FACTS GLOBAL ENERGY

Key Trends in Oil & Energy Markets

Just How Much More Uncertain Can It Get?!

Presentation to ComRisk 2019, London

23rd May 2019

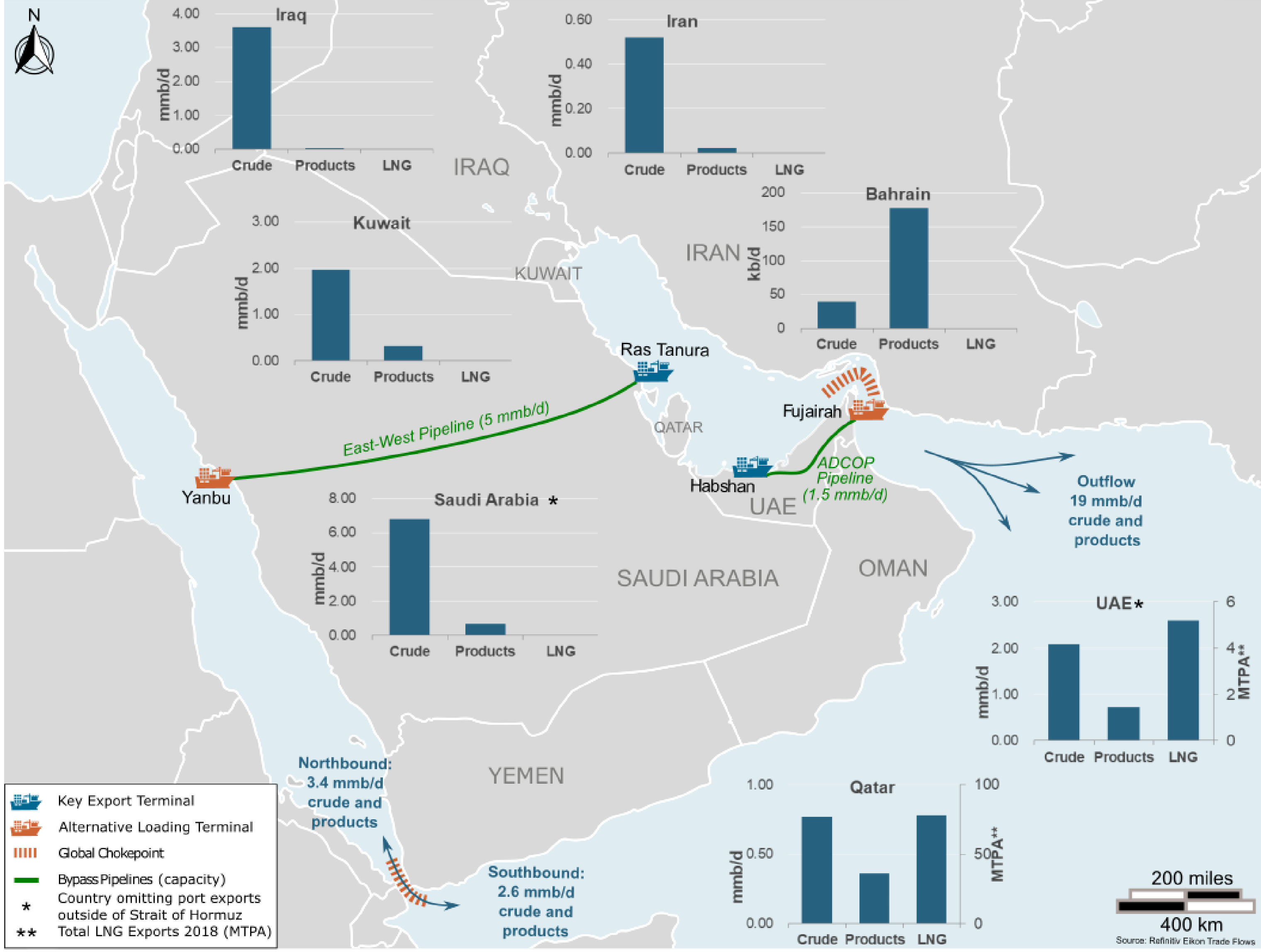
The List of Uncertainties Grows and Grows…

- **Demand Side: US-China trade war/talks, Brexit, impact of IMO2020 on bunkers demand, EVs etc**
- **Supply Side: Iran (Middle East), Venezuela, Libya, Nigeria, US LTO output; and now Russian Urals!**
- **In background, OPEC+ is juggling supplies to keep market balanced; late-June meeting is critical**
- **Key factor: What price do the Saudis want? Hints of $80/bbl (Brent) target: but too high for Trump!**

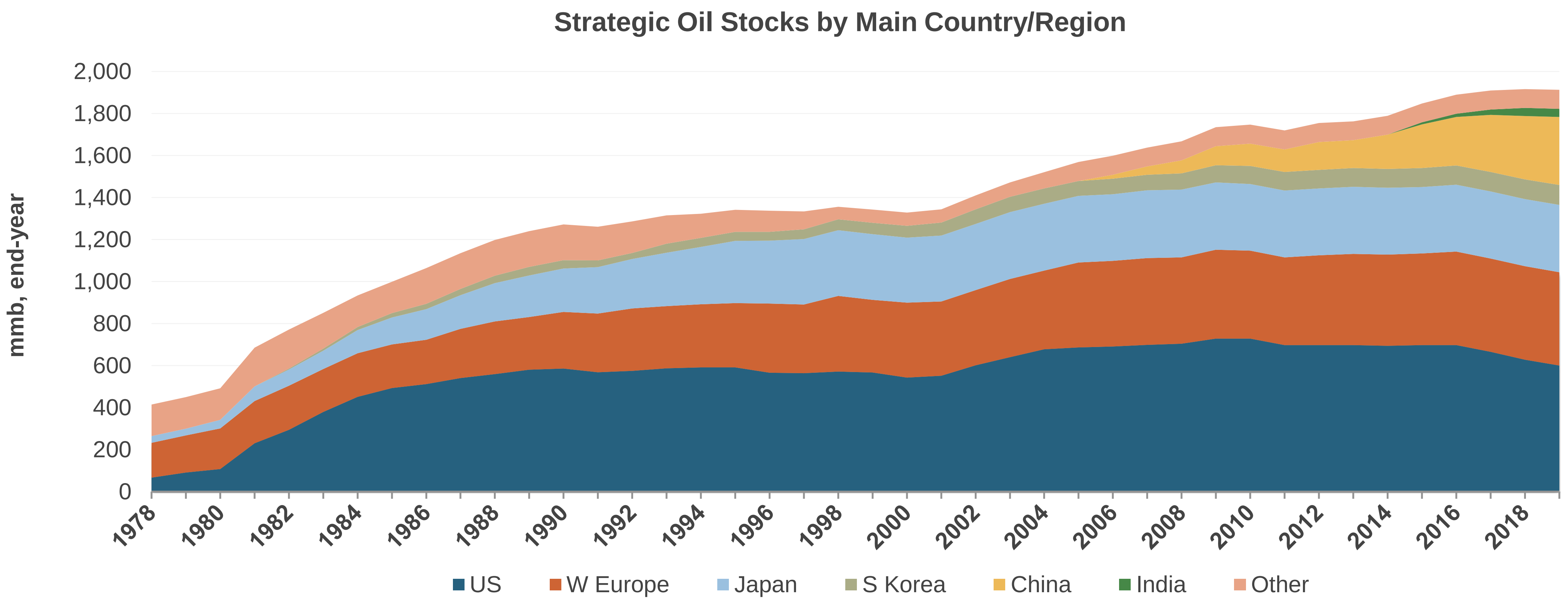
Oil Market: Short-Term Uncertainties/Risks

Middle East Tensions: raising concerns about potentially-huge supply disruption again

Oil exports through Strait of Hormuz are some 25% of world oil trade; LNG exports (mostly from Qatar) are also some 25% of world LNG trade

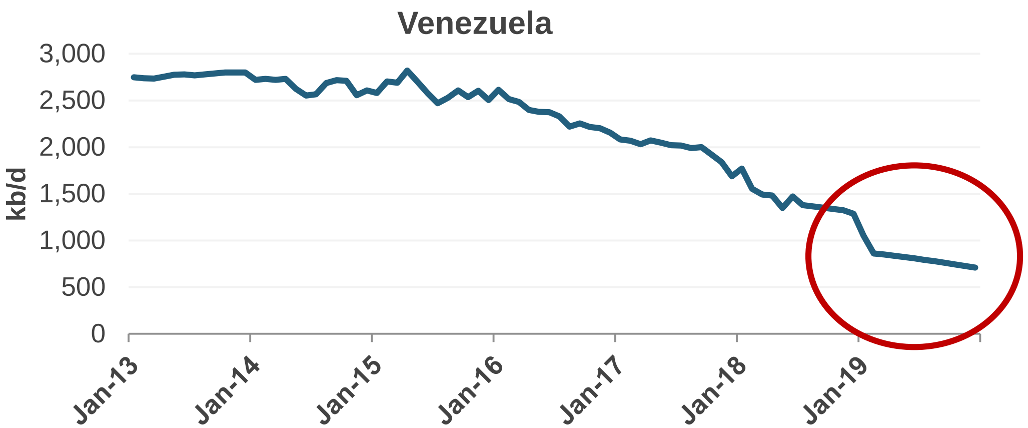


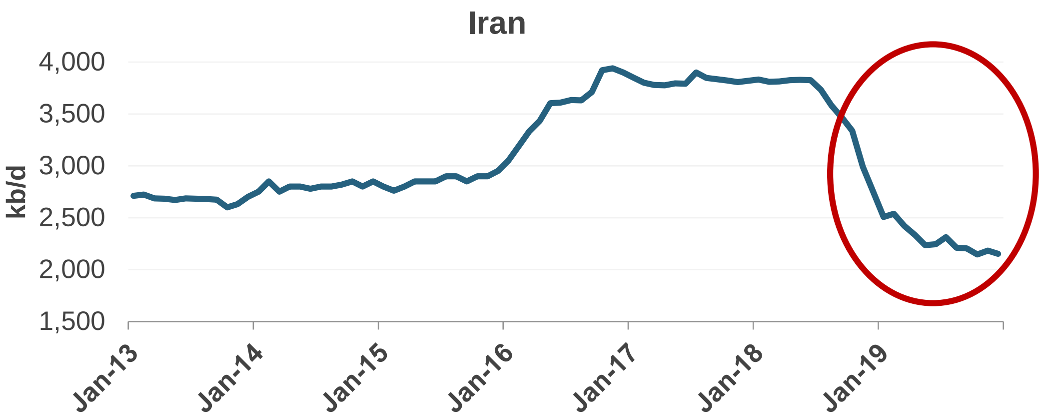
Strategic Oil Stocks: Huge Build-up since 1970s, potentially available for disruption

