

# North America: How it has shaped global oil markets

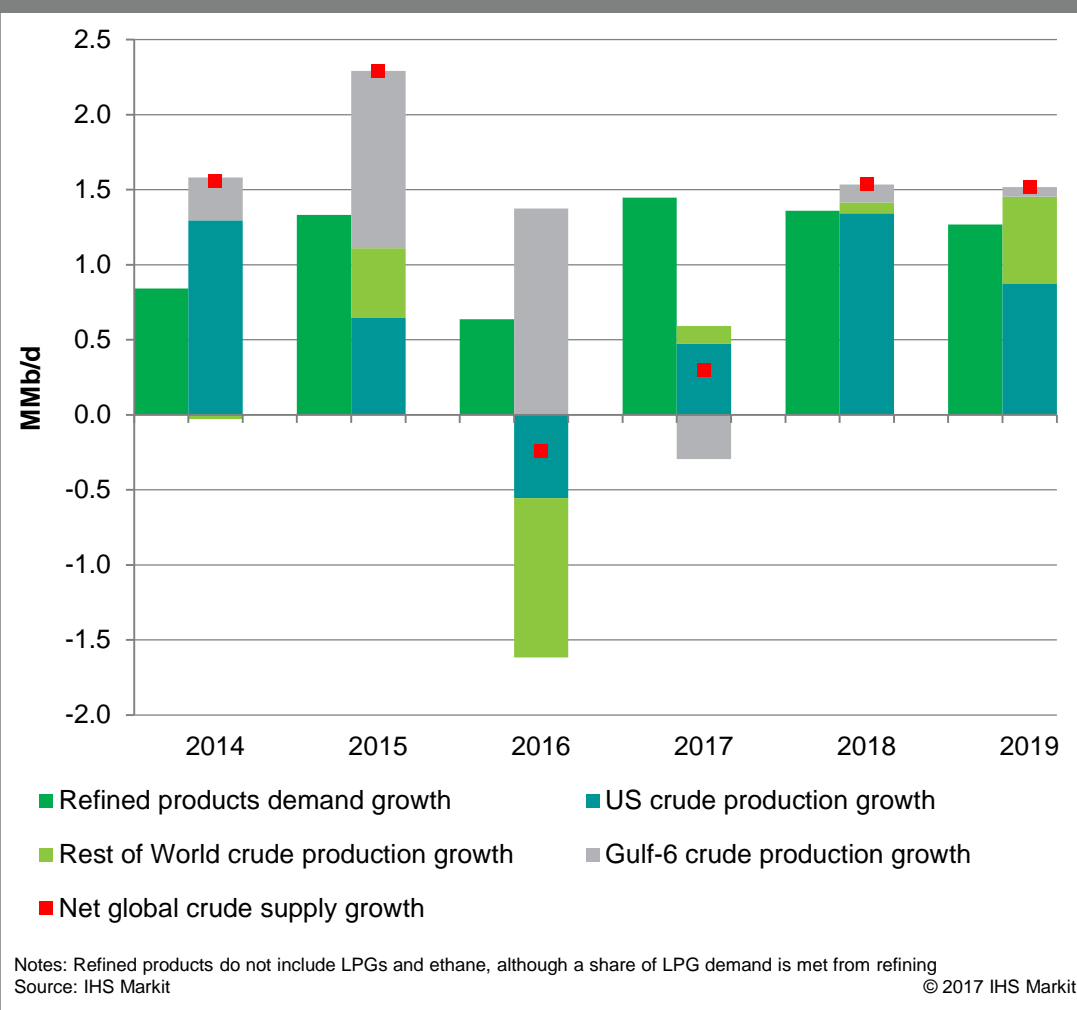
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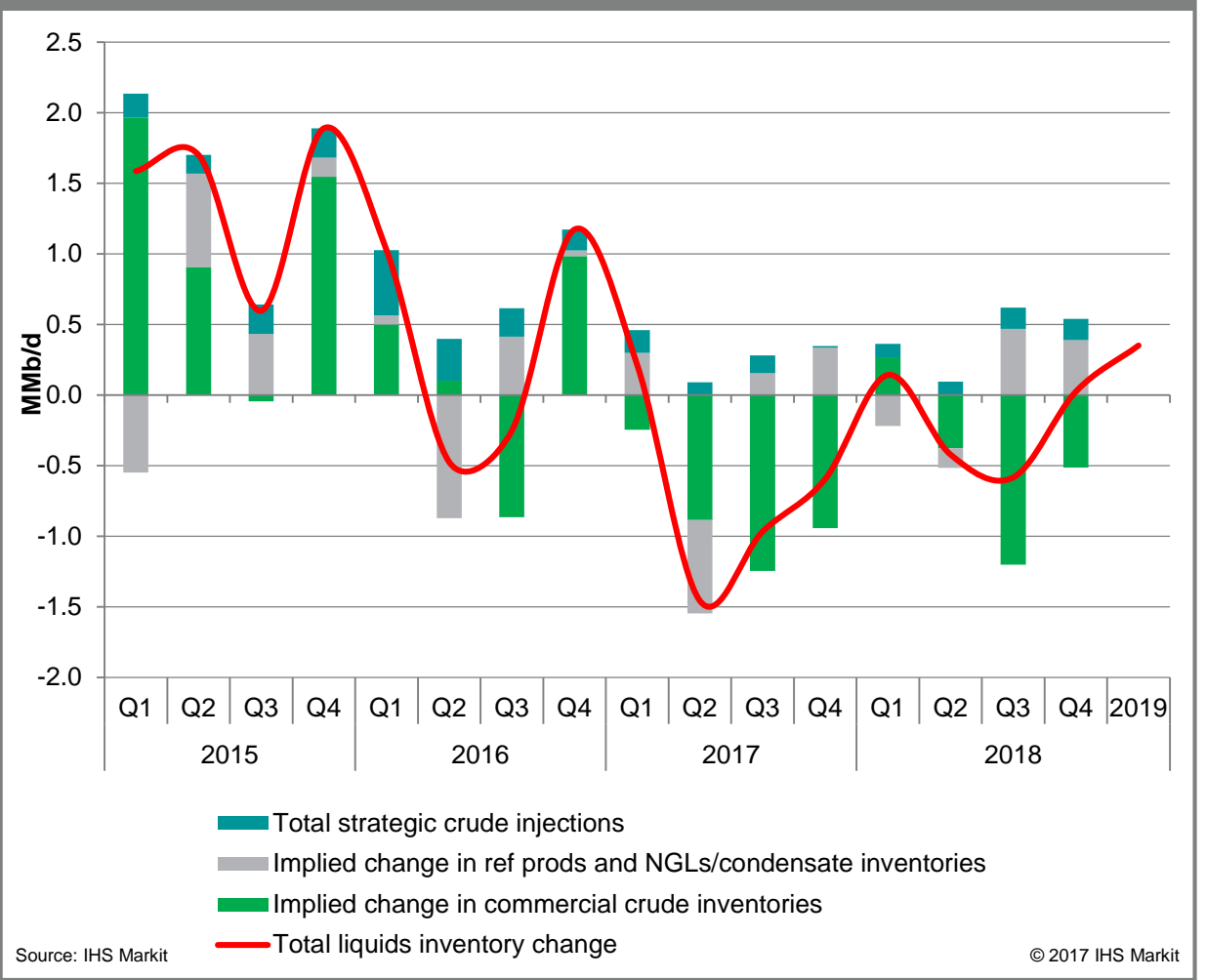
# Like a charm: Two years of tightening restore oil market balance

