Crude Oil

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A view of Argus

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Coverage includes markets for

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- Biofuels
- Fertilizers
- Agriculture
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- Market reporting, news, and analysis
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- European gasoline and biofuels
- Asia-Pacific LPG
- Coal
- European steel
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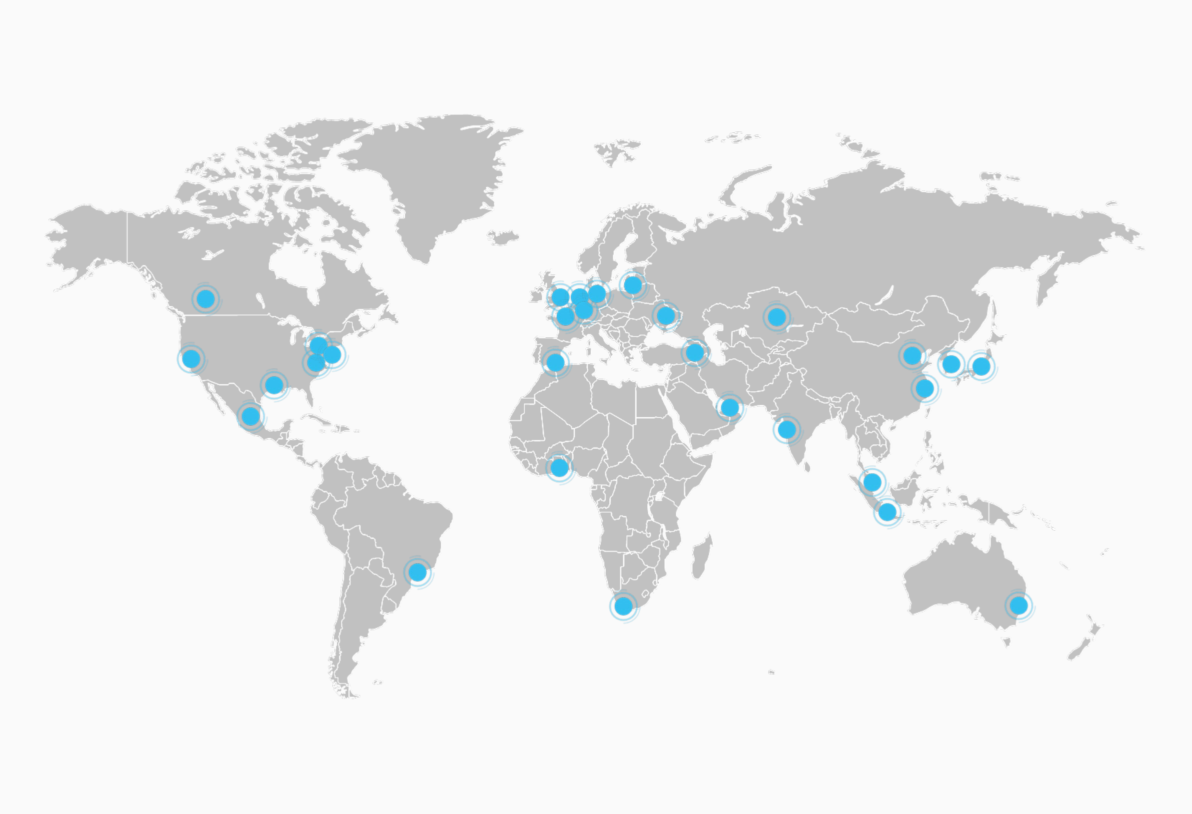


Crude market outlook

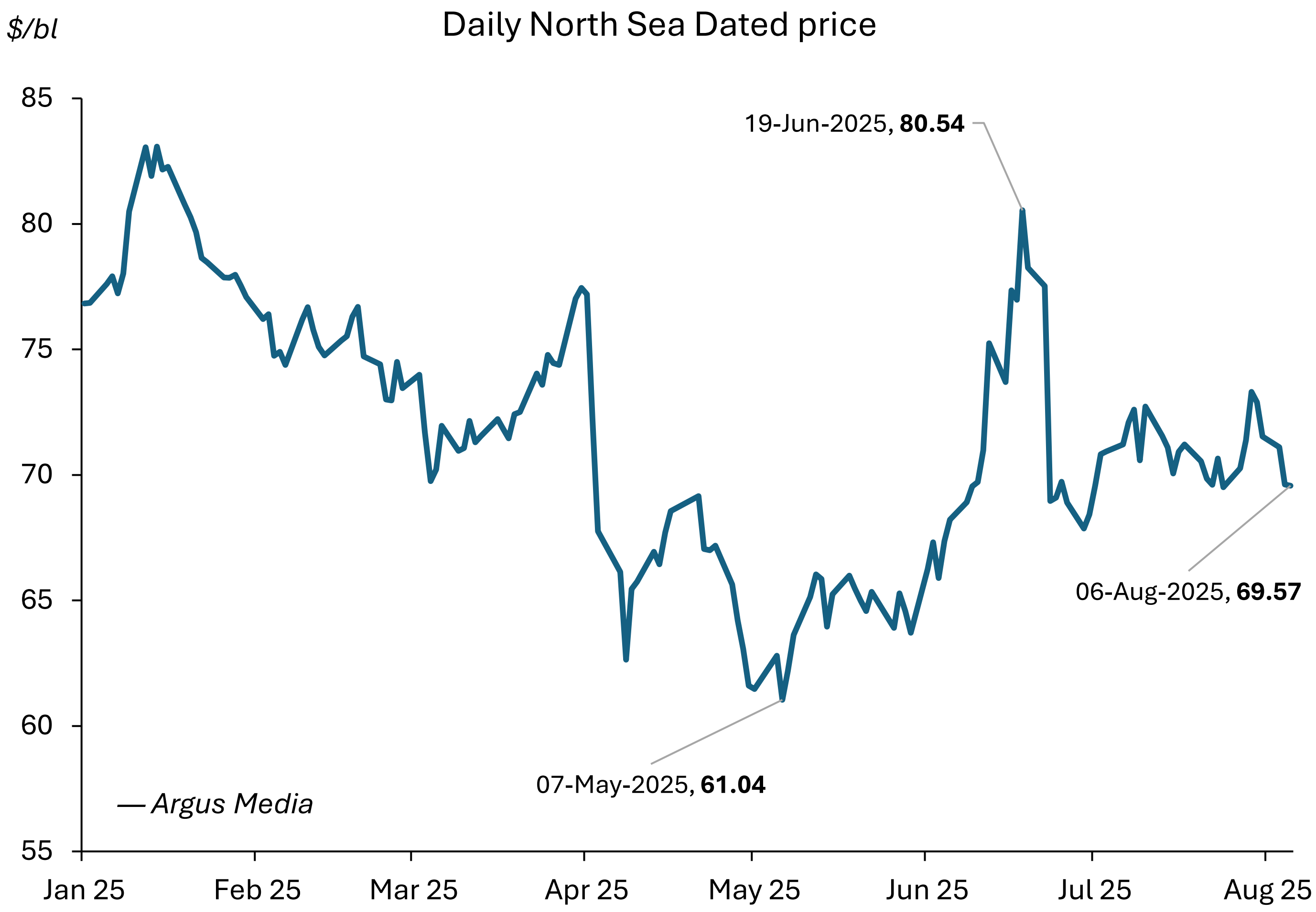
a. Supply and demand balance
    i. Opec+ unwinding and non-Opec supply growth
    ii. Global oil demand growth and US tariffs