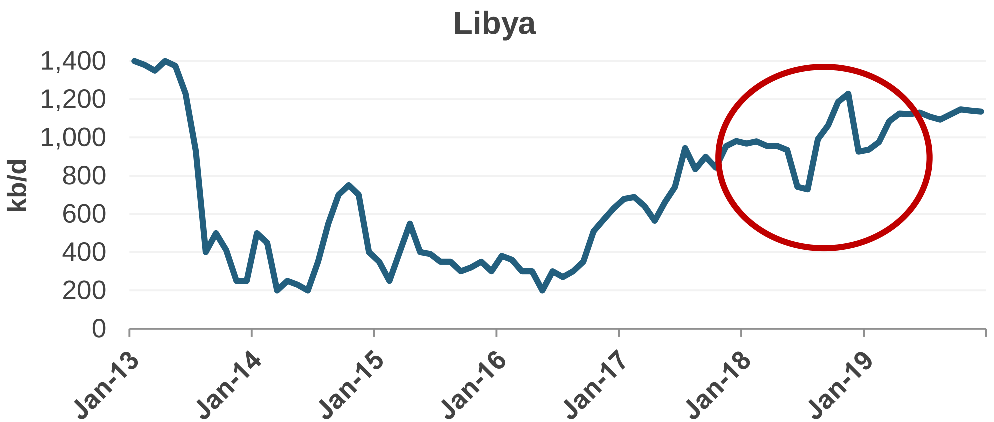


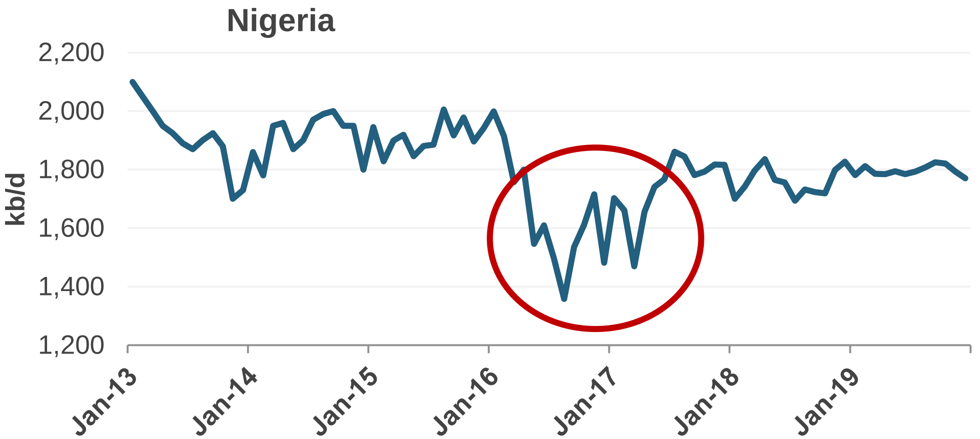
- Upward trend in strategic oil stocks for past four decades (China/India recently), but levelling off now due to US sell-offs.
- In theory, strategic oil stocks globally could cover halt in Strait of Hormuz supplies for 4 months; mandatory stocks for oil companies in Europe & Japan/Korea could add another month.
- But is that rate of stockdraw possible in practice?? Some doubts about US SPR. Biggest disruption previously was at time of Iranian revolution in 1979 and Iran-Iraq war in 1980 (both about 5 mmb/d).

OPEC Wild-Cards: Venezuela Collapsing, Iran Squeezed, Libya & Nigeria Unstable









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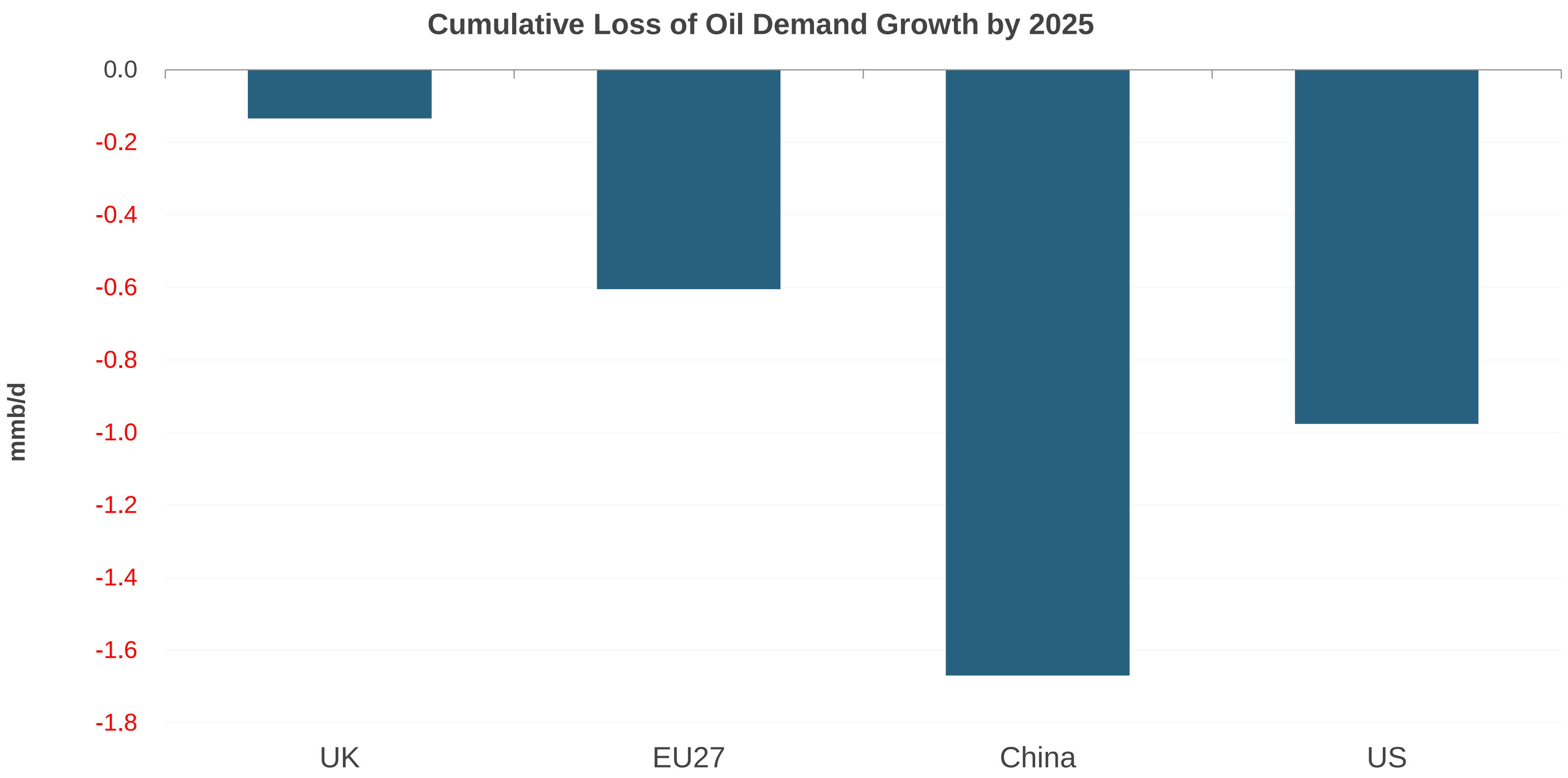
Demand Uncertainties: US-China Trade War & Brexit; Potential Loss of Oil Demand

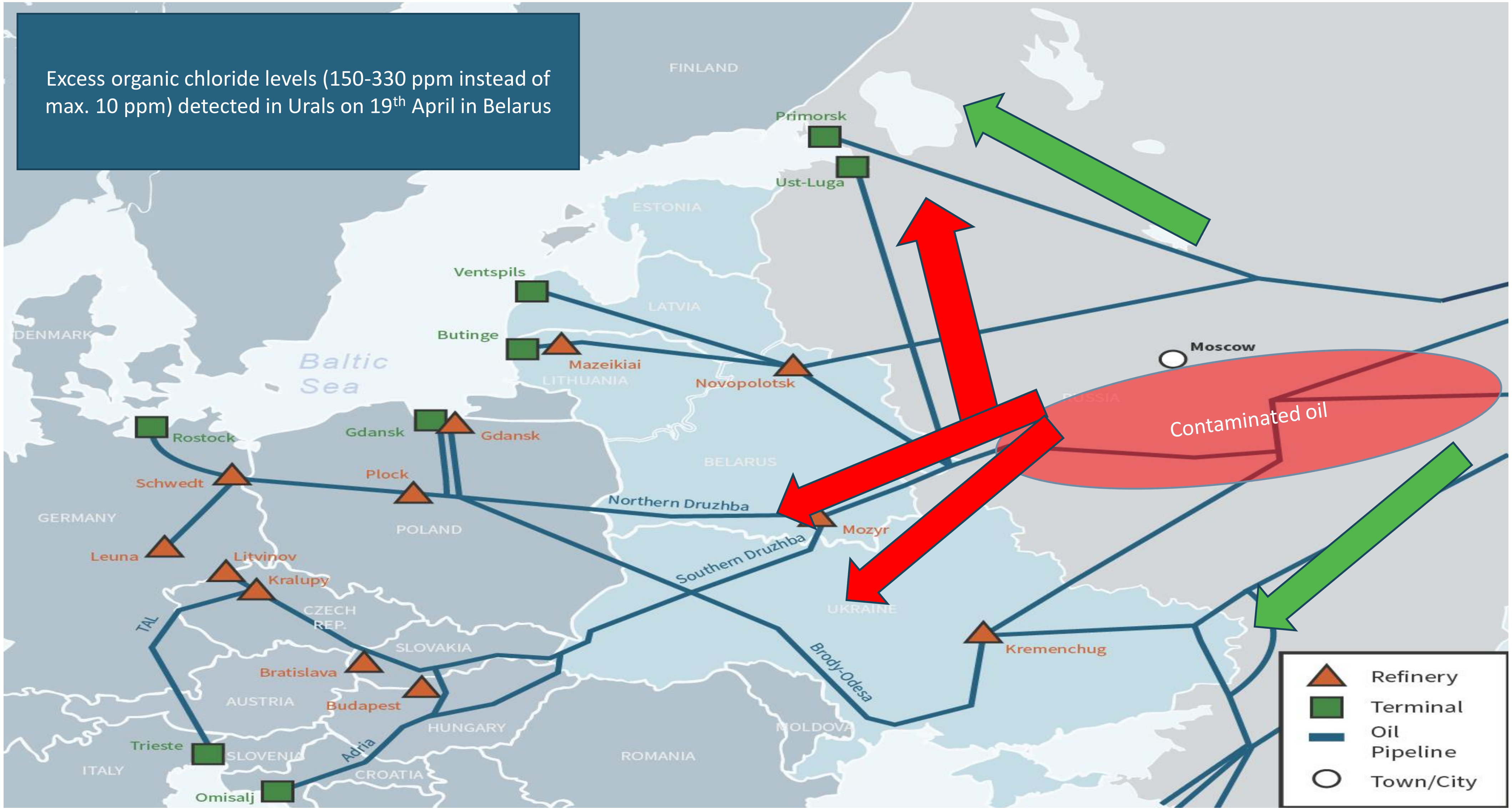
Worst-case scenario of full-blown US/China trade war and "no-deal" Brexit could halve world oil demand growth up to 2025



