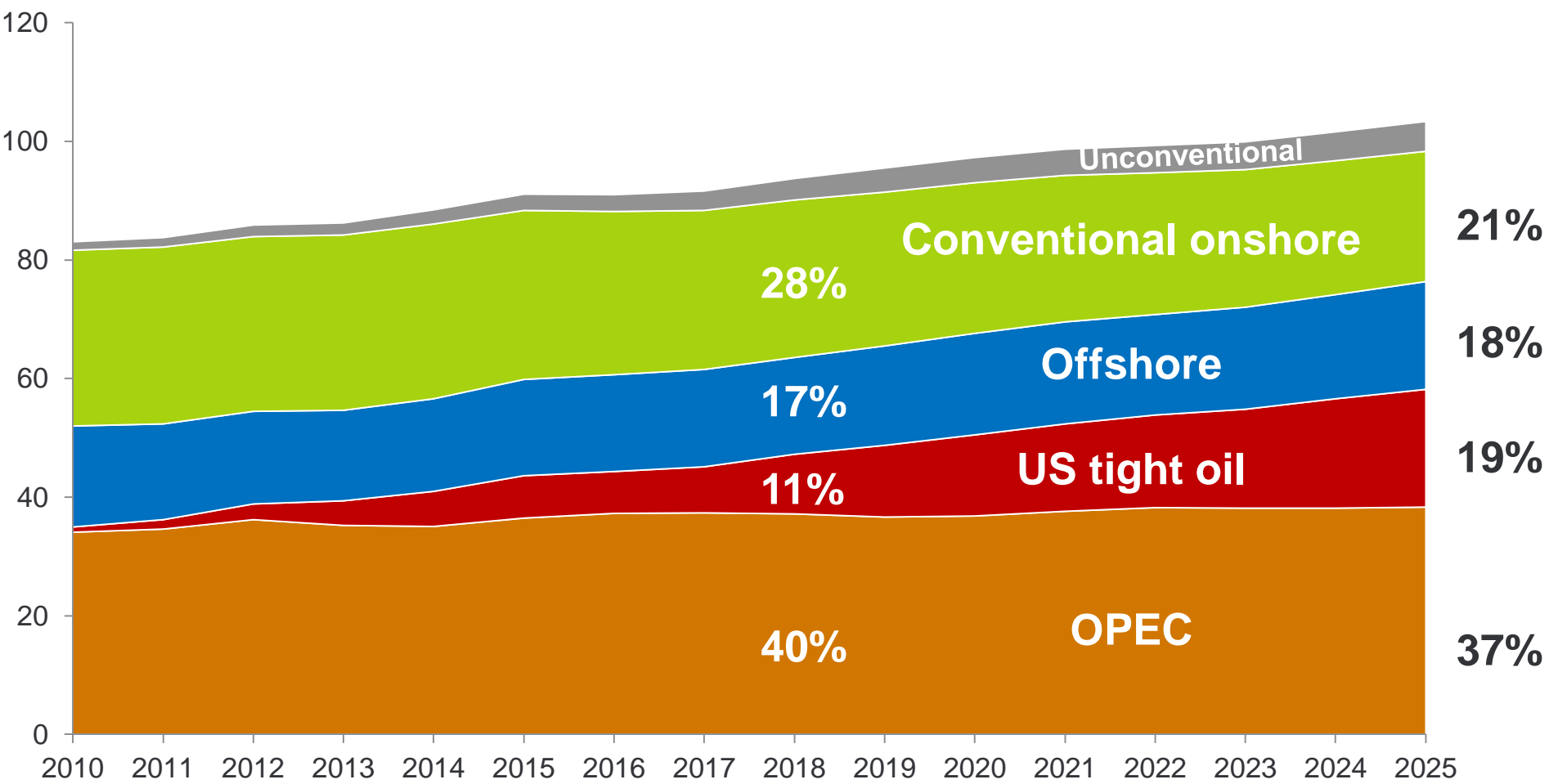
Million barrels per day



Source: Rystad Energy research and analysis, OilMarketCube

US tight oil could represent around 20% of 2025 production – still a place for OPEC

Global liquids production by source
Million barrels per day



Source: Rystad Energy research and analysis, UCube