Crude differentials

Market Trends

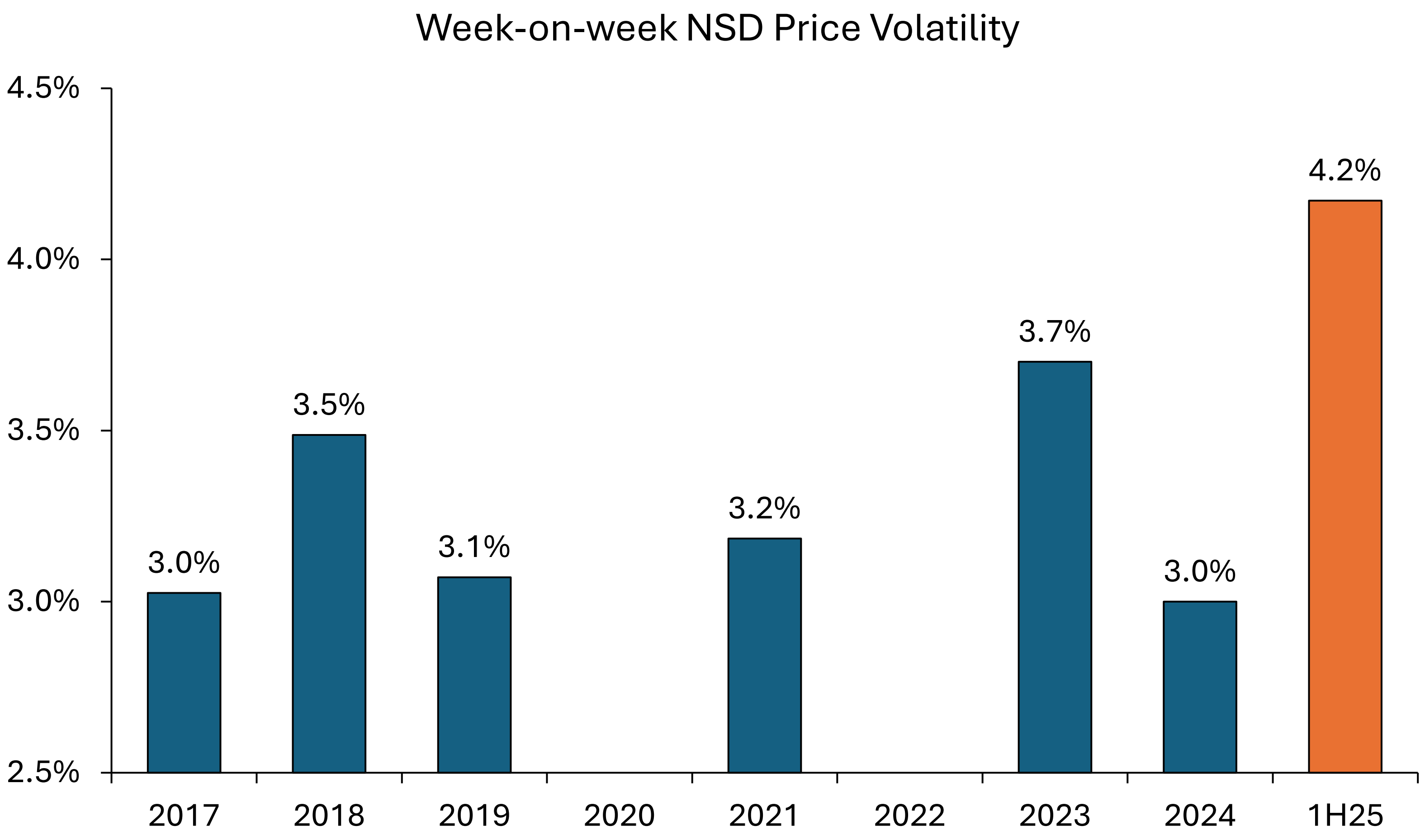
Crude Infrastructure

Oil prices hovering around $70/bl after volatile 1H25

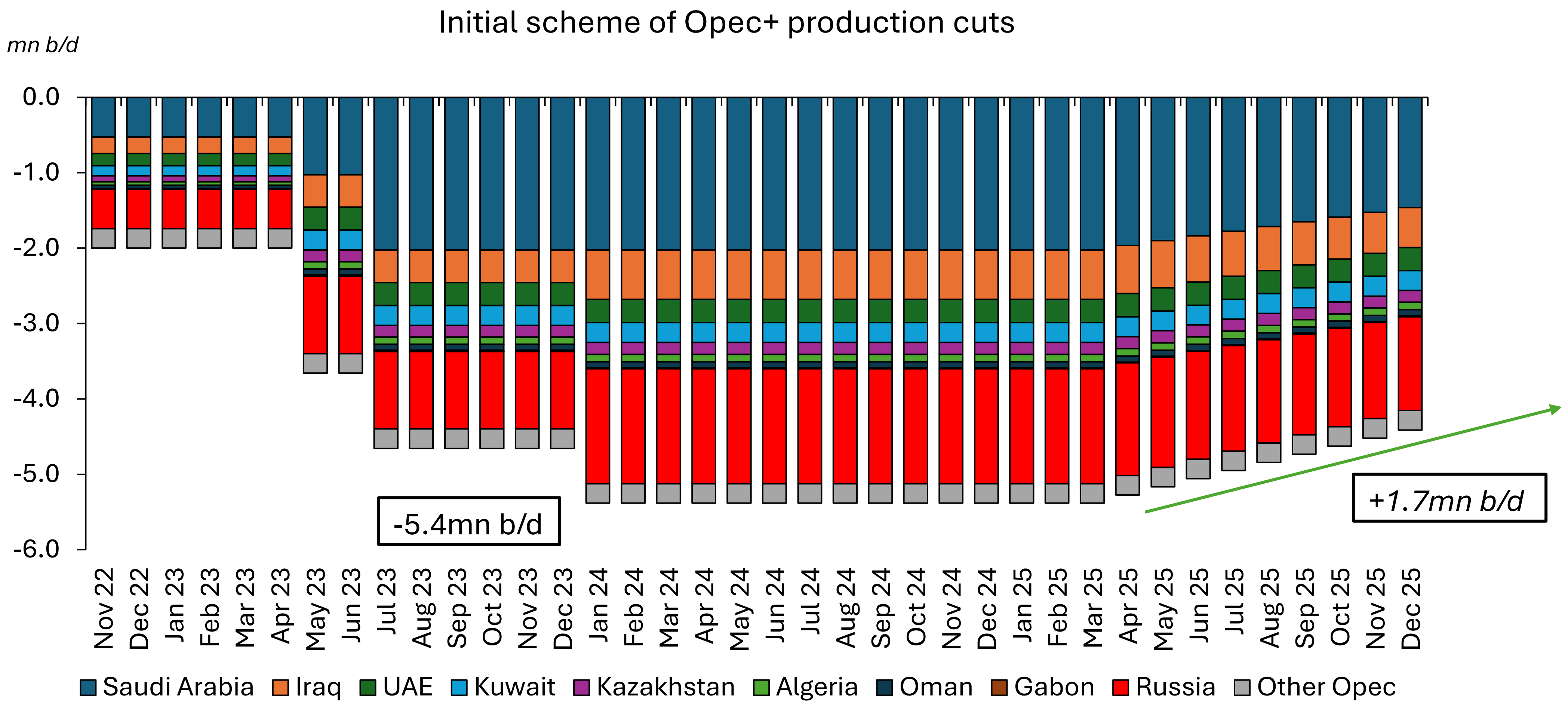


- Significant volatility in crude prices over 1H25
- US tariff policy since "Liberation Day" pressured prices down
- Israel-Iran '12-day war' in June saw prices rise by $20/bl on risk to Strait of Hormuz
- Uncertainty surrounding:
  - US trade deals
  - Opec+ future restraint
  - Sanctions on Iran, Venezuela, Russia

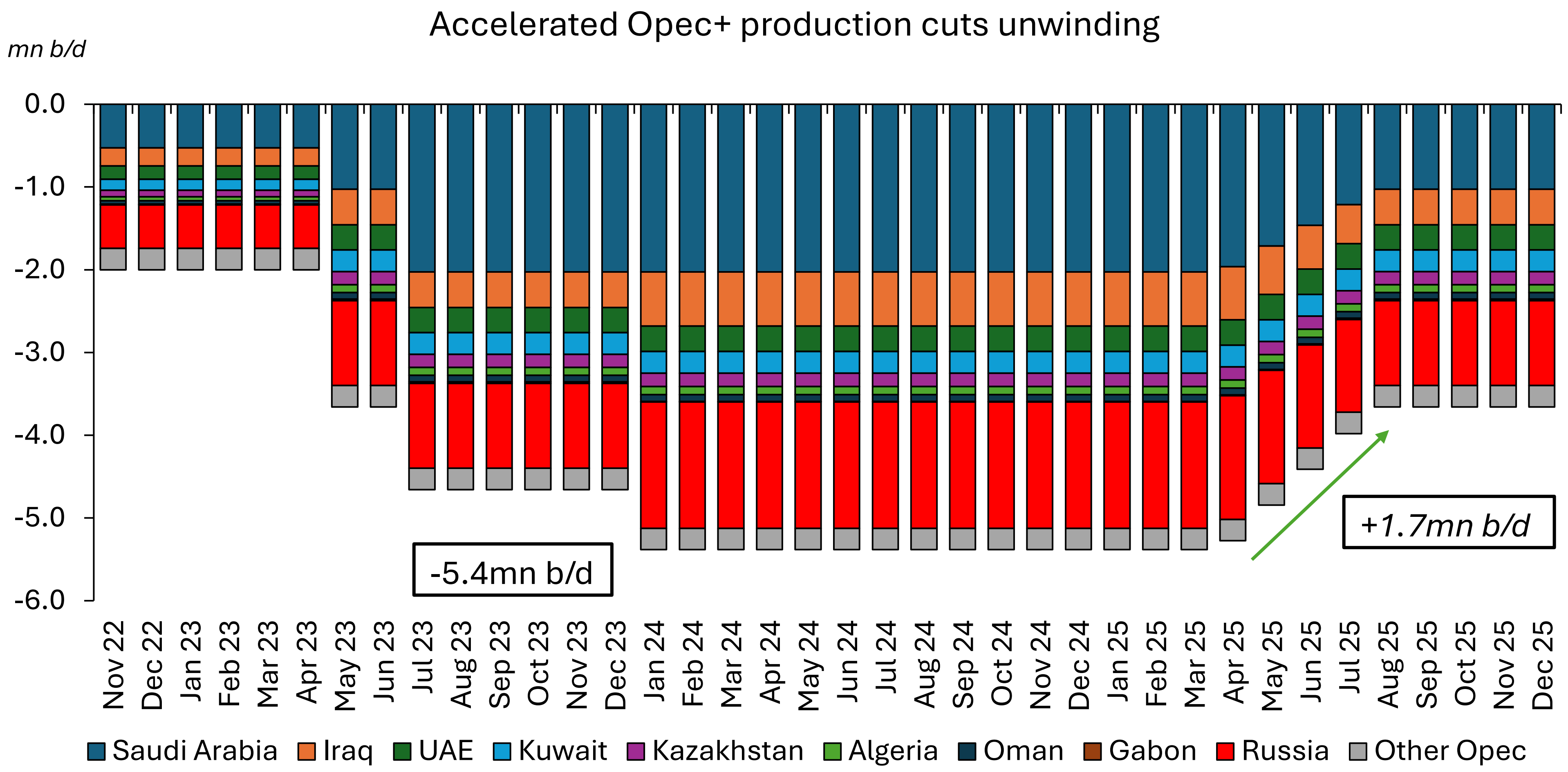
Average week-on-week volatility surpassed only in 2020 and 2022



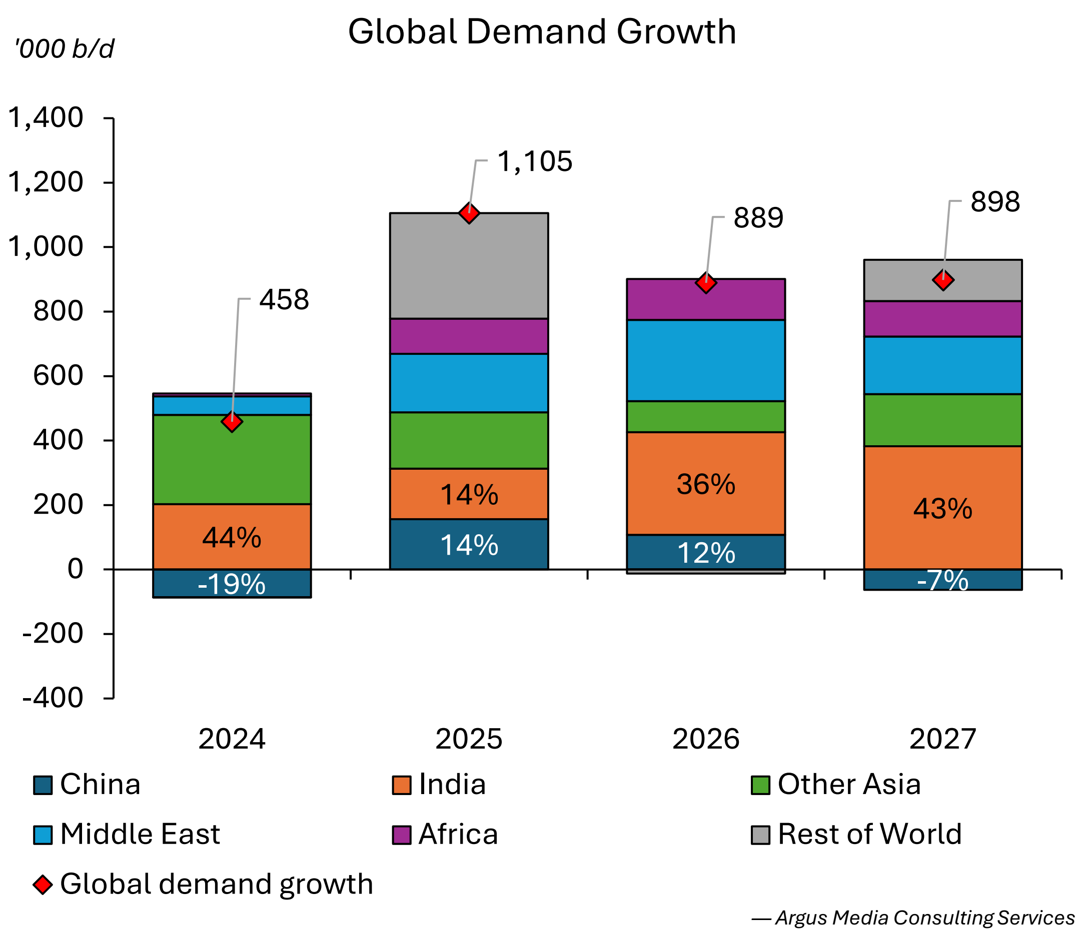
Opec+ begin unwinding production restraint in April