NB - Potential Brexit side-effect in short-term for oil market: switch from EU mandatory stocks rules (on basis of consumption) to IEA rules (on basis of net oil imports) could mean UK stockdraw of some 40 mmb?! – mostly diesel

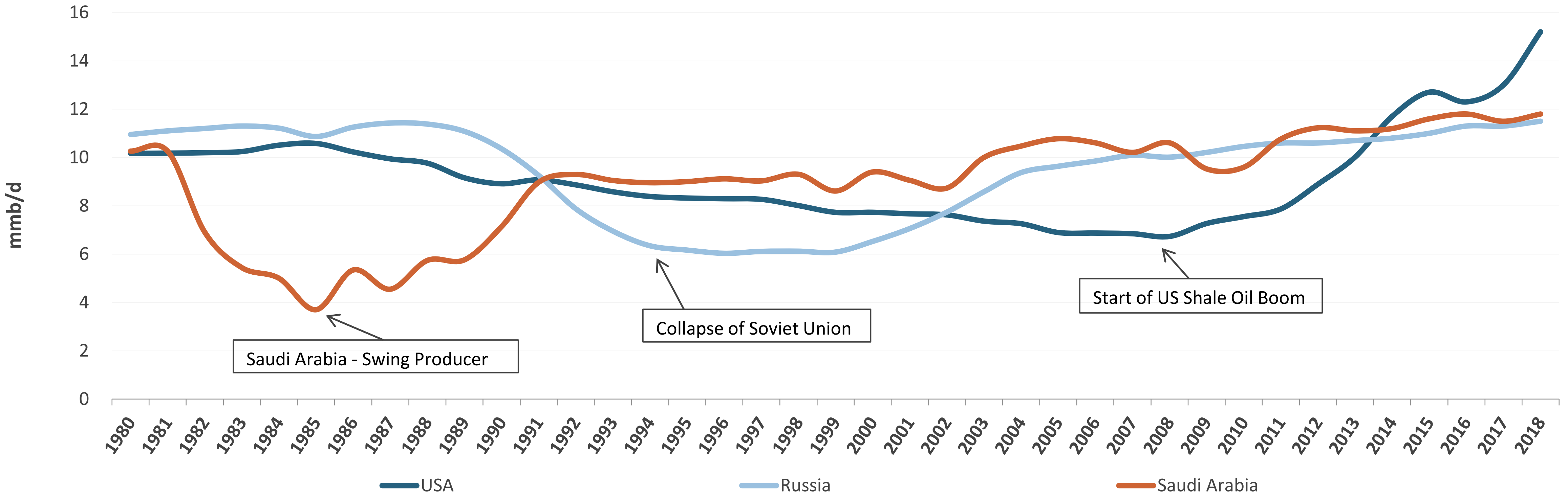
An “Unknown Unknown”?! The Urals Contamination Crisis; A Logistics Nightmare!

About 1 mmb/d of Urals supply through Druzhba pipeline halted on 19th April; refineries in Central Europe using other routes & strategic stocks



The Head of Transneft Gives Briefing on the Urals Contamination Problem to his Boss… !!

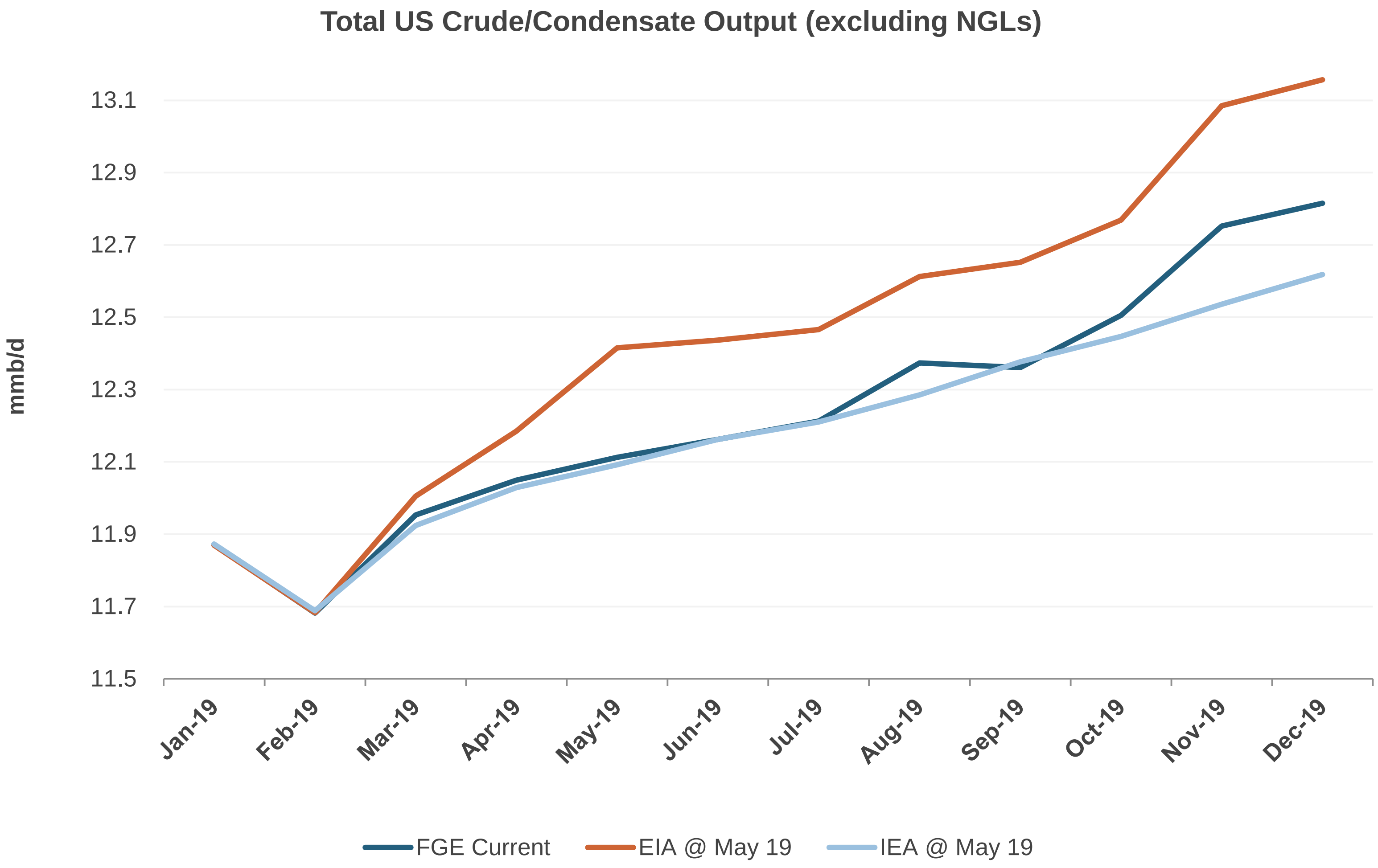
Oil Output in Russia, US & Saudi Arabia—Key Trends; but US racing ahead now



- Total oil output (including NGL) similar in US, Russia & Saudi Arabia; but US racing ahead; almost all non-OPEC growth).
- Saudi policy is to try to juggle sharing the burden of output cuts (unlike in 1980s), while aiming to support price.
- Currently, Saudis aiming at $80/bbl Brent? But highly sensitive – Trump unhappy at price above $75/bbl? (year-ago level).

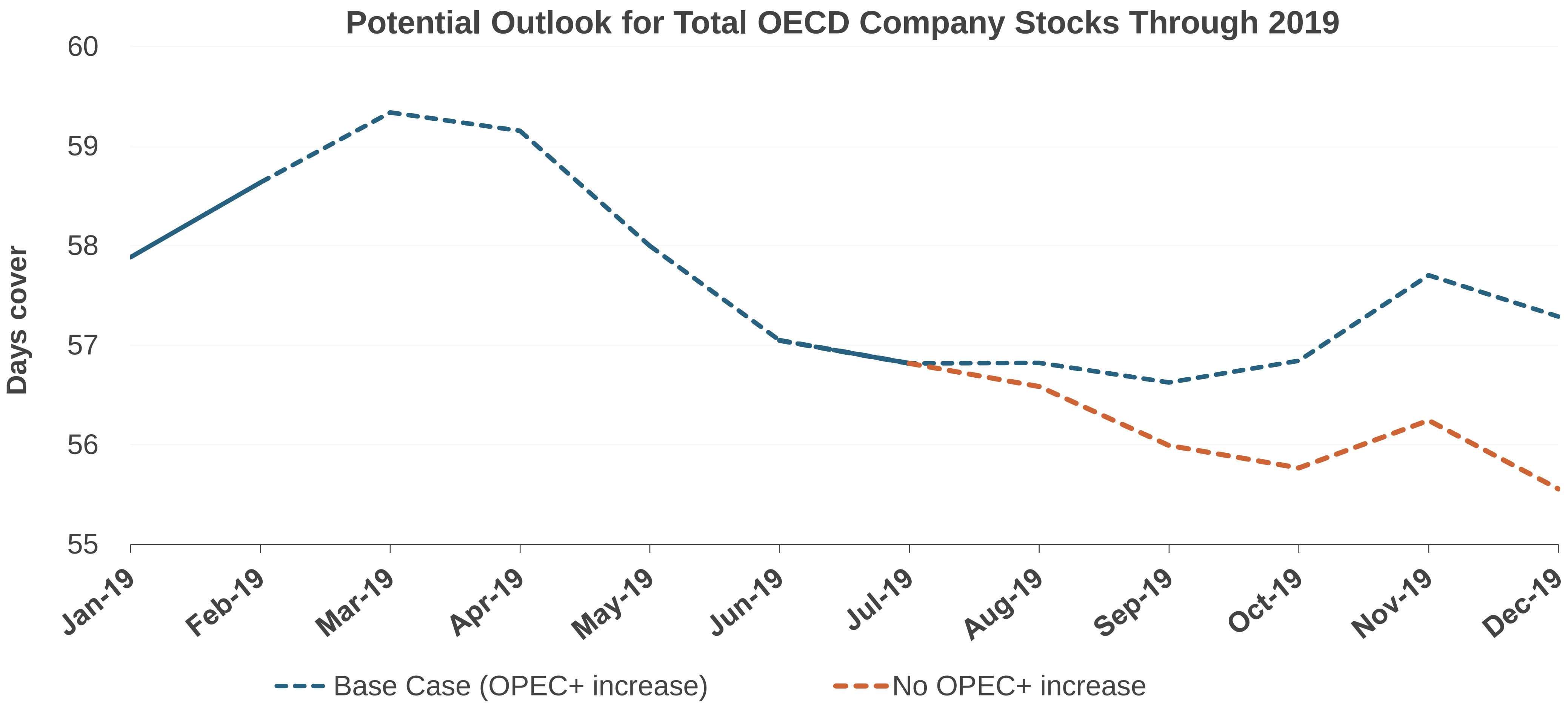
US LTO Output: Major controversy over upwards trend; EIA is the most optimistic

Critically, EIA forecast leads to White House view that oil market is adequately supplied; but latest actual output (Feb) was revised down!