... but continued strong US supply growth could reverse fortunes with time

Global refined product demand and regional crude supply annual growth

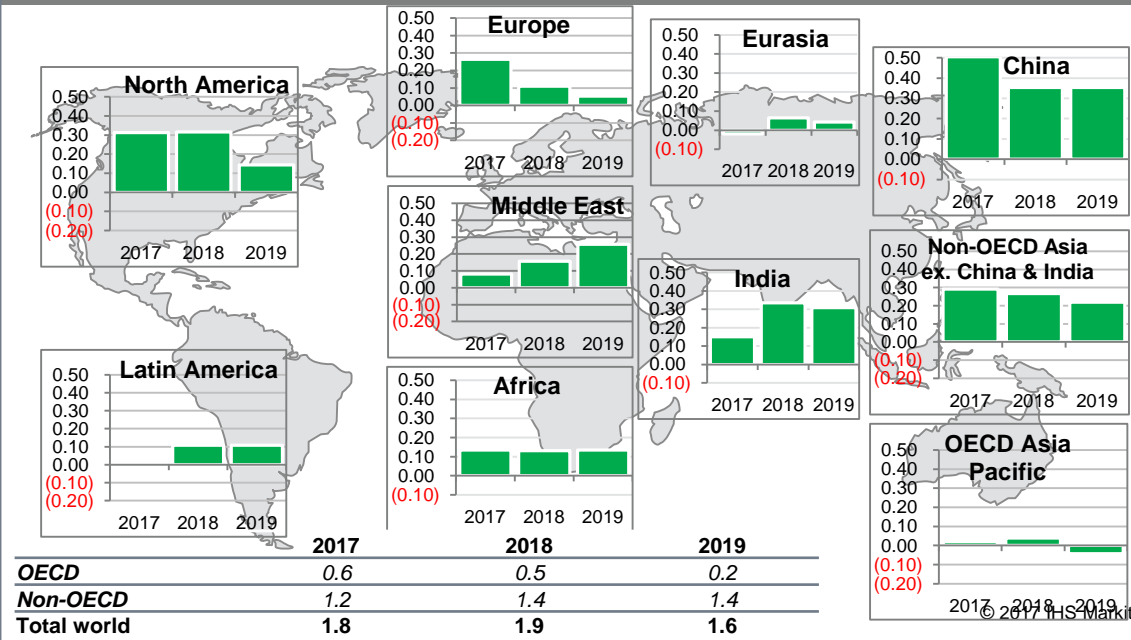


Implied change in global oil inventories by type

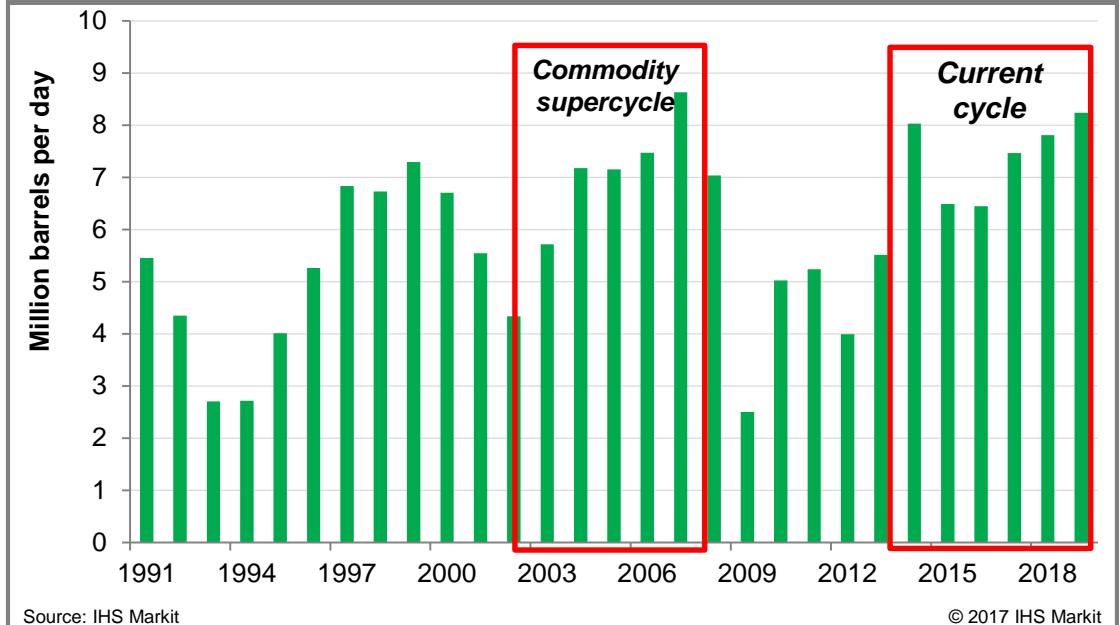


# Strong world oil demand growth has become a market focal point

Changes in oil (liquids) demand by region (volume change from previous year in million barrels per day)