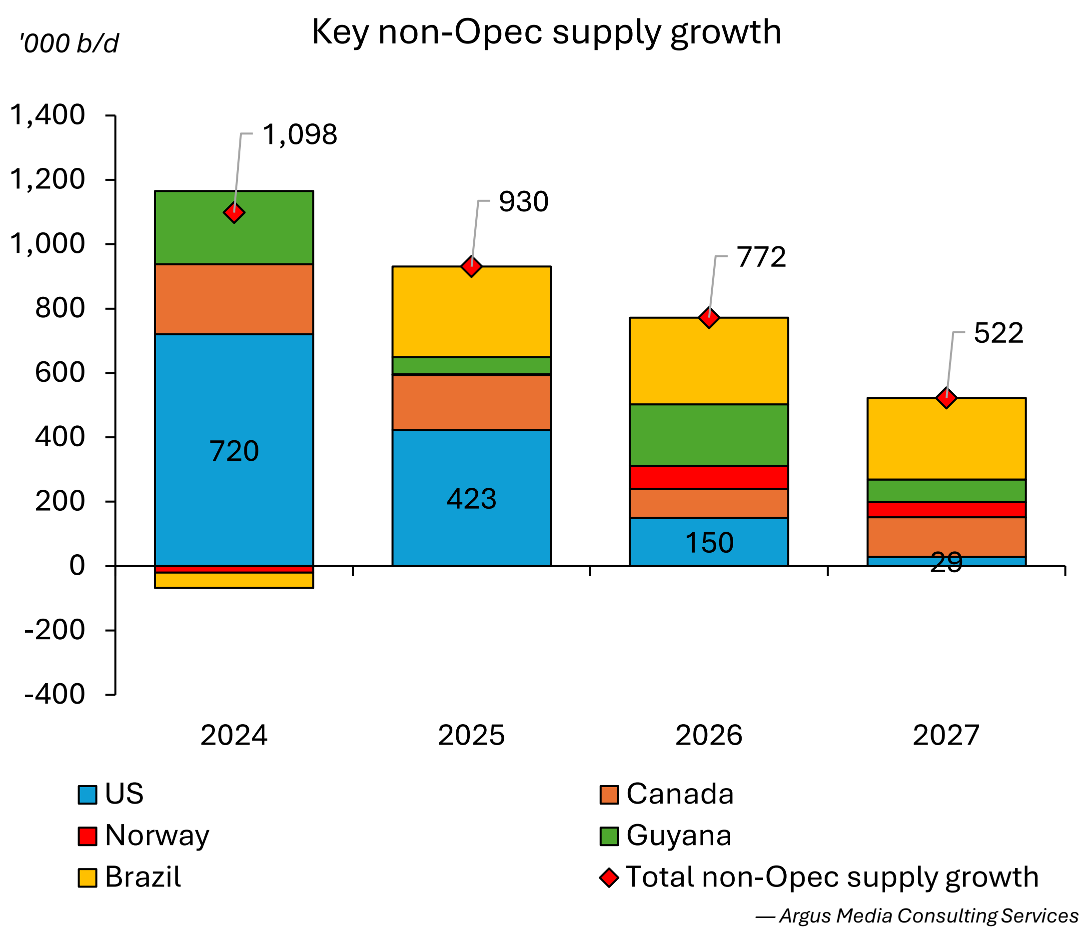


Accelerated pace foreshortens cuts unwinding by 13 months

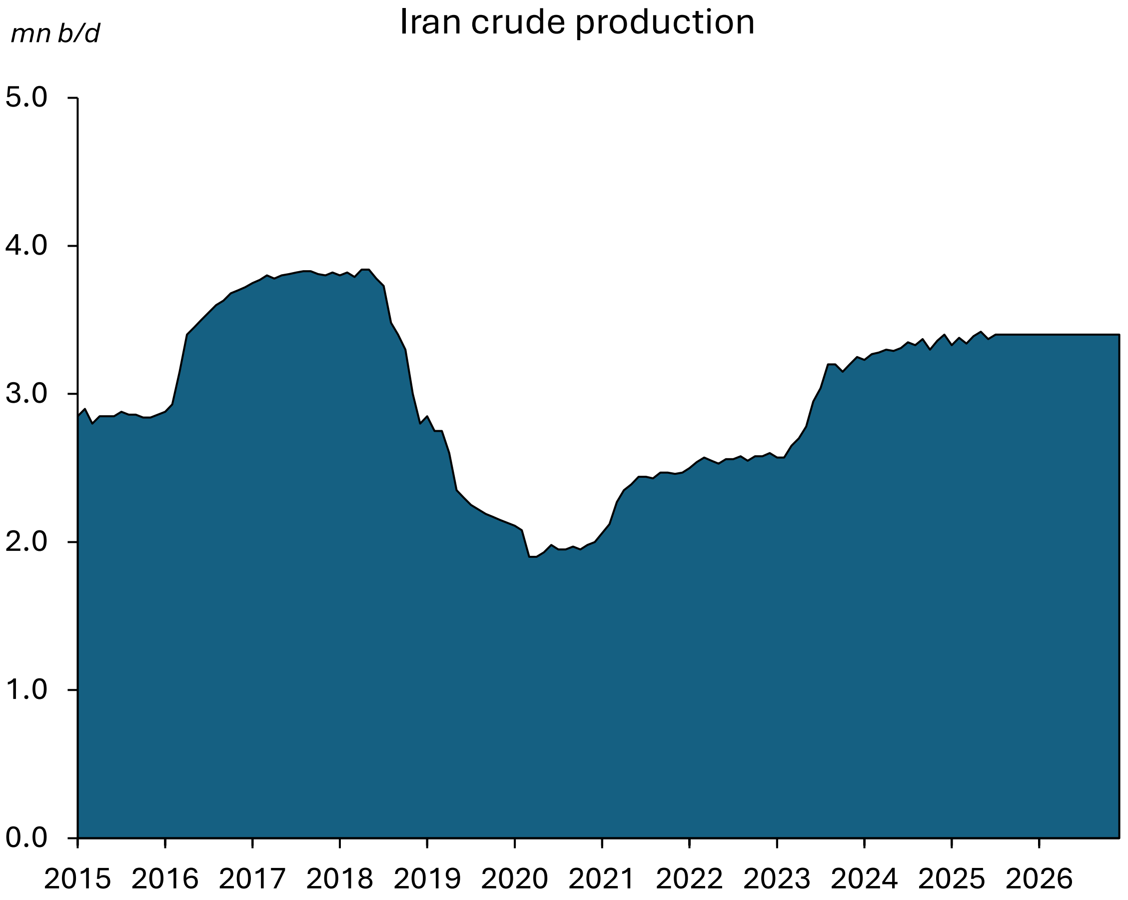


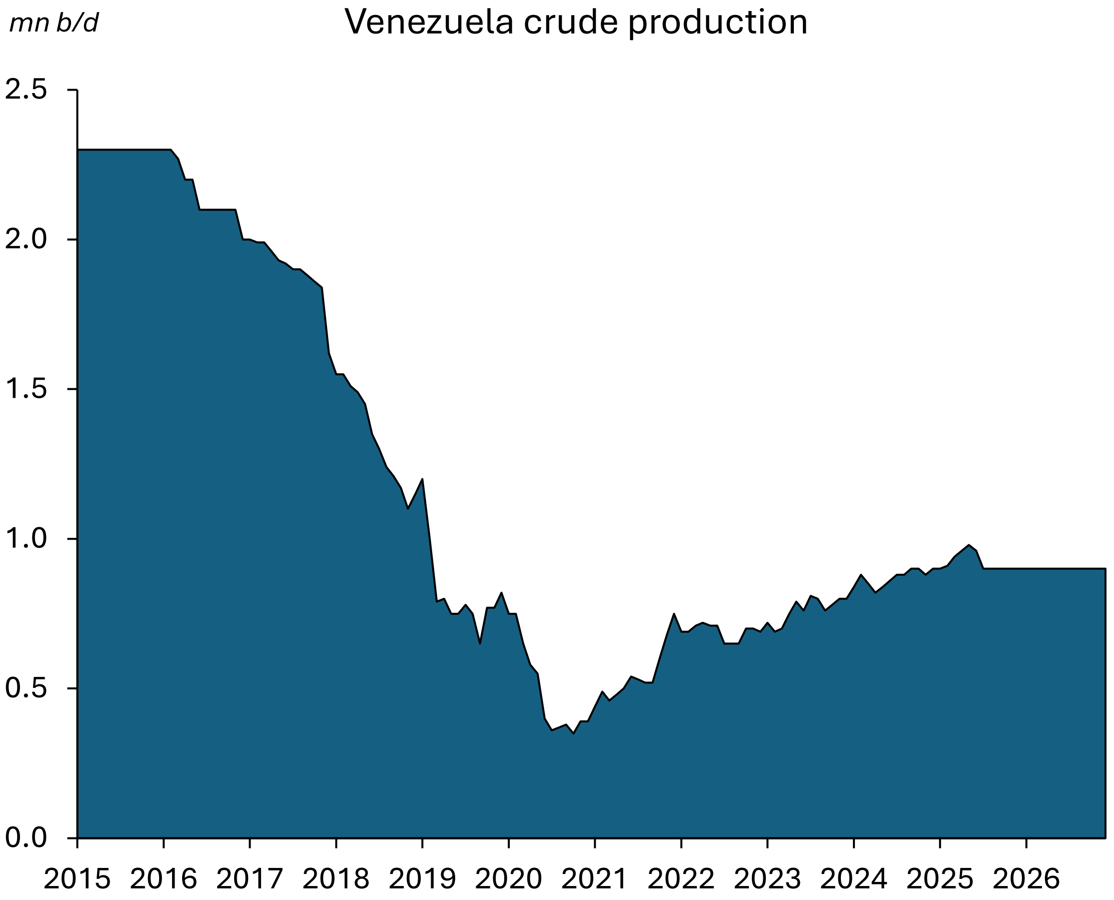
Limited scope for Opec barrels to return as non-Opec supply growth is satisfying global demand growth