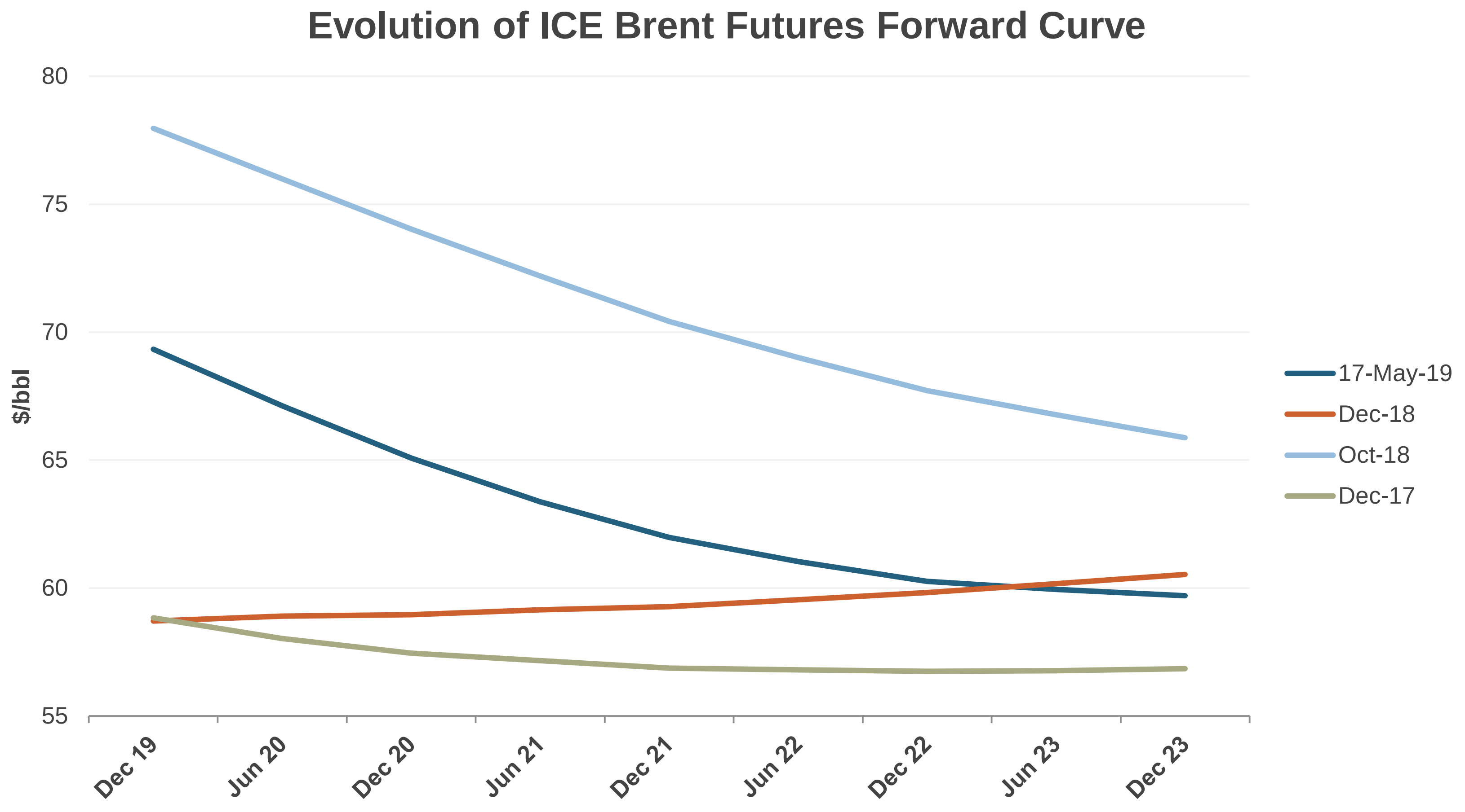


Stocks: Underlying stocks position seen tightening into 2H19

If Venezuela crisis continues, OPEC+ needs to raise output by 1 mmb/d in 2H19; but will they? Balanced stocks about 57 days

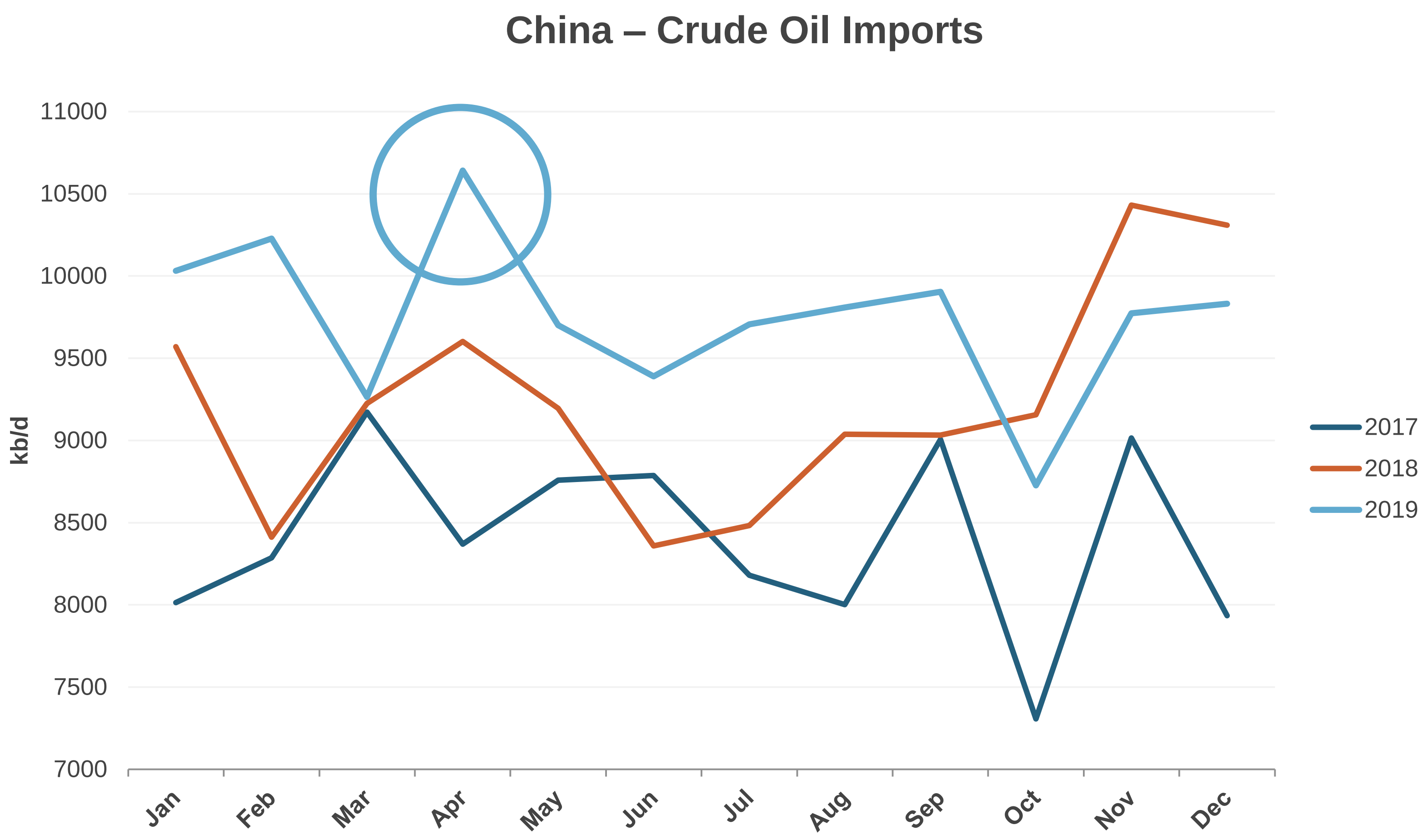


Oil Market Tightening Up? Backwardation in Brent back to last October's pattern….



Chinese Crude Oil Imports – how long can they keep hitting new record highs?

Crude imports into China hit record level in April; thought to be stockbuilding by new refineries, plus precautionary buying?