5-year rolling aggregate global liquids demand growth



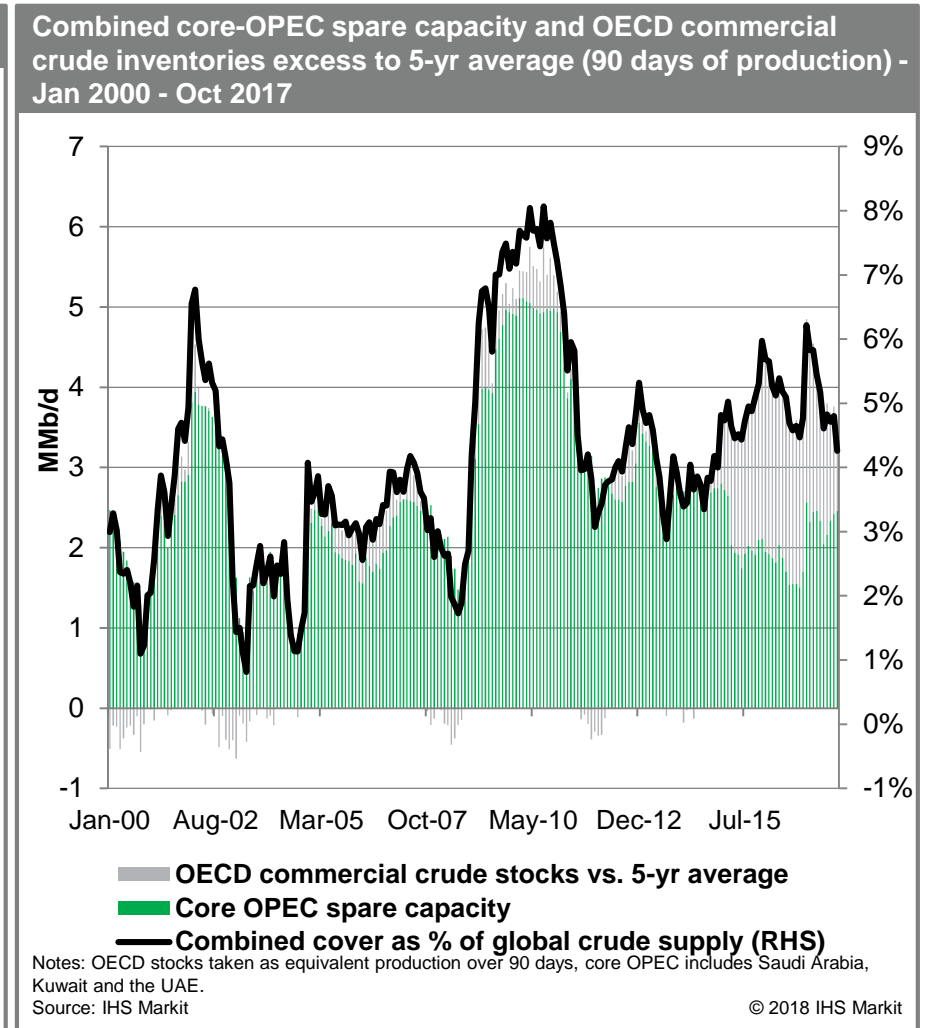
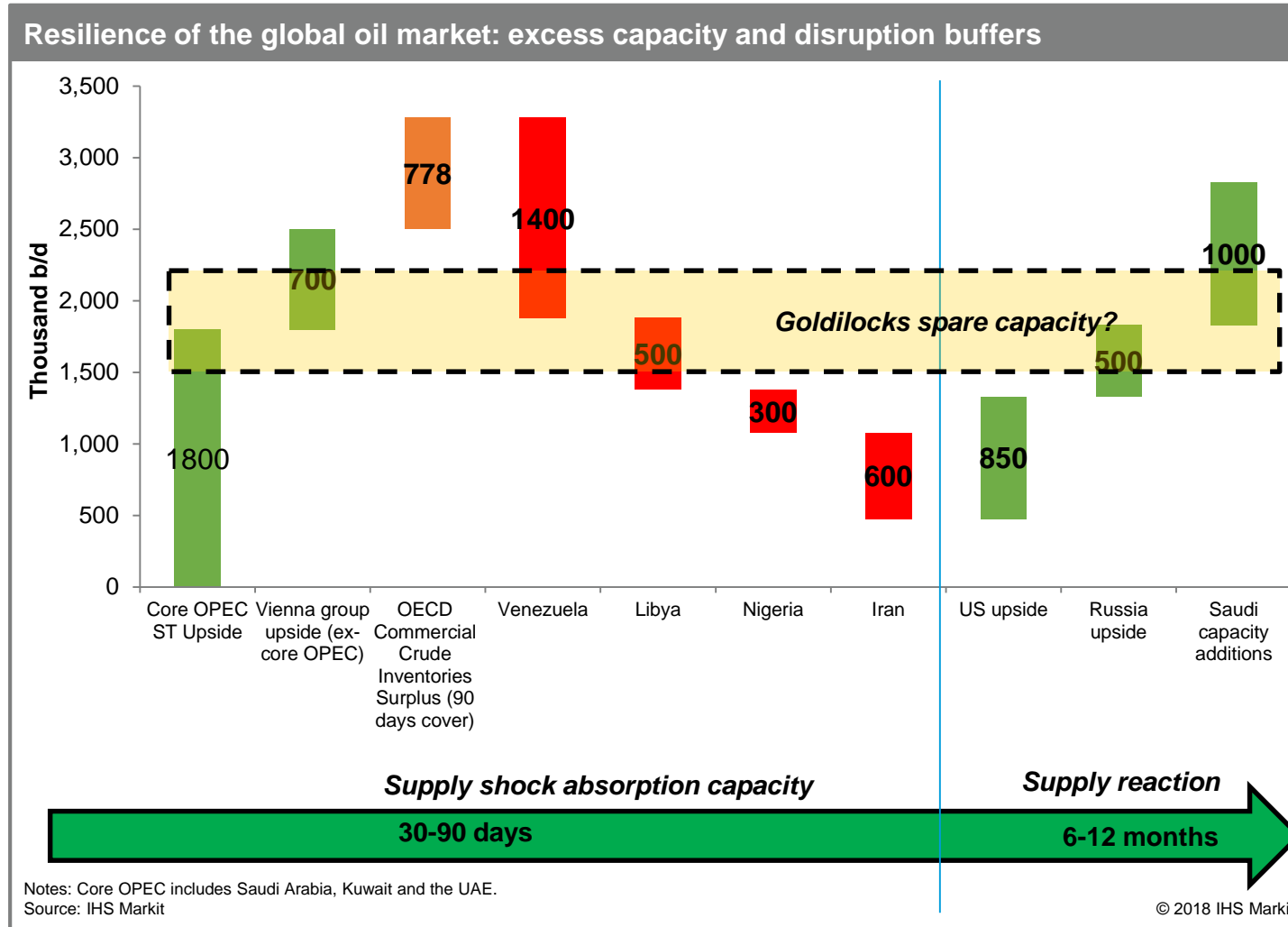
**Robust near-term global oil demand:** we expect world liquids demand to rise by 1.8 MMb/d in 2017, 1.9 MMb/d in 2018, and 1.6 MMb/d in 2019, underpinned by a broad economic expansion and moderate oil prices.