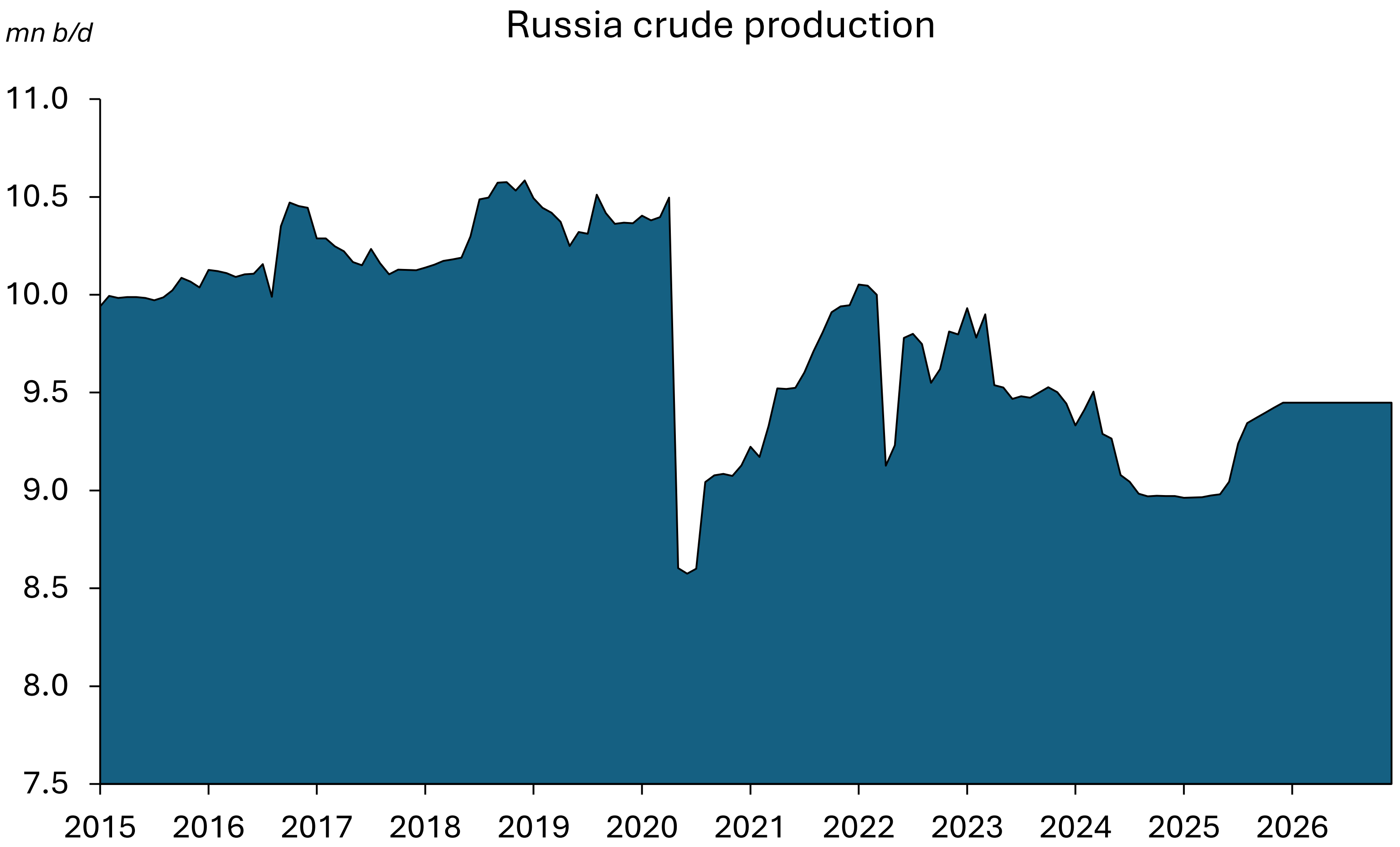


Prospects of sanctions on Iran and Venezuela depend on US foreign policy

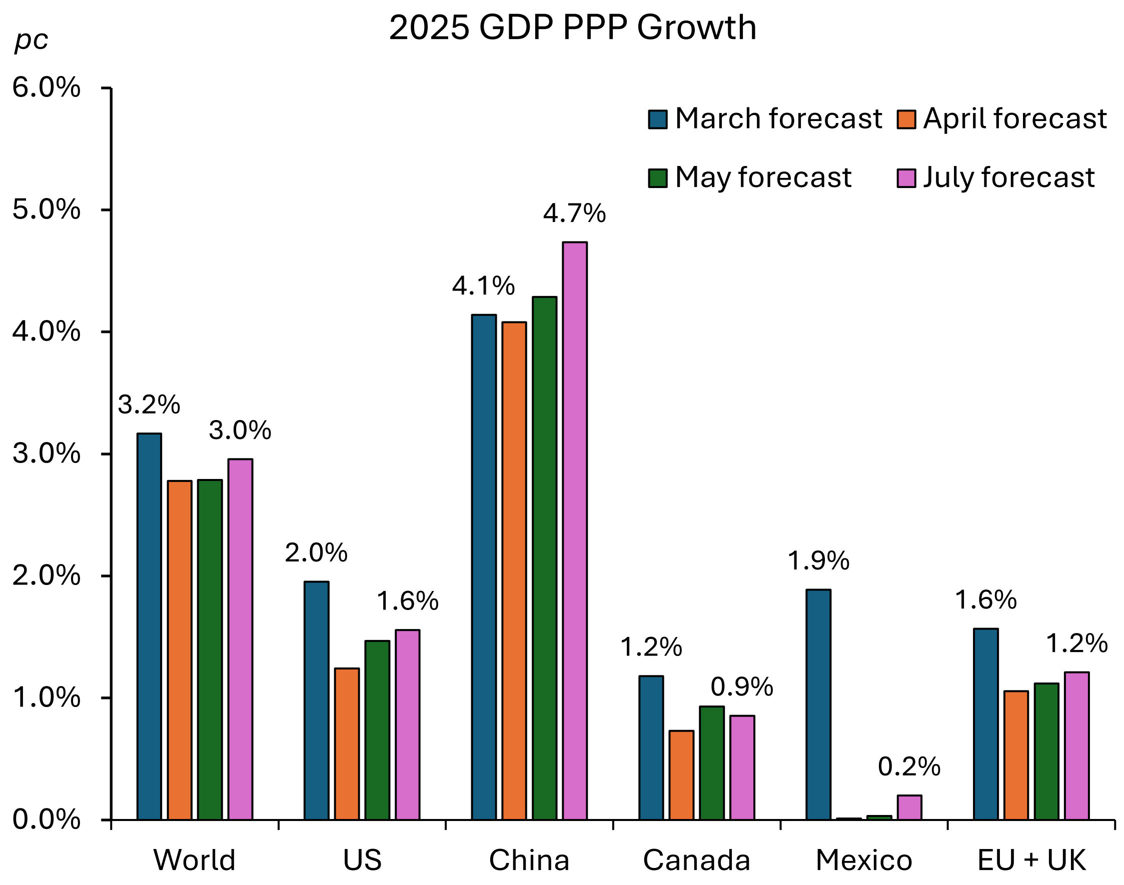




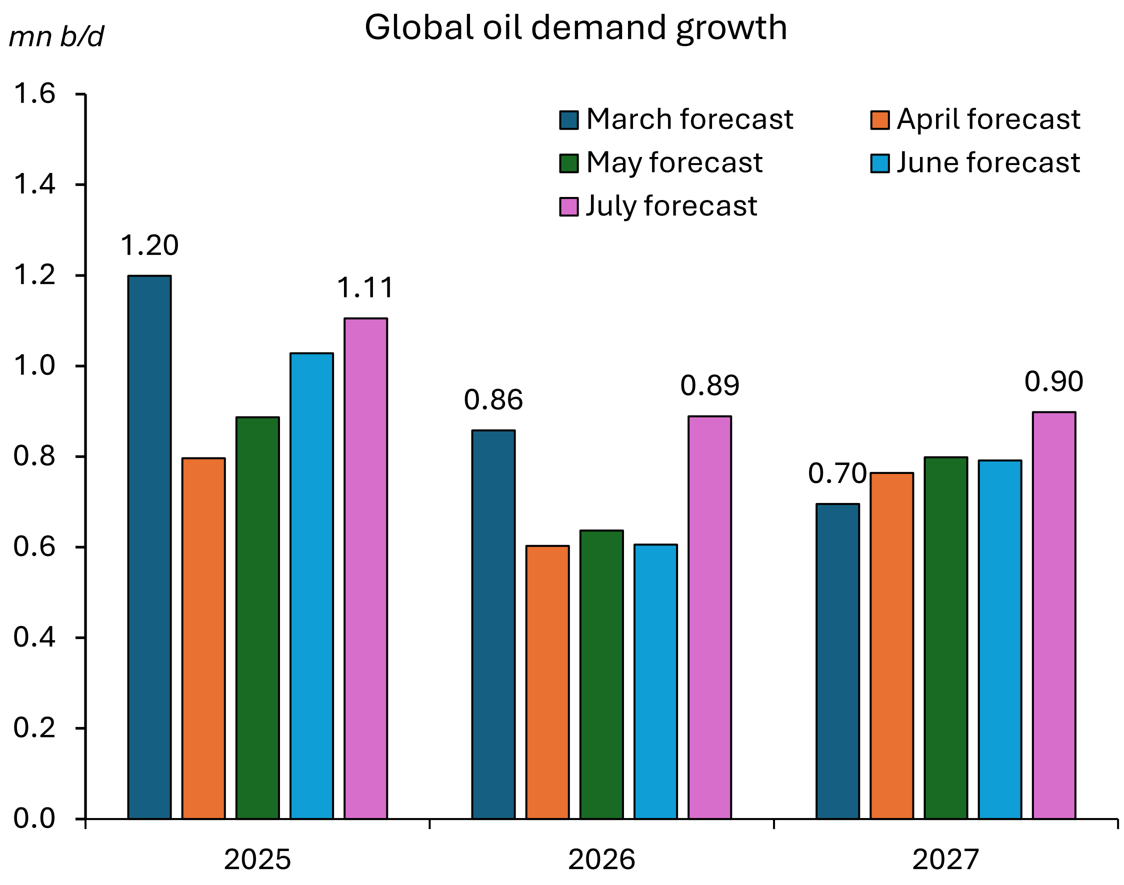
Russia now the focus of the Trump administration



Global GDP and oil demand forecasts have been steadily revised as US tariffs policy evolves