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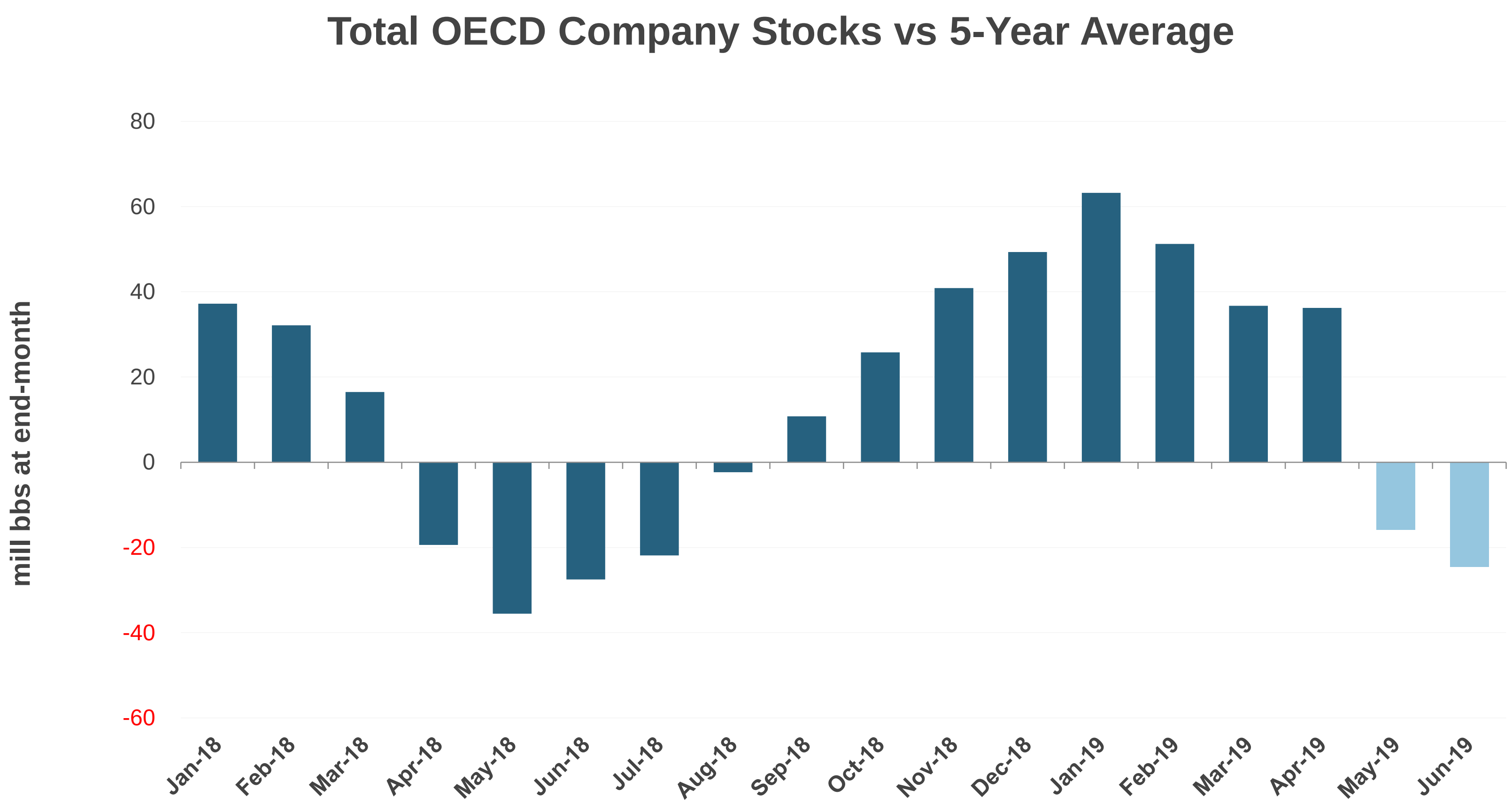
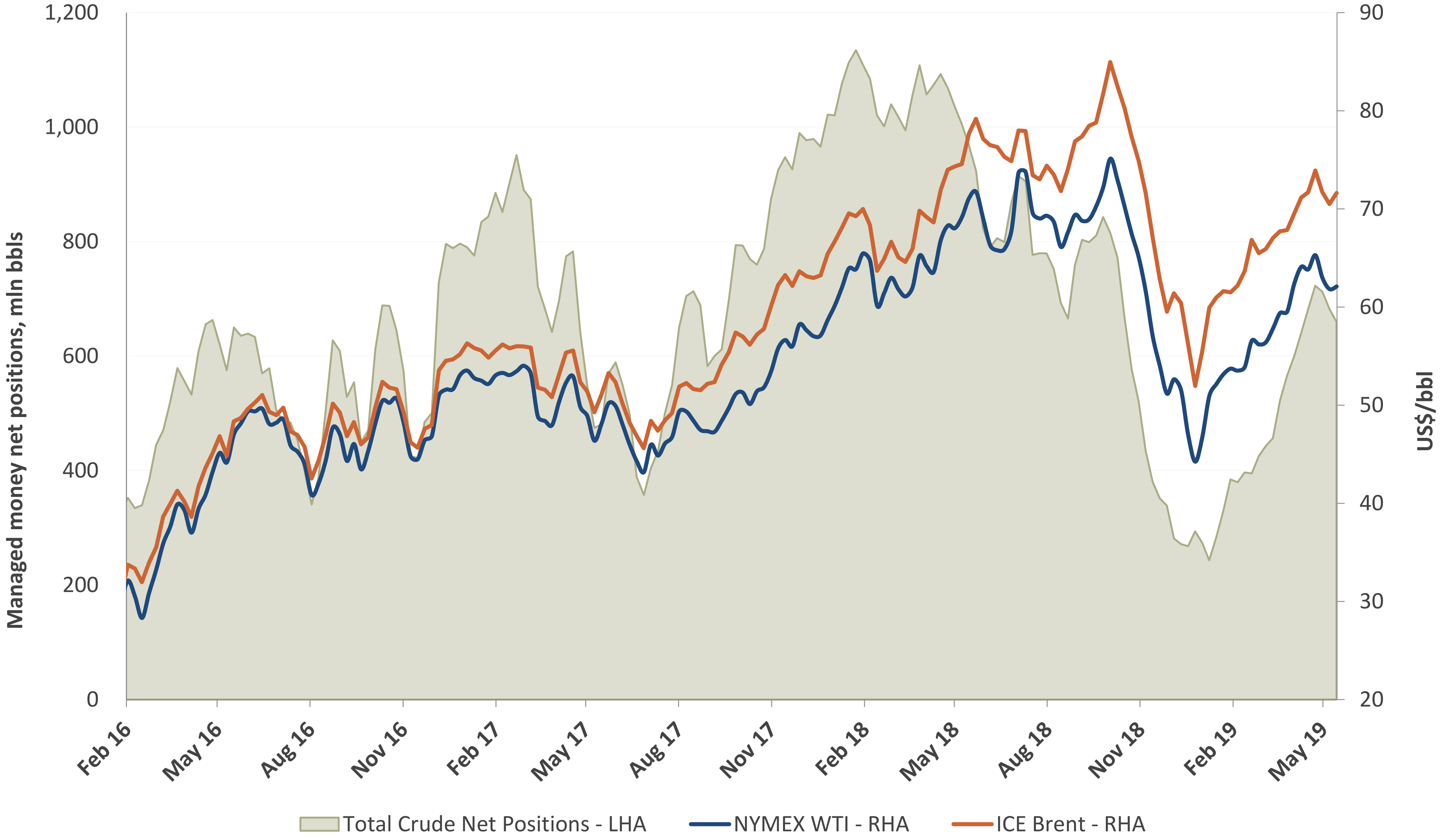
OECD Company Stocks: heading back below 5-year average; but will OPEC+ react?

OPEC+ (ie Saudi Arabia) wary of repeating the mistake they made last year, of raising output too much – with subsequent slump in prices in 4Q



ICE/NYMEX Crude Net Longs: at highest since Oct18, so potential downside now?



Potential Upsides & Downsides in World Oil Supplies

- **Iran/Venezuela:** potential downside (from now) of only about 500 kb/d each
- **Libya:** planned upside of 500 kb/d; but potential downside of up to 800 kb/d
- **Nigeria:** planned upside of 400 kb/d; but potential downside of 500 kb/d
- **OPEC+ deal:** potential upside of about 1 mmb/d, if current cuts restored
- **US tight oil:** potential downside & upside of c300 kb/d? (but hurricanes can knock out c1 mmb/d)
- **But all dwarfed by potential disruption to Strait of Hormuz supplies – about 19 mmb/d!!**

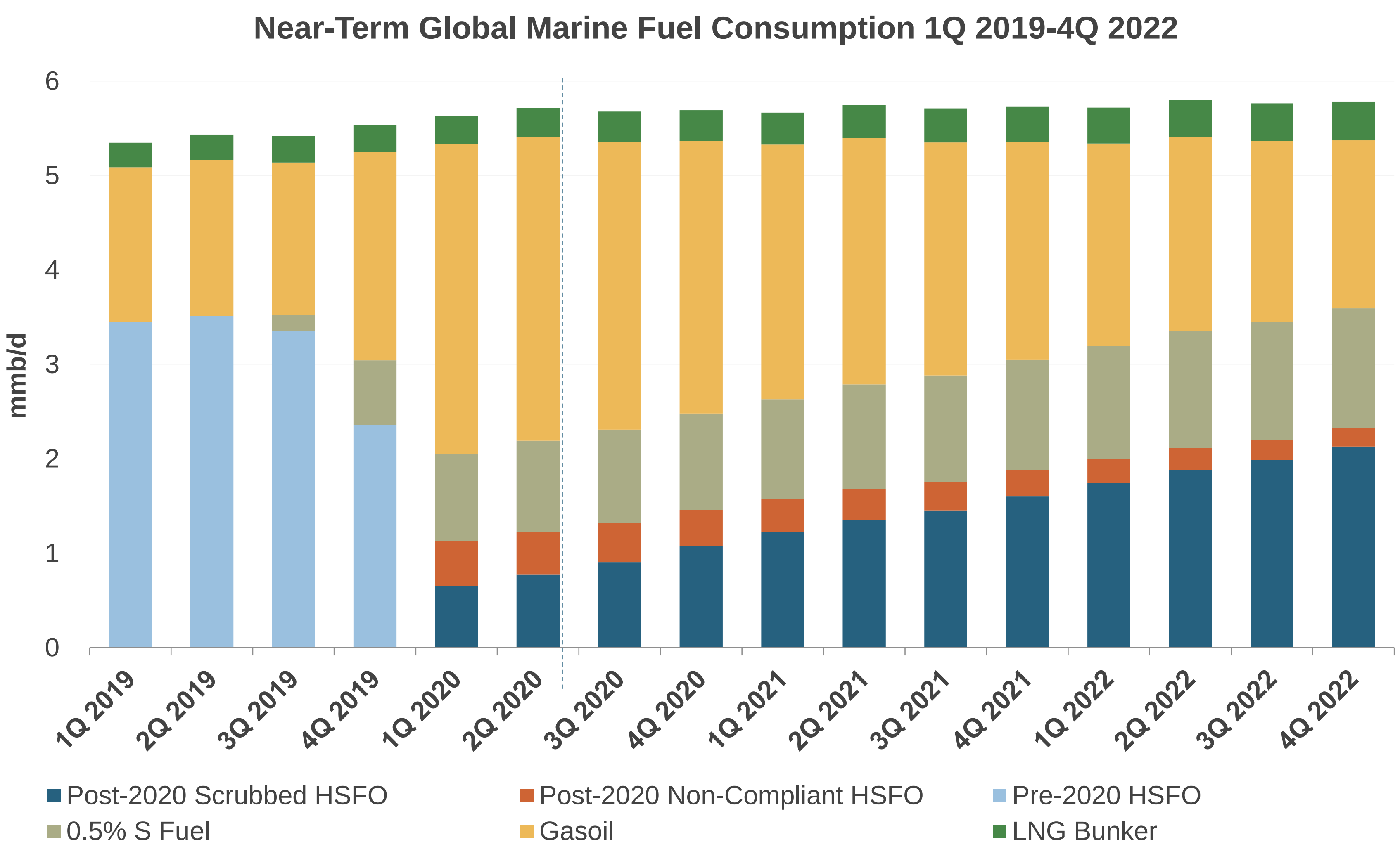
Oil Market Longer-Term: Key Factor – IMO2020 Getting Closer!