In 2017, stronger-than-expected oil demand growth in Europe and China have helped offset weaker-than-expected growth in India

**The supportive effect of low oil prices:** should demand follow our expected path, this would represent a five-year expansion on par with the pace of growth during the commodity super cycle in 2003-2007 (despite modest global GDP growth)

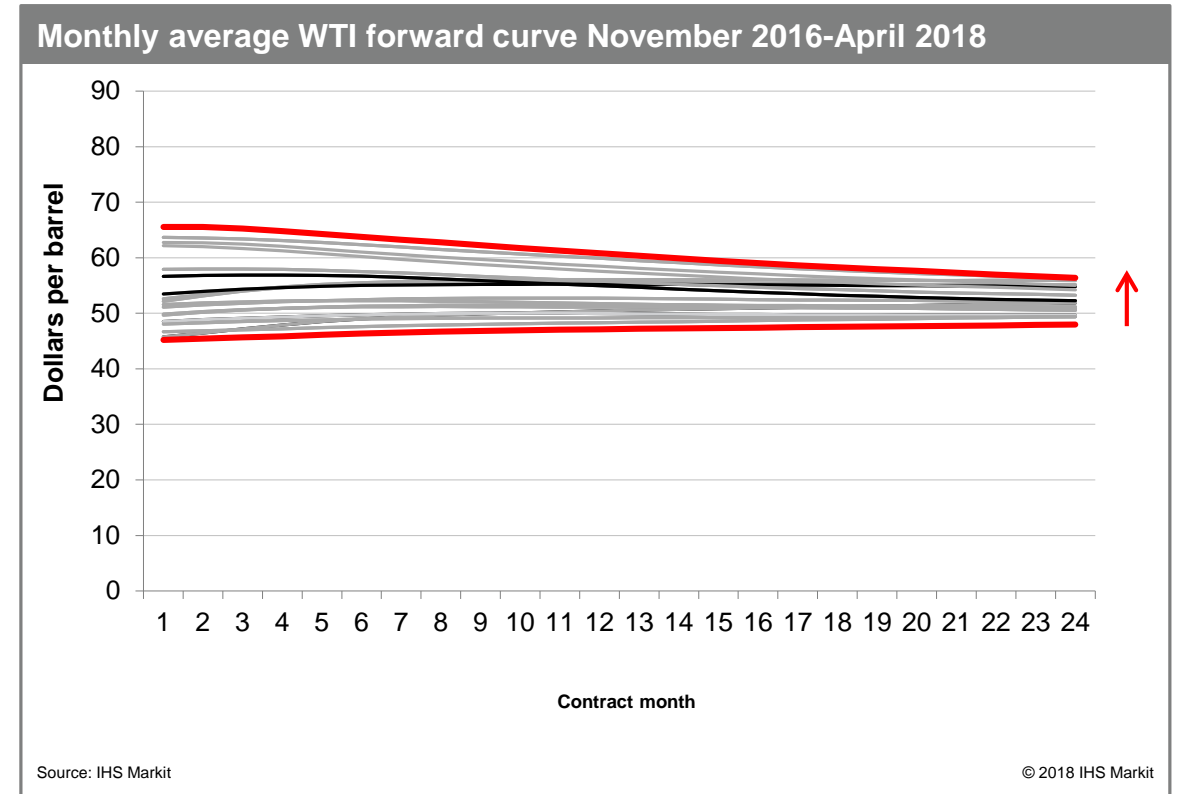
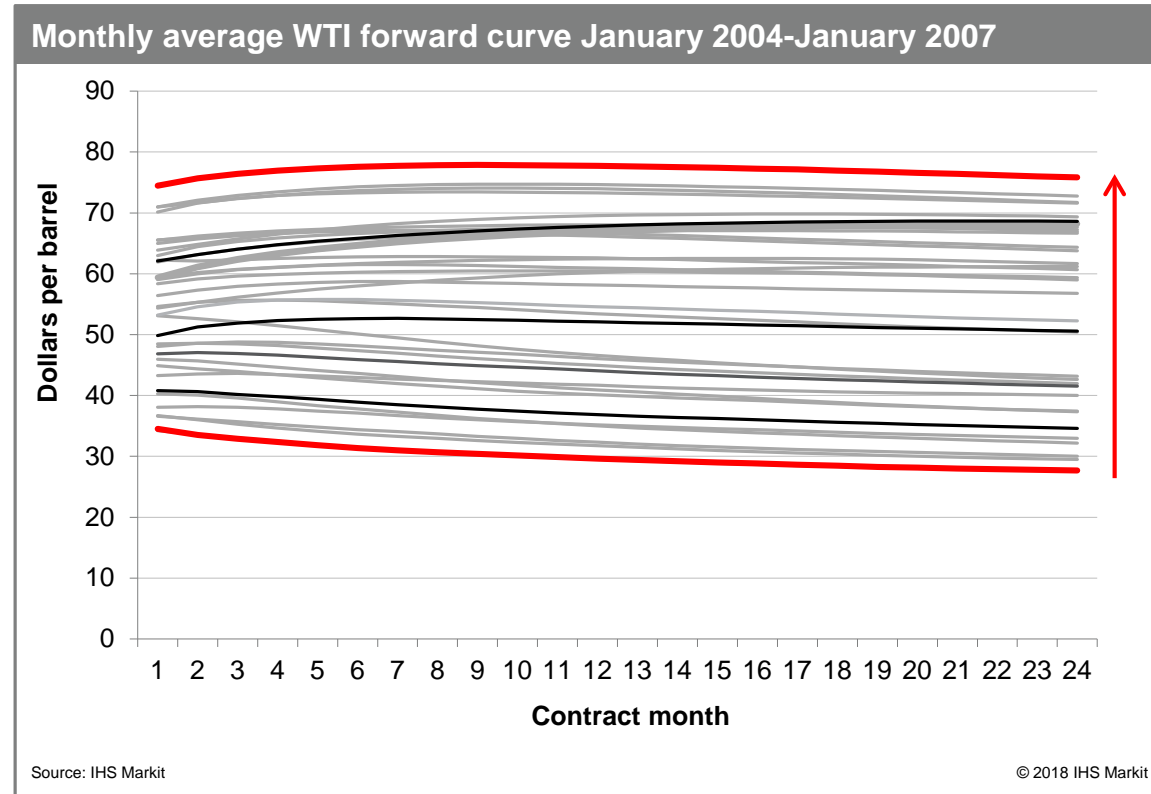
# How much excess still exists in the crude system?