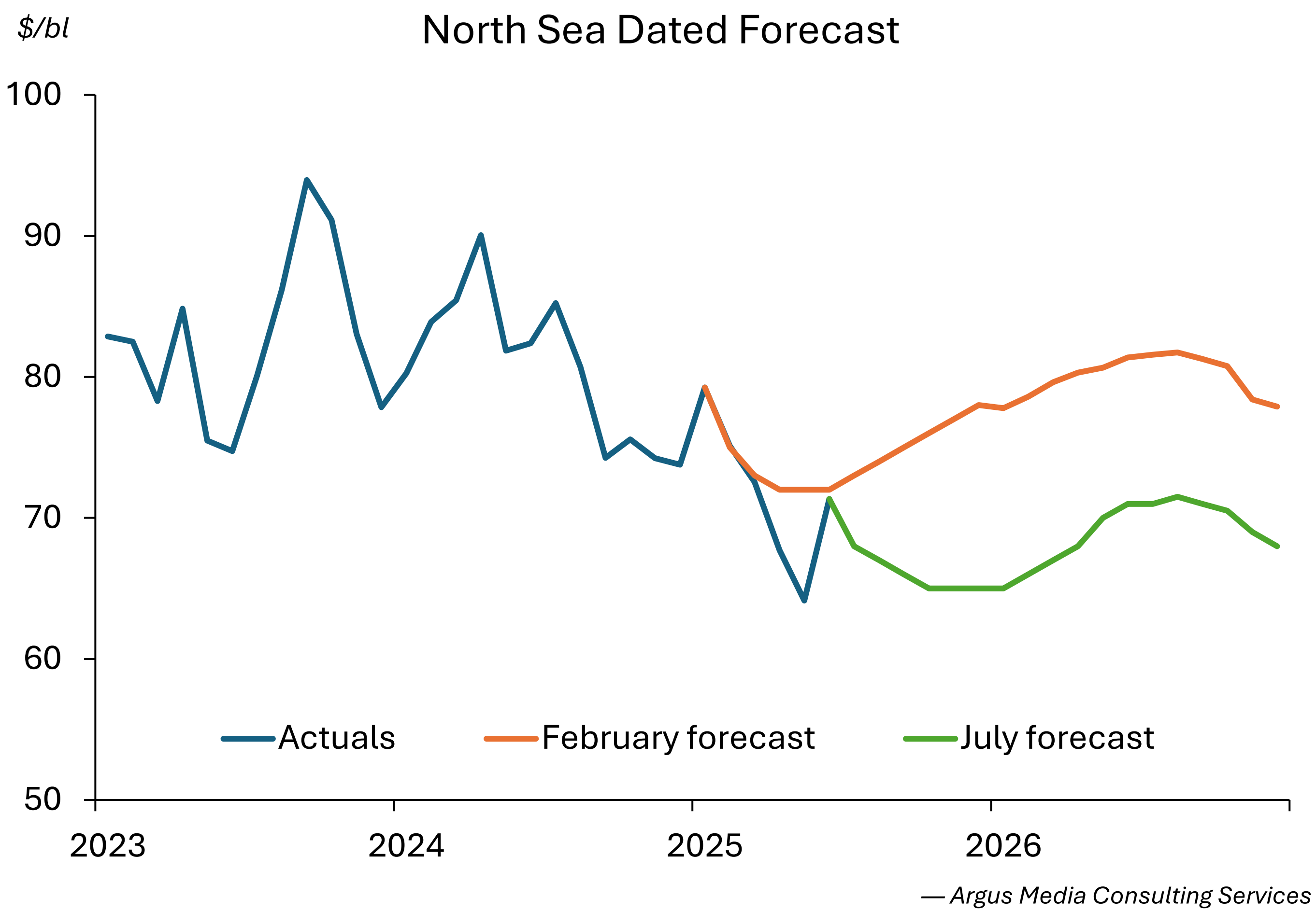


— *Oxford Economics*



— *Argus Media Consulting Services*

Drastic acceleration of Opec+ cuts unwinding has pushed prices expectations down by $10/bl



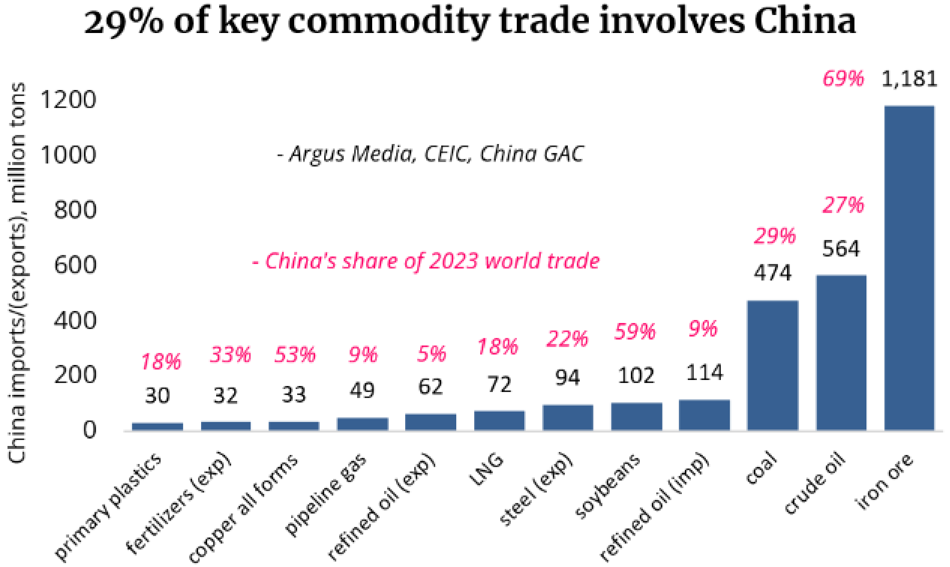
Downside risks

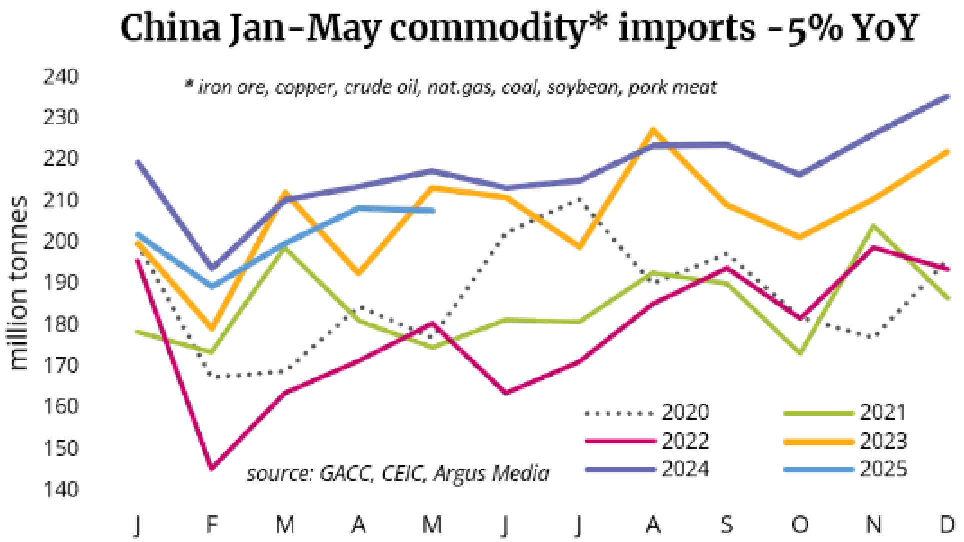
- US tariff negotiations result in high tariffs
- US shale proves more resilient to lower price environment
- Venezuela sanctions waiver