IMO2020: Move to 0.5% Marine Fuel Oil Global Sulphur Cap Changes Everything

Biggest single change for refiners and shippers—ever?! Other sectors too

Now only just over 7 months away….but impact still a major controversy

IMO2020: Forecast Bunker Fuel Demand Switching – big drop in HSFO, jump in MGO



- The shift away from HSFO to cleaner fuels will start from 3Q 2019.
- By 1Q 2020 HSFO demand will have lost some 2 mmb/d compared with 1Q 2019, while the majority of ships will use MGO as compliant fuel.
- However, the quick uptake of scrubbers, in response to very weak HSFO prices, will bring some demand back in next few years; but very reactive.

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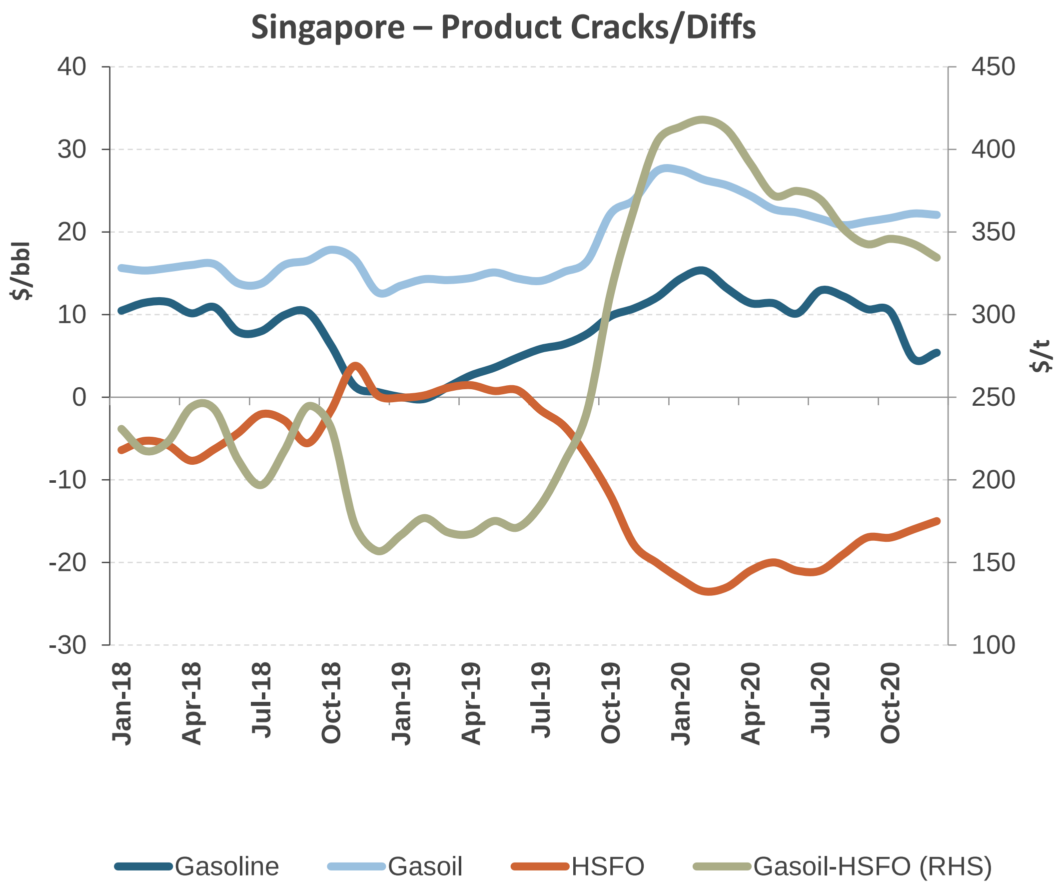
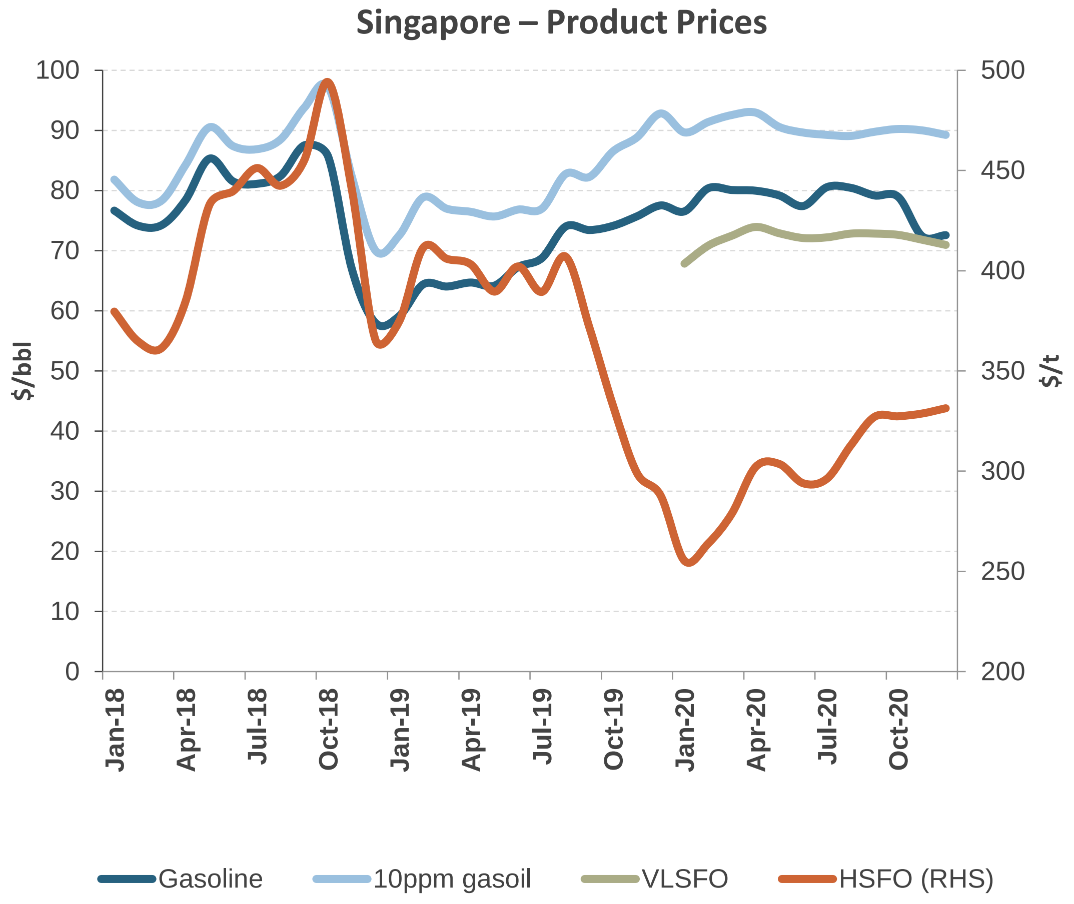
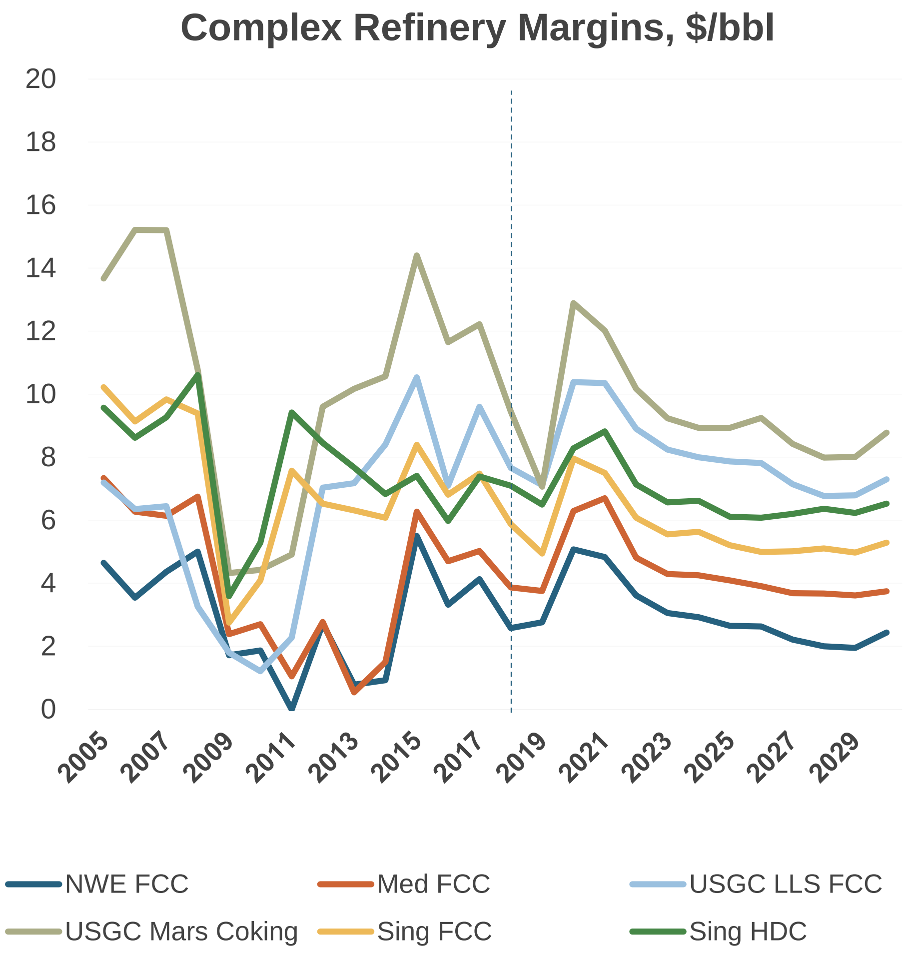
IMO2020 Transition Outlook – Potential Impact on Product Cracks & Prices