There is room for one big disruption, or three small ones



# So far, forward curve behaving differently than 2004-2007 rally

*US shale reactivity tempers expectations for longer-term price environment*



**2004-07: Global supply growth was sluggish, particular for non-OPEC.** Long-dated futures prices rose along with front of the curve, reflecting perceptions that higher long-term prices were needed to incentivize new production.

**2016-18: Current rally in prices has been muted in outer-dated contract months.** Is US supply reactivity a powerful drag on medium-term price sentiment?

# US shale adds a faster gear to the capex-to-supply conveyor belt

## Short-Cycle (6-12 mo)

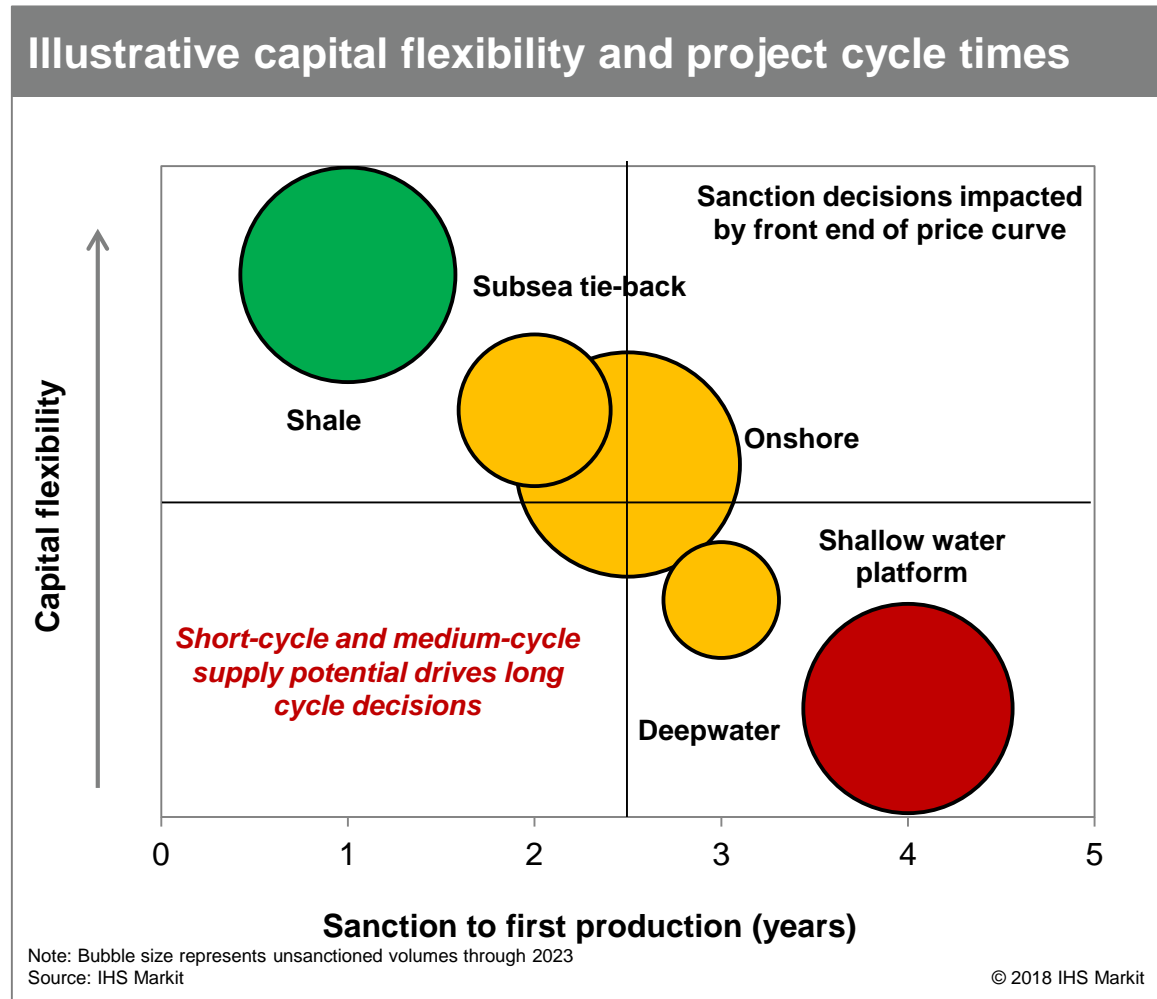
- US Tight Oil
- Global Crude Inventories
- Spare Production Capacity

## Medium-Cycle (1-3 yrs)

- High-Potential Gulf Projects (Iraq/Iran/Saudi)
- Sustainable Return of Political Barrels (Libya/Nigeria/Venezuela)
- EOR, Tie-backs, Brownfield Expansions