Upside risks

- Sanctions on Russia, Iran
- Opec+ planned production hikes fail to materialise

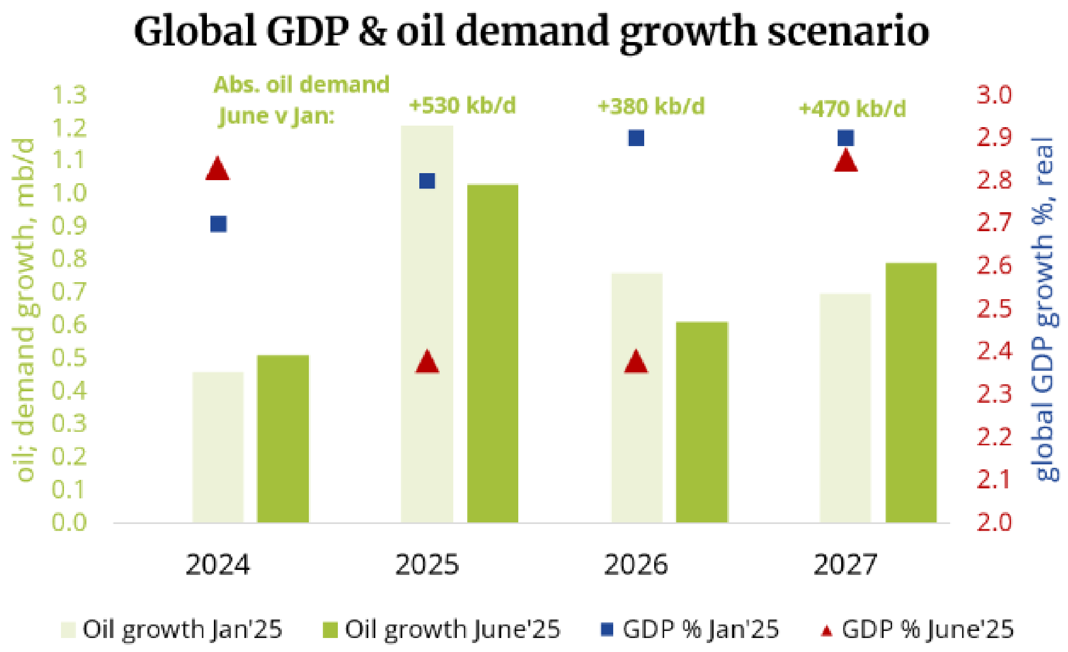
China in the trade war crosshairs

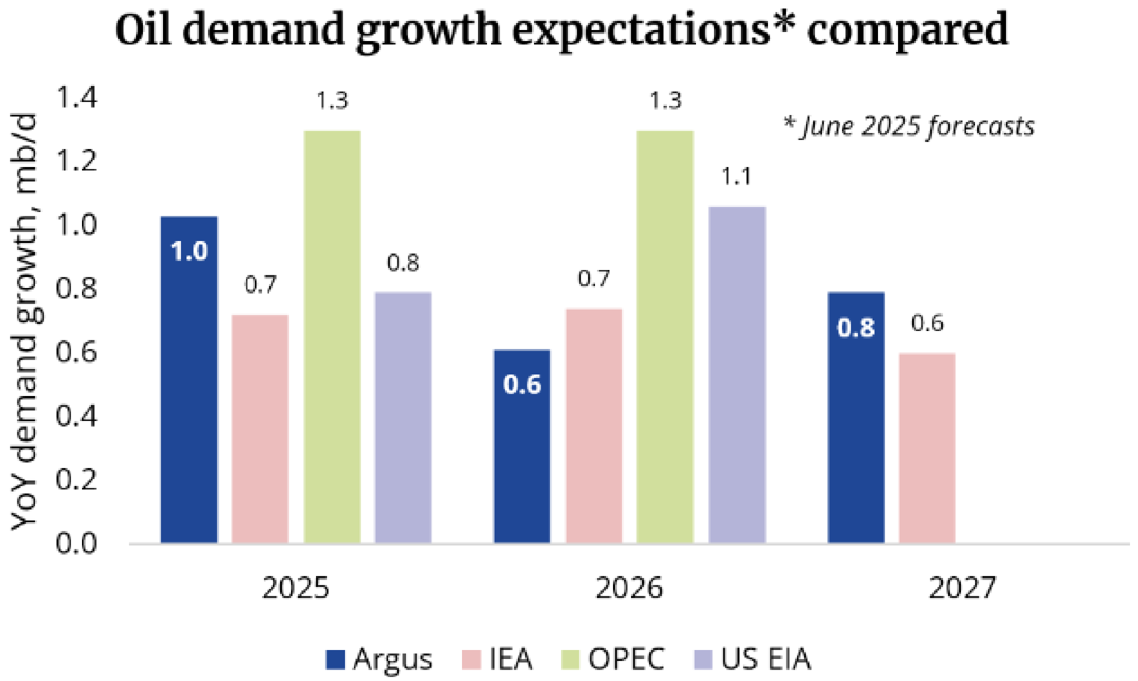




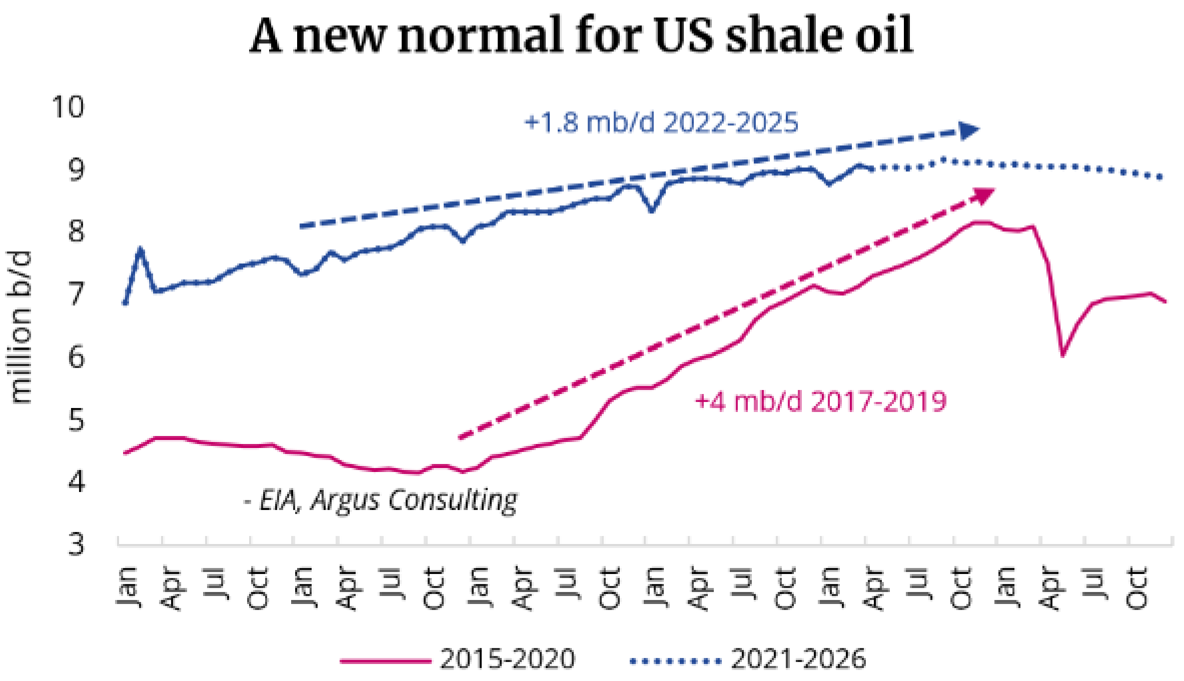
- China is the US' principal target with tariffs.
- Manufacturing/export slow-down will weigh on *some* commodity imports (*not* crude so far).
- More fiscal stimulus focused on consumers required to prevent deflationary spiral.
- Also some modest monetary stimulus.

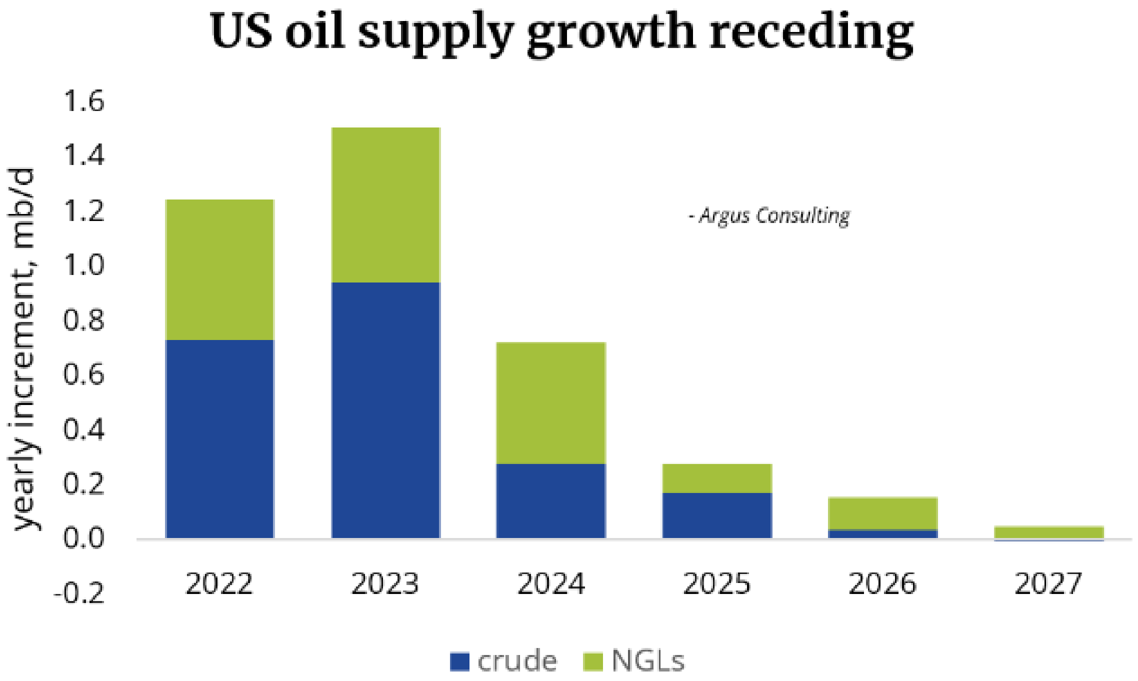
“Tariff light” assumption limits hit to oil demand growth





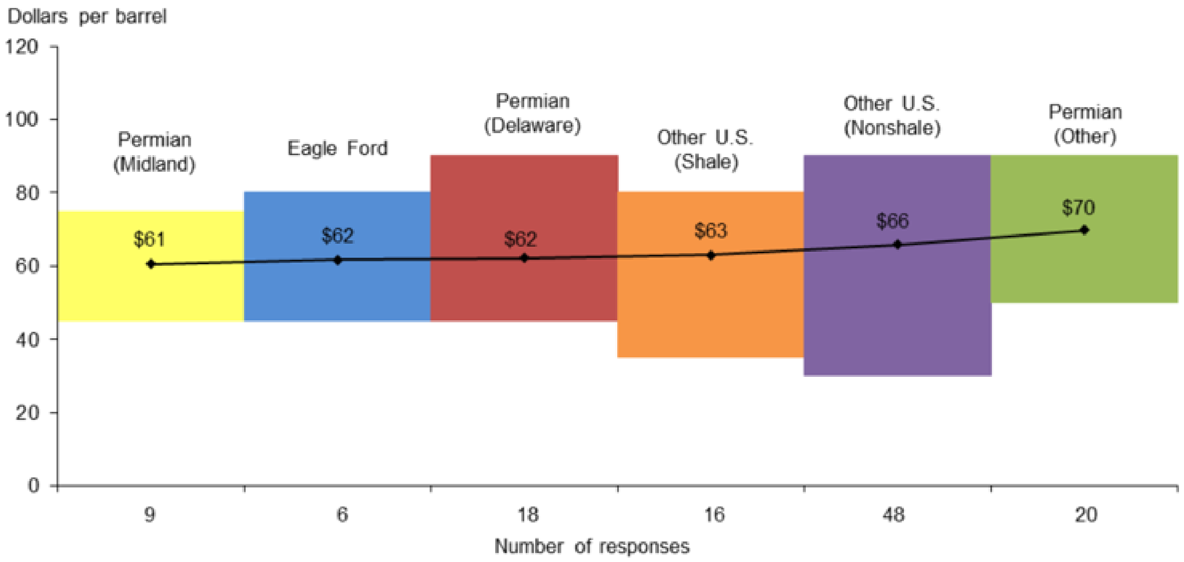
“Drill baby, drill” may not move the US oil supply needle much





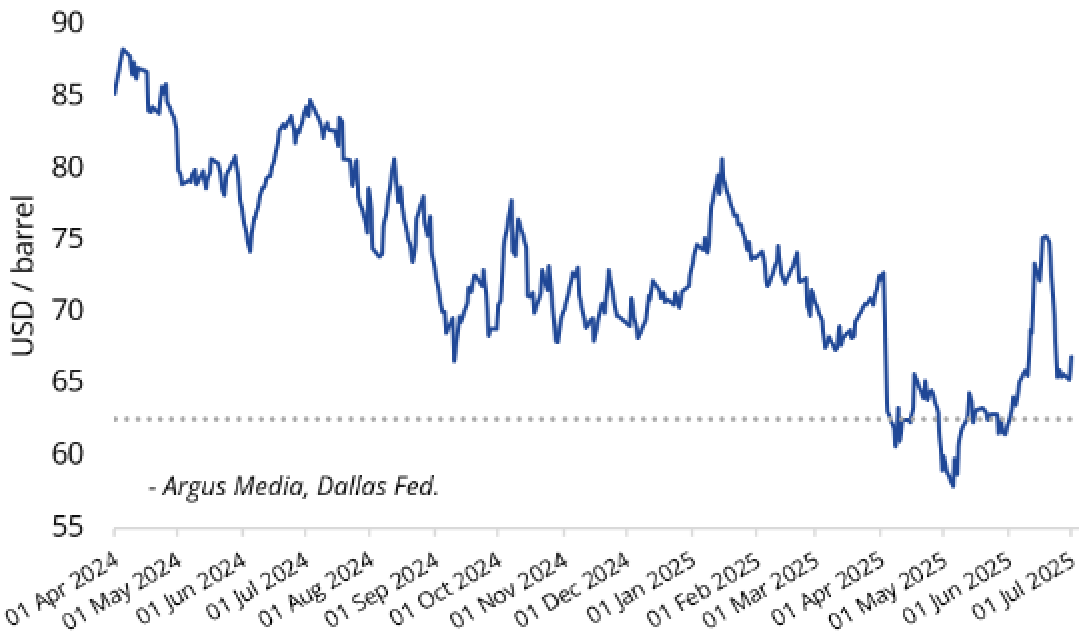
US shale: $50 crude & +3mb/d o.e. output are incompatible