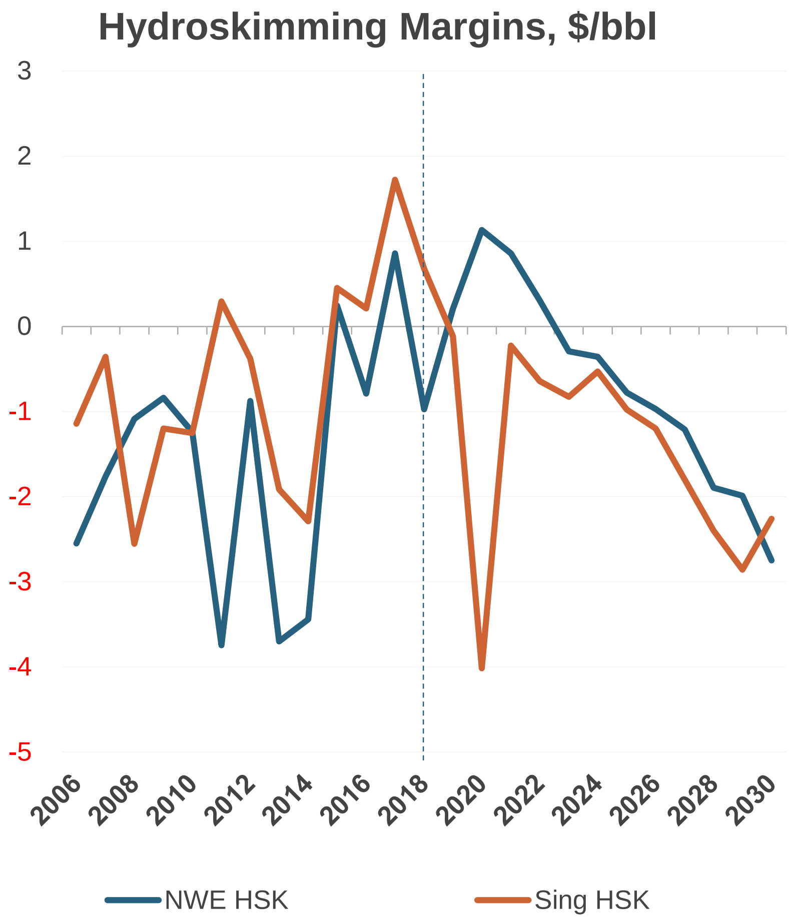
Fuel oil prices surprisingly strong in 1Q19, partly due to loss of Iran/Ven heavy crude supplies ; but we still expect significant HSFO weakness, gasoil strength





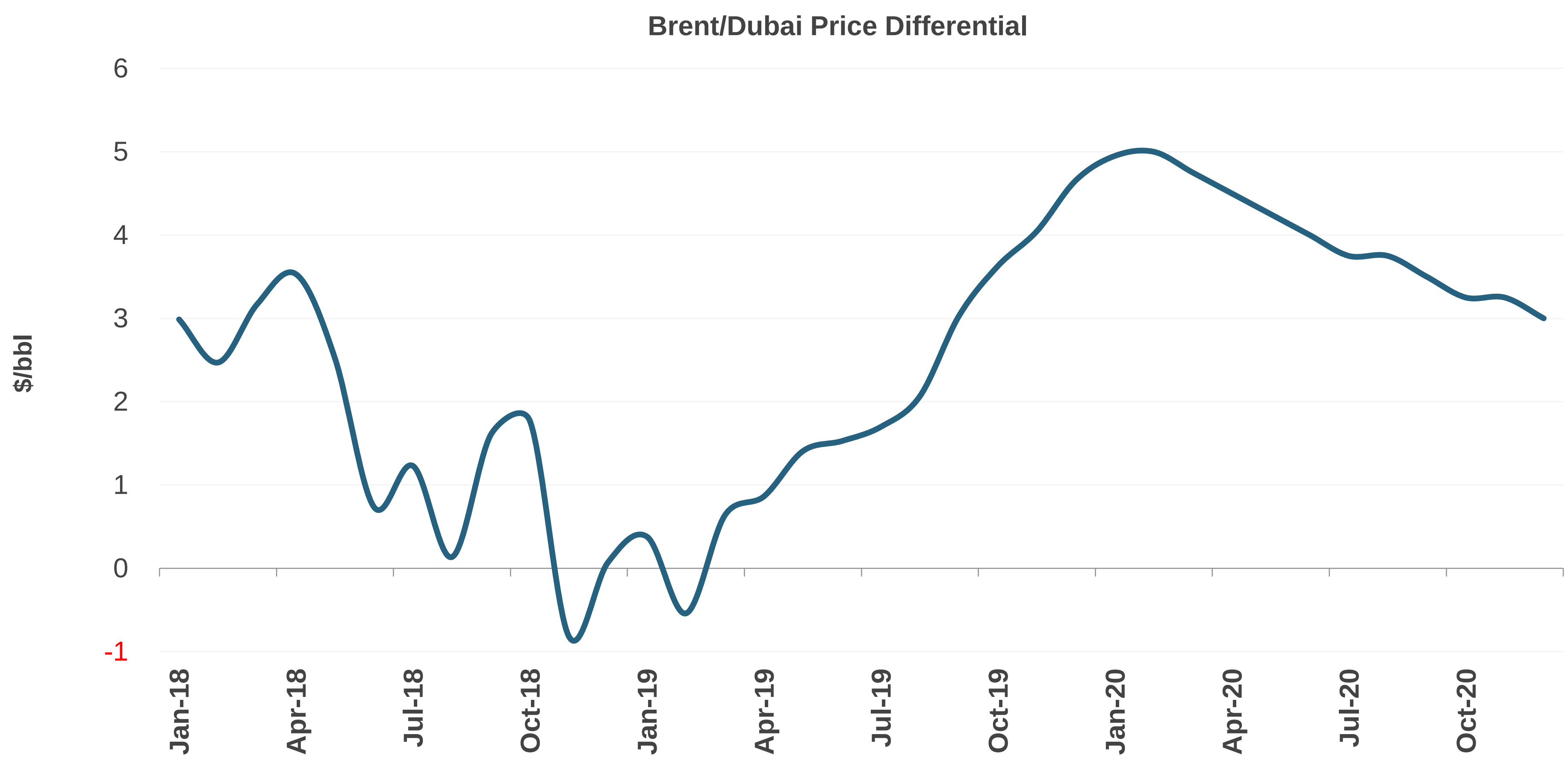
IMO2020: Margins Will Spike for Complex Refiners…But Simple Refiners Will Struggle





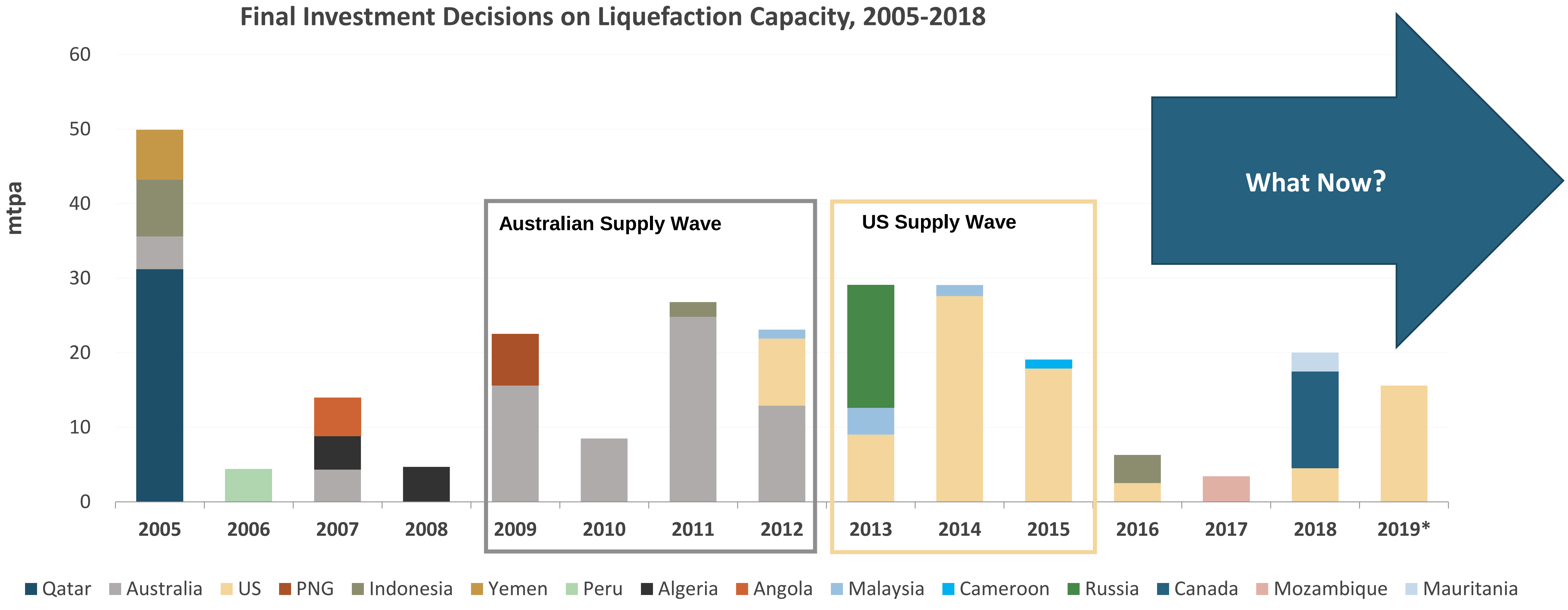
Brent/Dubai Diff: a double-whammy effect from IMO2020; weak fuel oil, strong sweet crudes

- Fuel oil tightness will support the Dubai price over the next 6 months, but the Brent/Dubai diff will widen as fuel oil price collapses from 4Q19 onwards