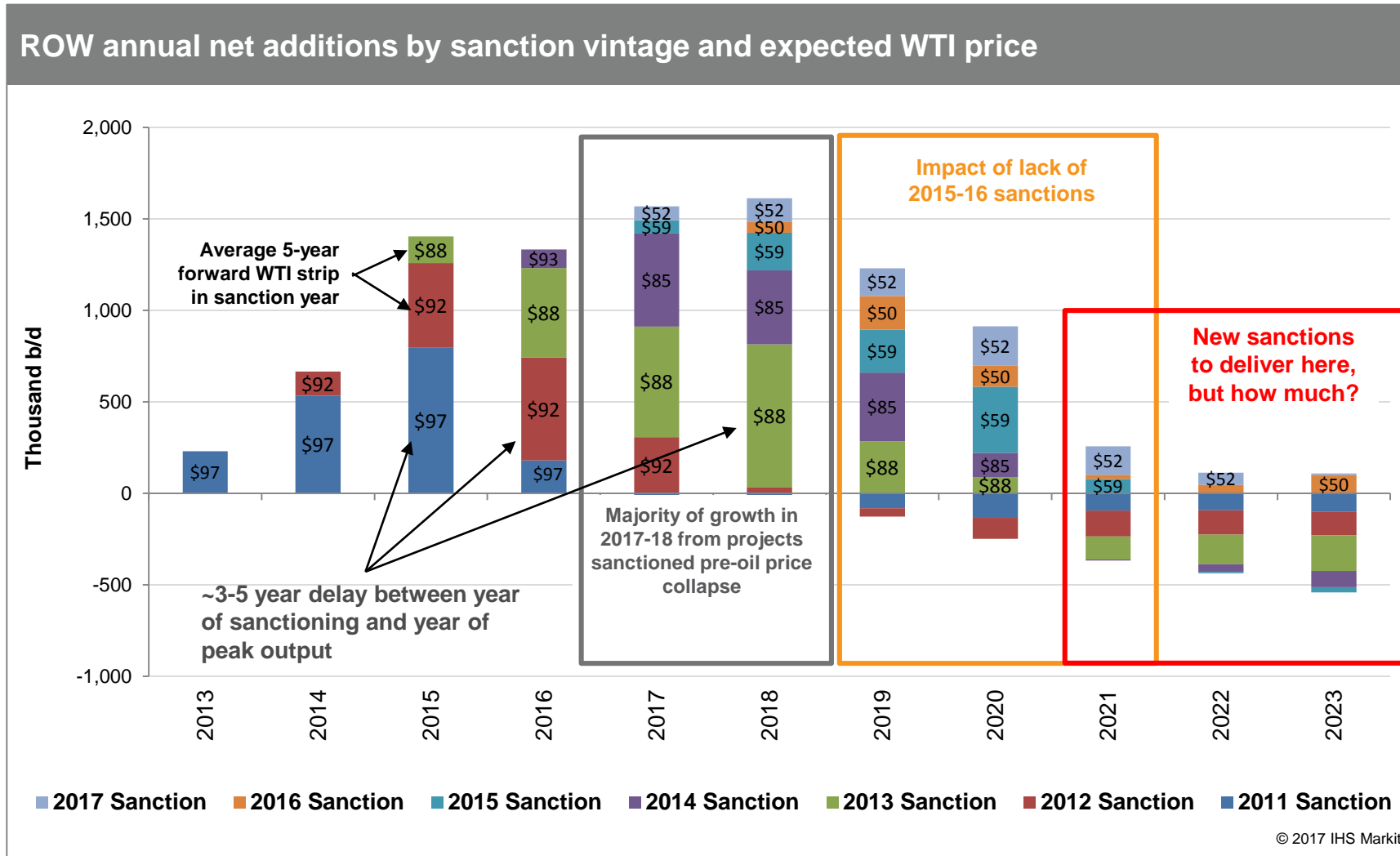
## Long-Cycle (3-5 yrs)

- Greenfield Conventional Onshore
- Oil Sands
- Offshore Development (esp. Deepwater)



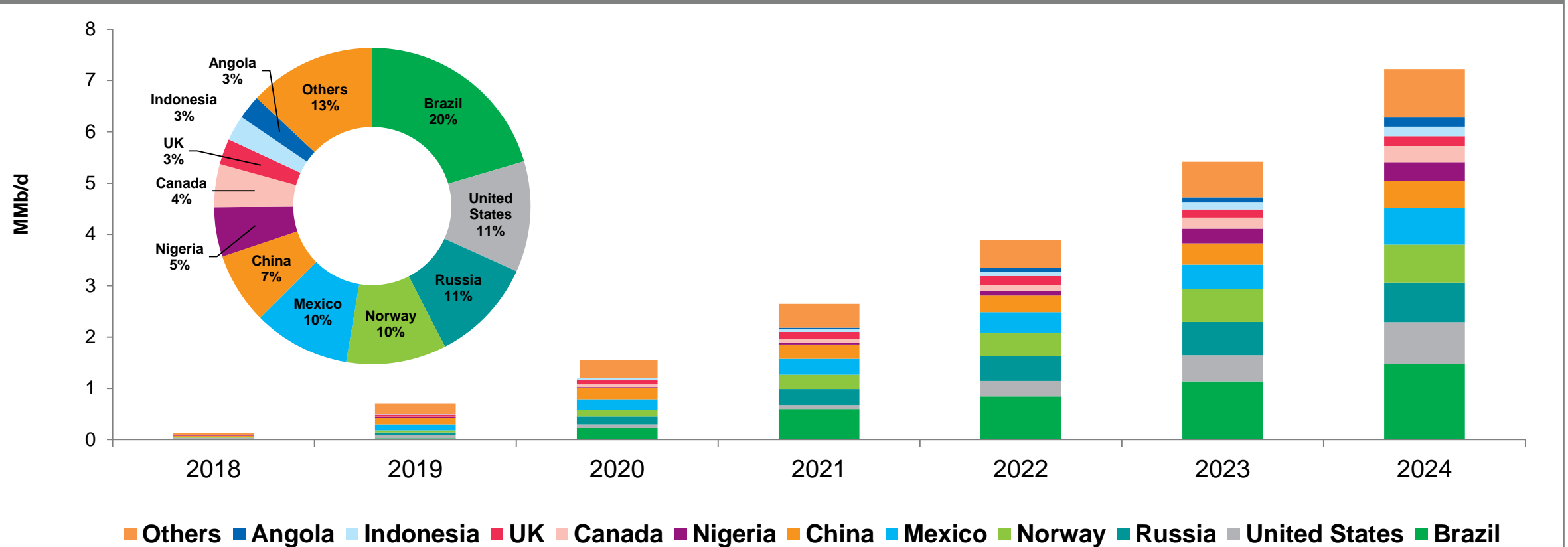
# Growth from sanctioned projects slows dramatically in 2019

## Unsanctioned volumes critical to avoid a big decline



# Rest-of-world (outside of gulf and US onshore) unsanctioned volumes could reach 7.2 MMb/d by 2024, but aggressive sanctioning is required in 2018-19

Unconstrained unsanctioned production outlook through 2024 by country (Ex US onshore and Gulf-6)