WTI price to drill new wells



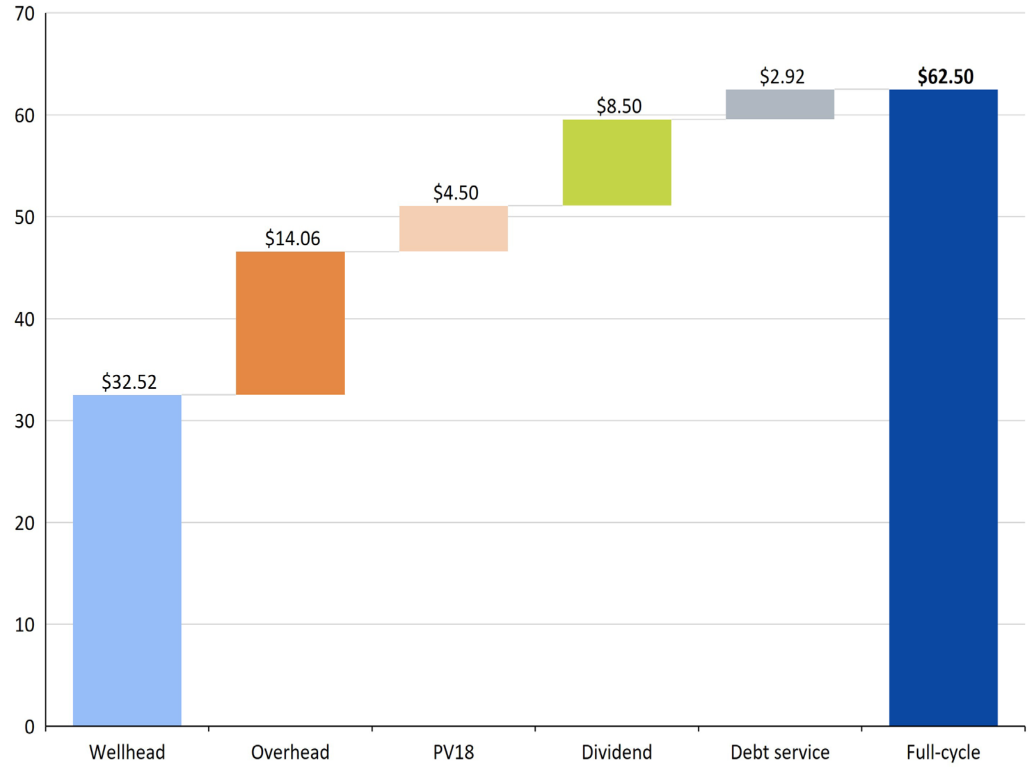
NOTES: Lines show the mean, and bars show the range of responses. Executives from 81 exploration and production firms answered this question during the survey collection period, March 12–20, 2025.
SOURCE: Federal Reserve Bank of Dallas.