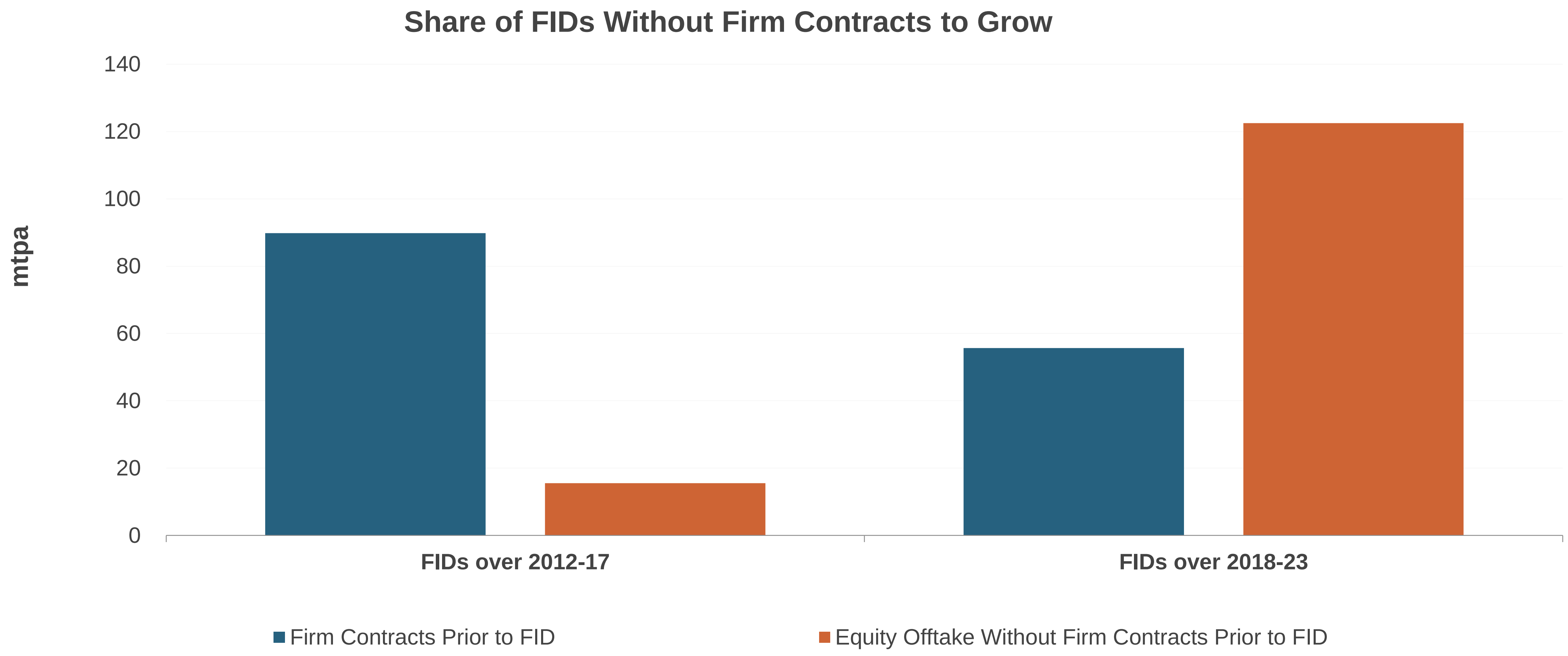
LNG Market Outlook

Lack of FIDs during 2016-17 Contributing to a New Wave of FIDs

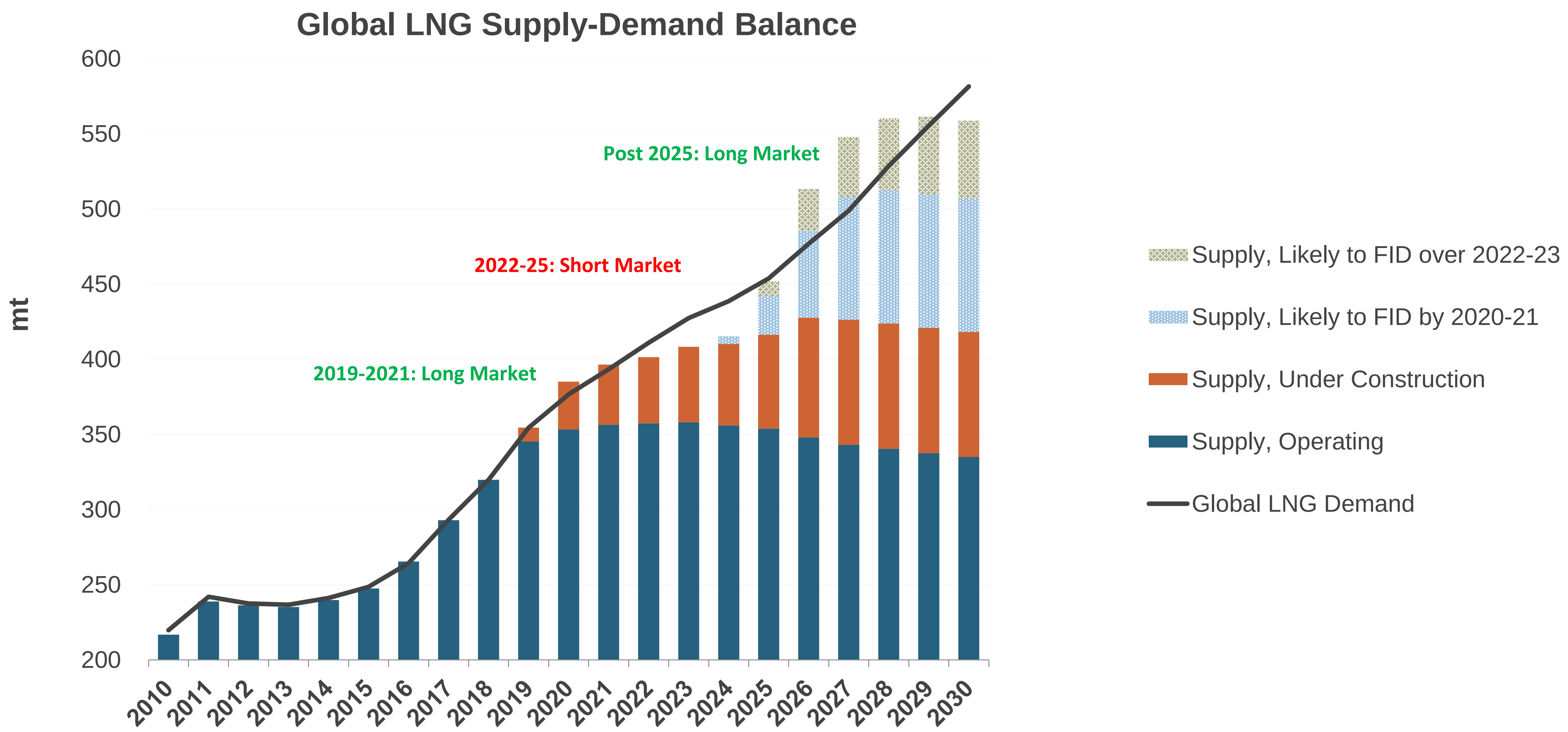


*Year to date

Projects Looking to Take FID Even Without Firm Contracts



LNG Outlook: Boom-and-Bust Cycles are Alive and Well

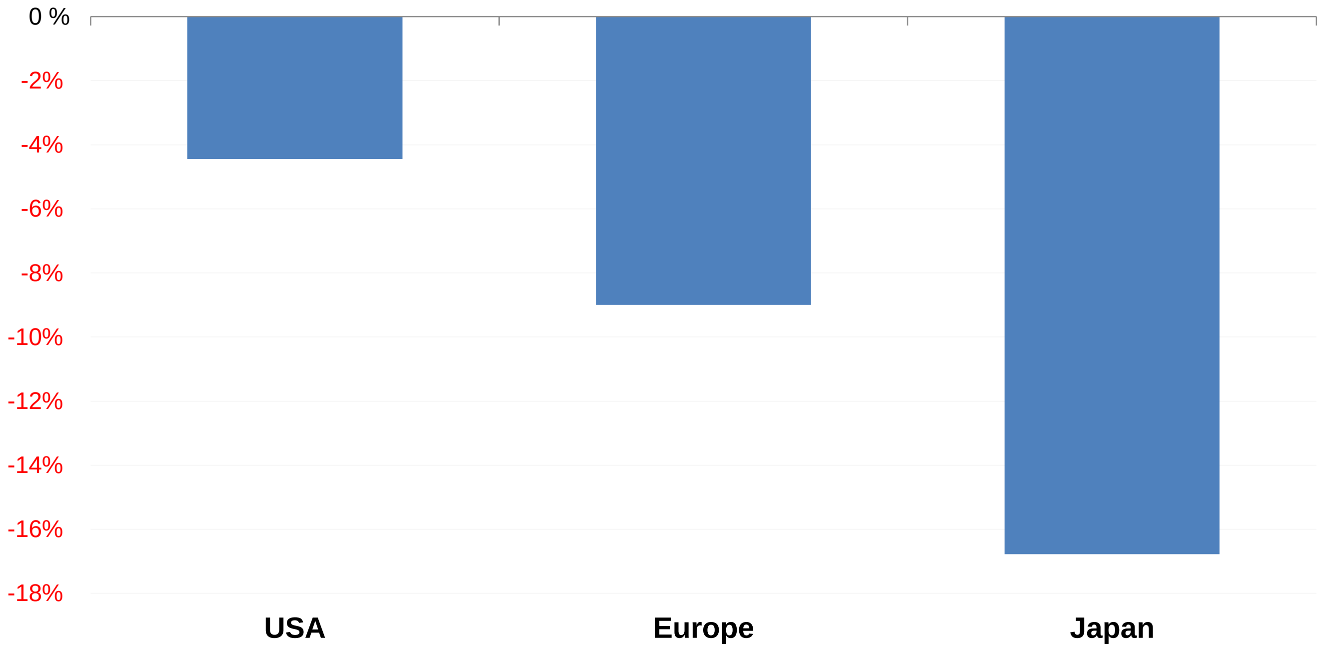


**The above supply numbers factor in unplanned outages from 2019 onwards*

Don’t Ignore the Impact of the Winter Weather! Huge Marginal Impact on Gas/LNG Demand

In recent years, big regional divergence vs long-term winter weather “norms”: Europe/Japan much warmer, but USA nearer normal on average

Average Annual “Heating Degree-Days” 2010-18 vs Long-Term Norms (+ colder, - warmer)



- **A “normal” winter (especially in Europe/Japan) might bring big upside shock to gas demand/prices!**

Summary – Key Points

- Range of uncertainties in oil market currently probably bigger than ever!
- Overall, bullish geo-political factors currently just outweighing bearish sentiment over US-China etc
- Crucial OPEC+ meeting on 25-26th June: will they raise output again, or not?
- We expect oil prices (Brent) at $70-80/bbl in 2H19; at top of this range, if OPEC+ holds its constraint
- We still see IMO2020 bringing severe weakness in fuel oil cracks, strength in middle distillates
- LNG market expected to swing back short in 2022-25, before getting long again post-2025

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