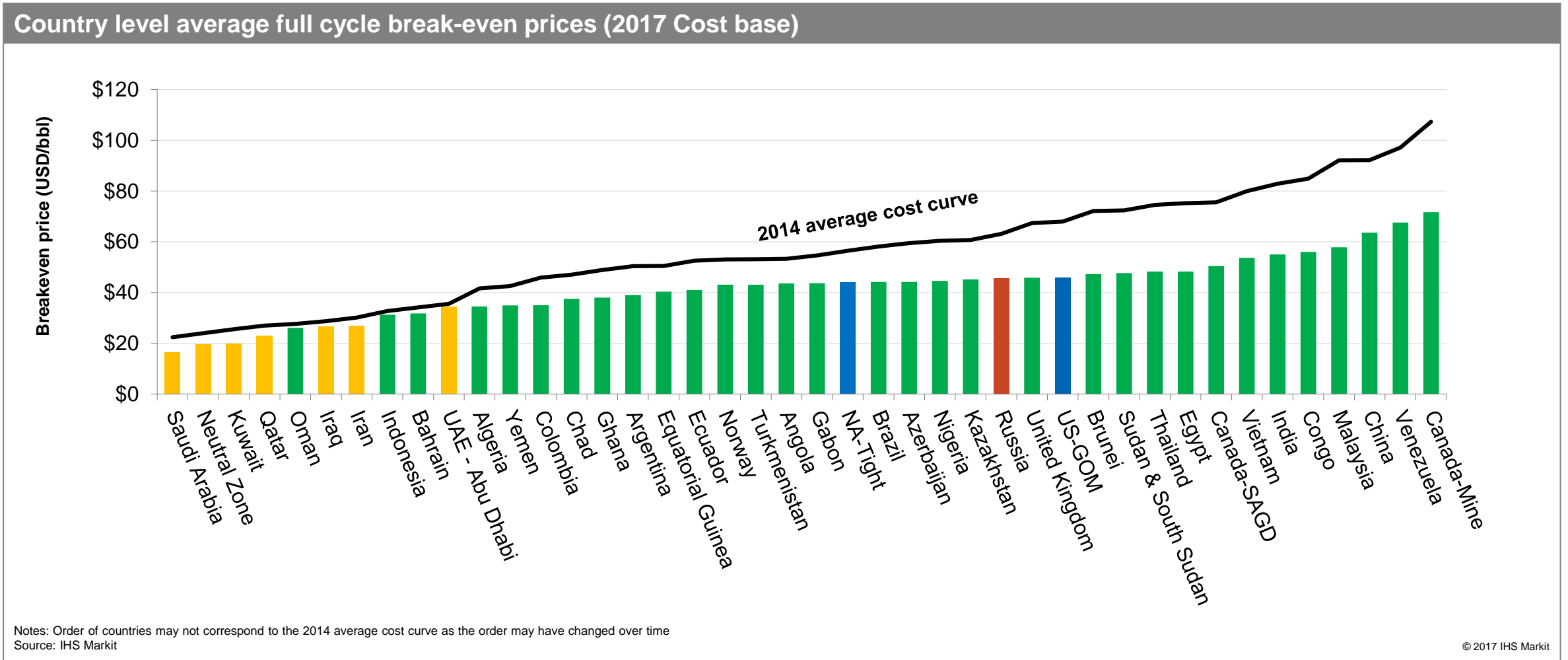


Source: IHS Markit

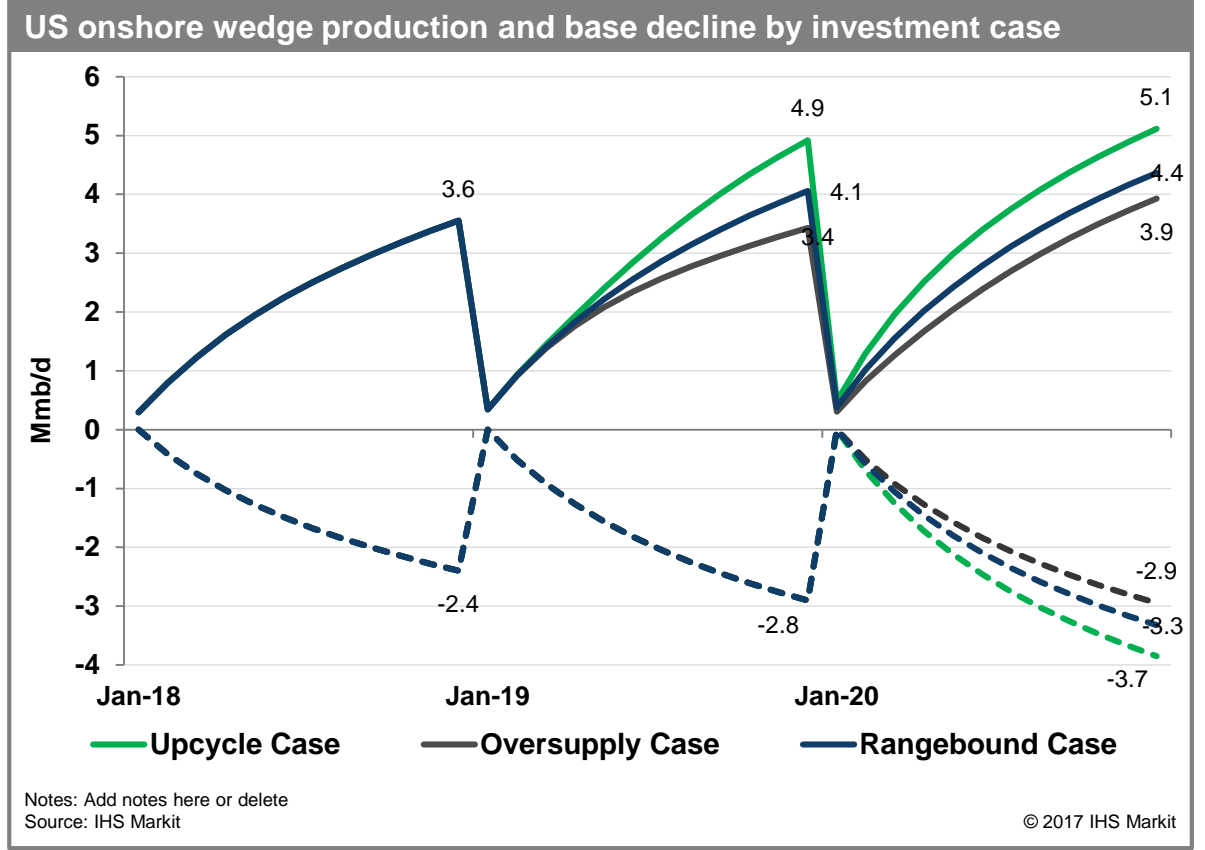
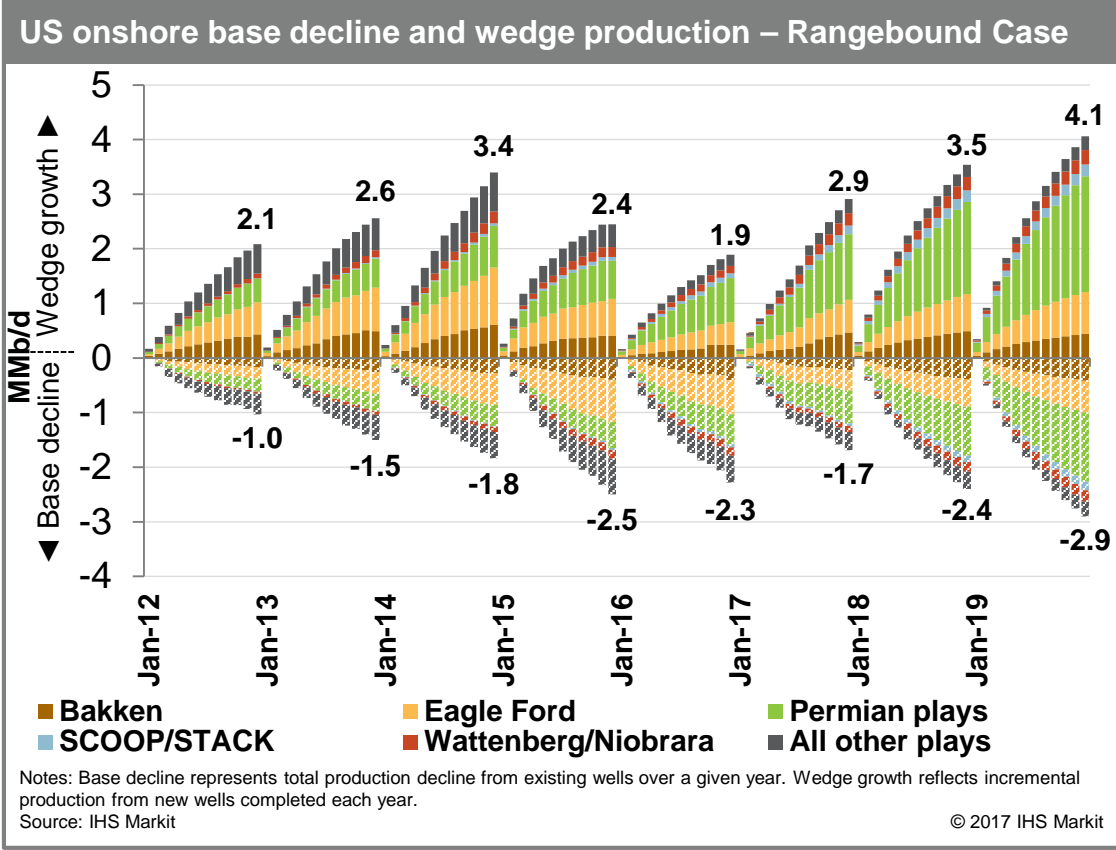
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# Understanding the global unsanctioned project queue



# US shale base and wedge: losing a Brazil, but adding an Iraq – each year

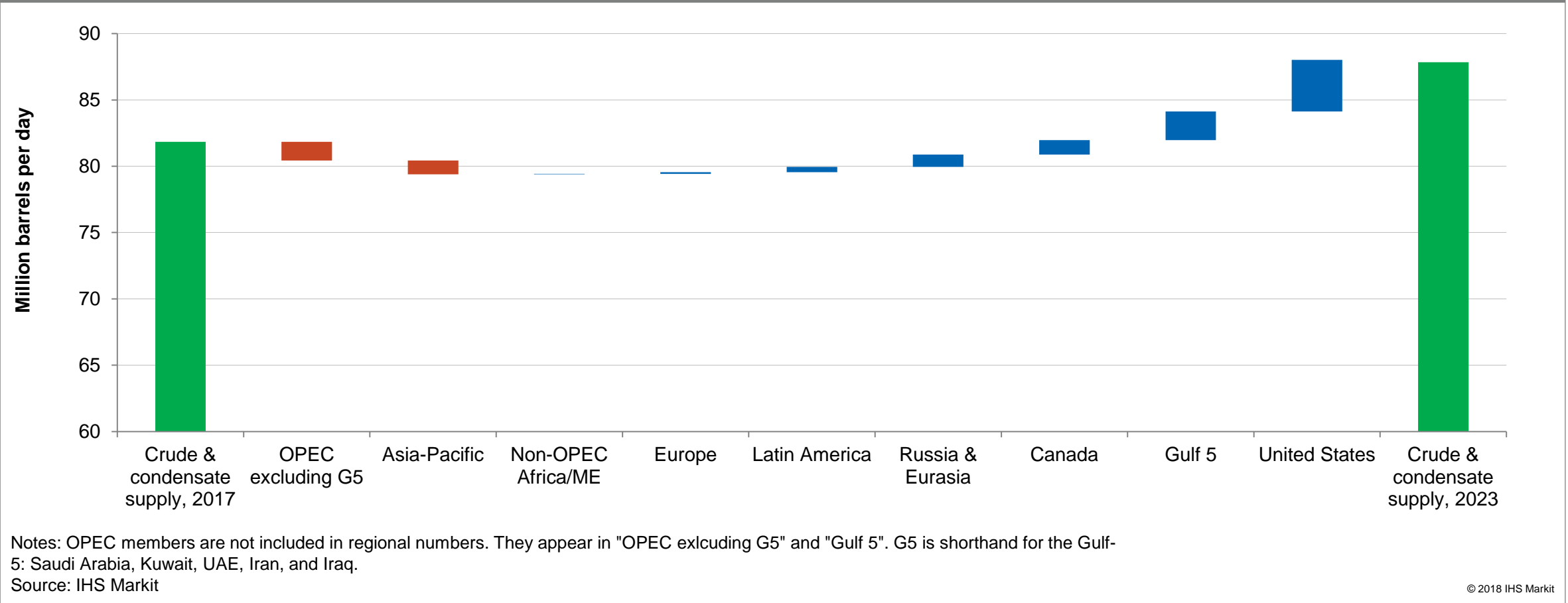


As we have previously noted, growth from shale assets brings a recoil effect in the following year. During 2018, base declines will accelerate by nearly 0.7 mmb/d to a December mark of ~2.4 mmb/d – roughly equal to Brazil’s oil output -- due to the scale of 2017 expansion. Similarly, sustained 2018 expansion suggests the treadmill is accelerating further in 2019, climbing to 2.9 mmb/d.

While steepening base declines heighten the consequences of reductions in activity, the current forward strip and well inventory can lead wedge volumes to explode. Our Rangebound Case generates December wedge volumes from 3.6 in 2018 to 4.4 mmb/d – more than Iraqi volumes – in 2020. Our Upcycle case boasts a wedge volume over 5 mmb/d, though it requires more than \$150B of capital investment.

# US and Canada account for 80% of net supply growth to 2023

Evolution of world crude oil supply, 2017-2023



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