WTI Midand & new shale well breakeven

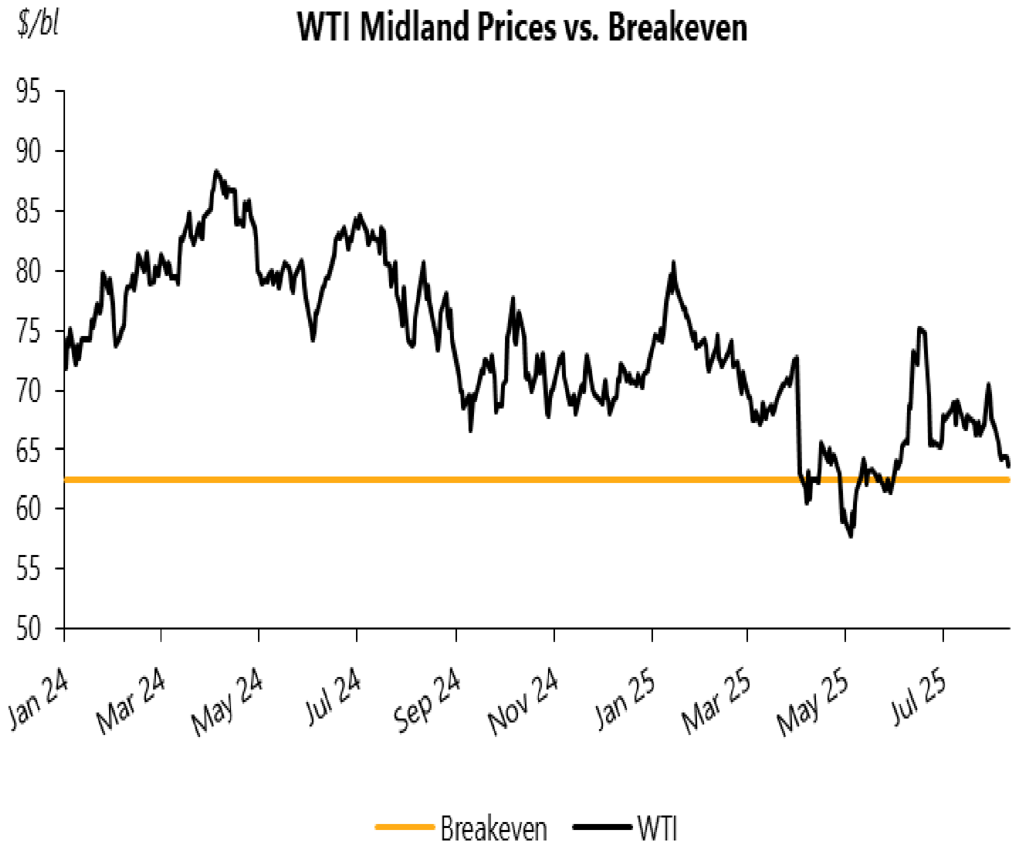


WTI hovering around breakeven price of $62.50/bl

Figure 4: Full-cycle breakeven price for US shale oil plays
USD per barrel

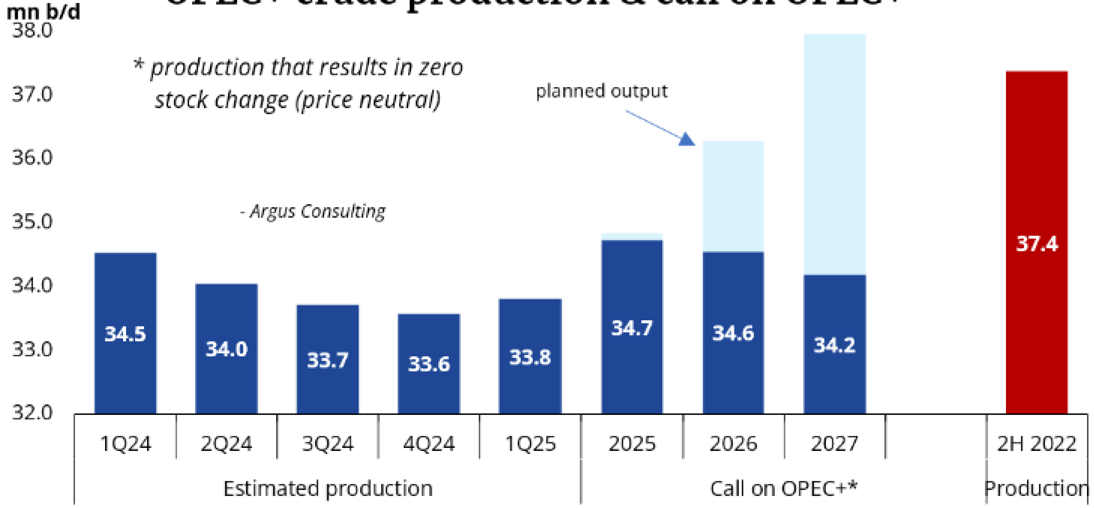


Source: Rystad Energy ShaleWellCube; Rystad Energy research and analysis

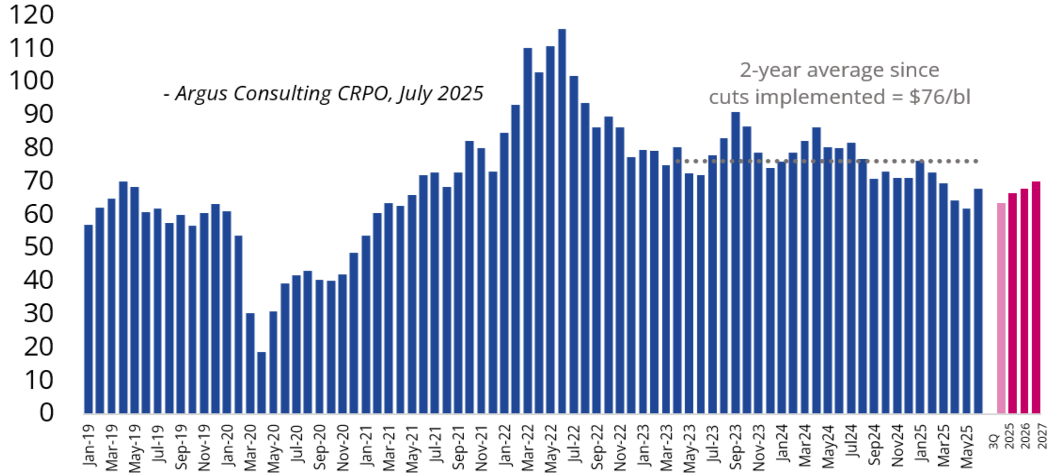


Holding the line with our crude price forecast for now

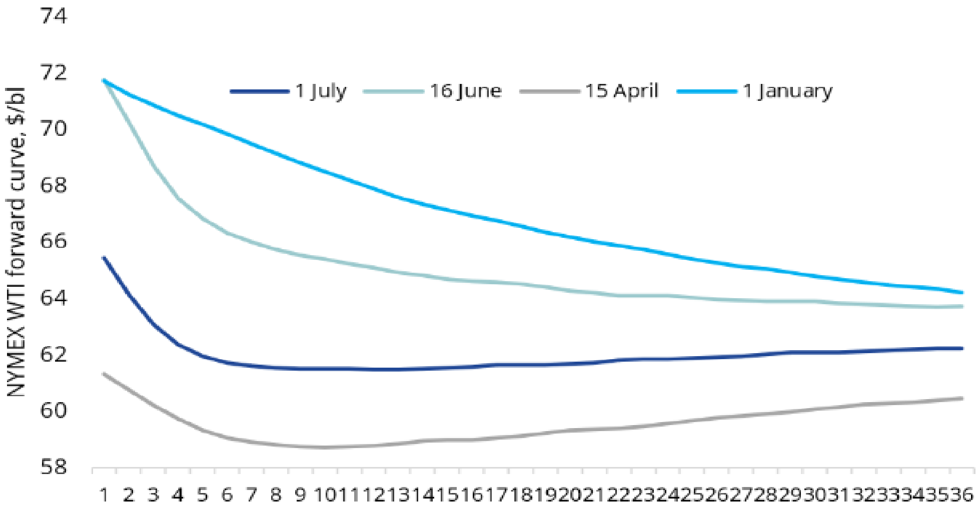
OPEC+ crude production & call on OPEC+*



WTI Houston forecast, $/bl



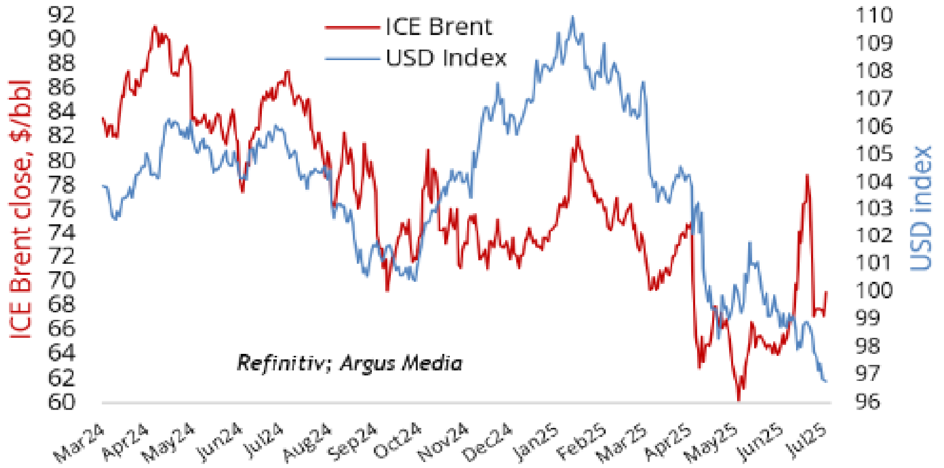
Volatile WTI time structure



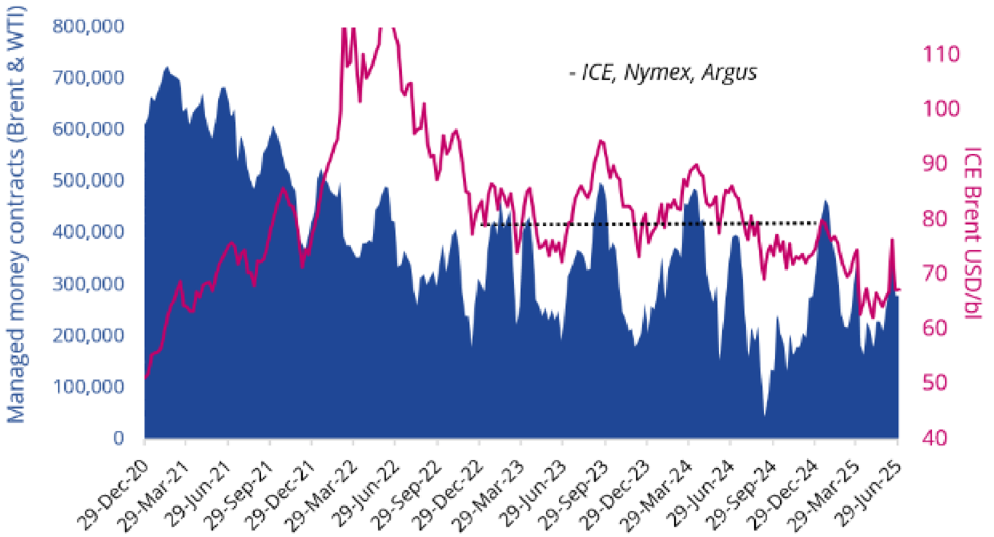
- Accelerated tapering of voluntary supply cuts, if sustained, could advance potential market surplus into 2H 2025.
- We retain a belief that ultimately price will matter more than market share to key OPEC+ decision makers.
- Argus assumptions remain that:
  1) Trump tariffs will ultimately be negotiated down to lower levels than initially announced;
  2) OPEC+ will eventually return to regulating supply to minimise market surplus.
- But downside risks to crude prices are multiplying.

Crude prices sliced & diced

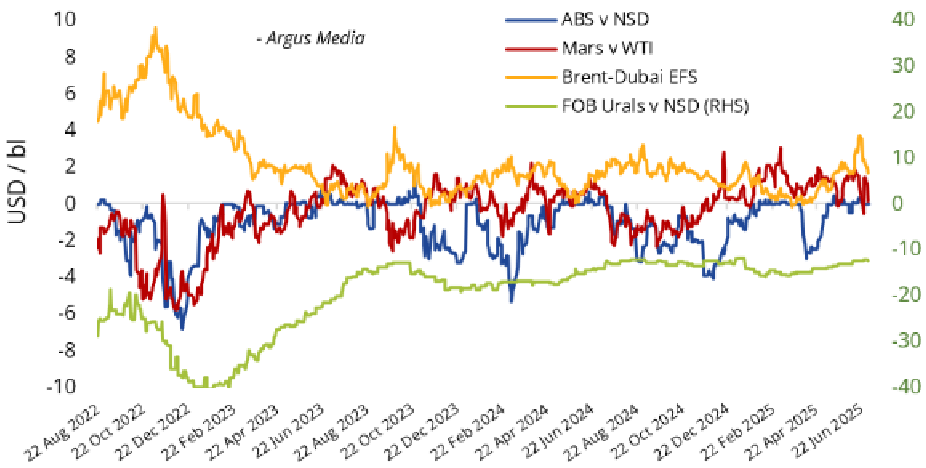
Brent and the US Dollar Index



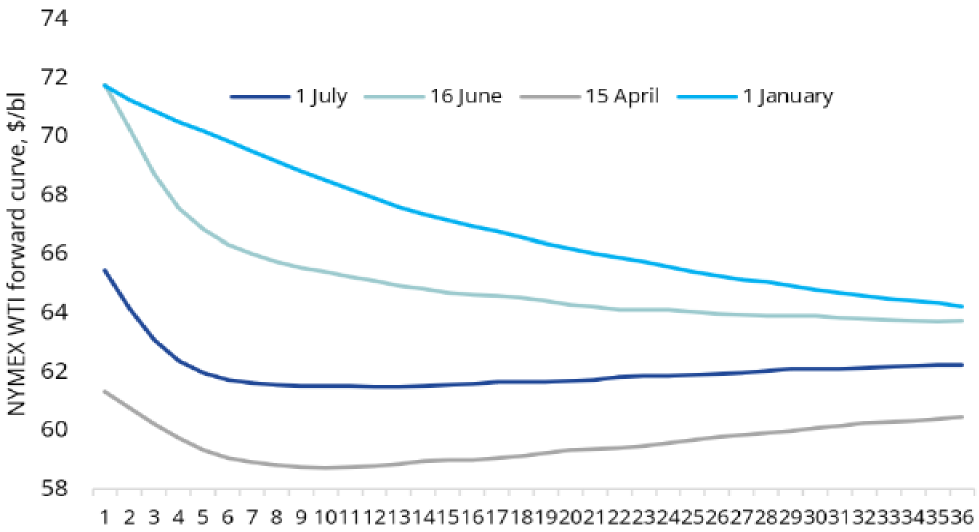
Crude speculative net length & ICE Brent



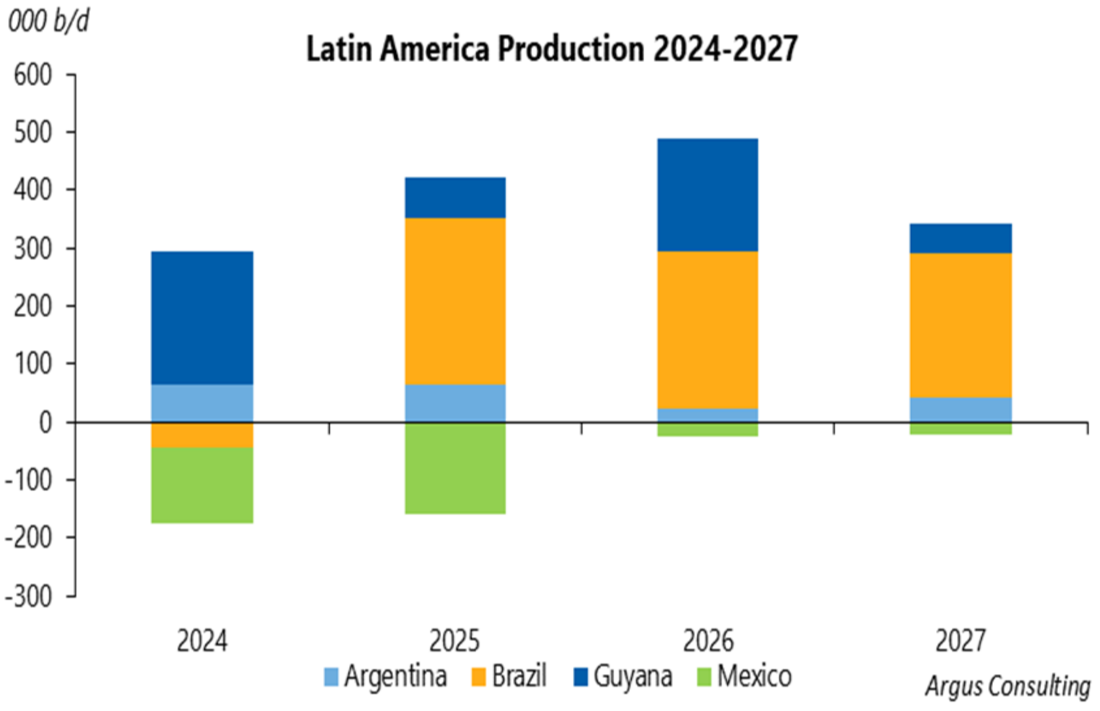
Sour crude strength persists

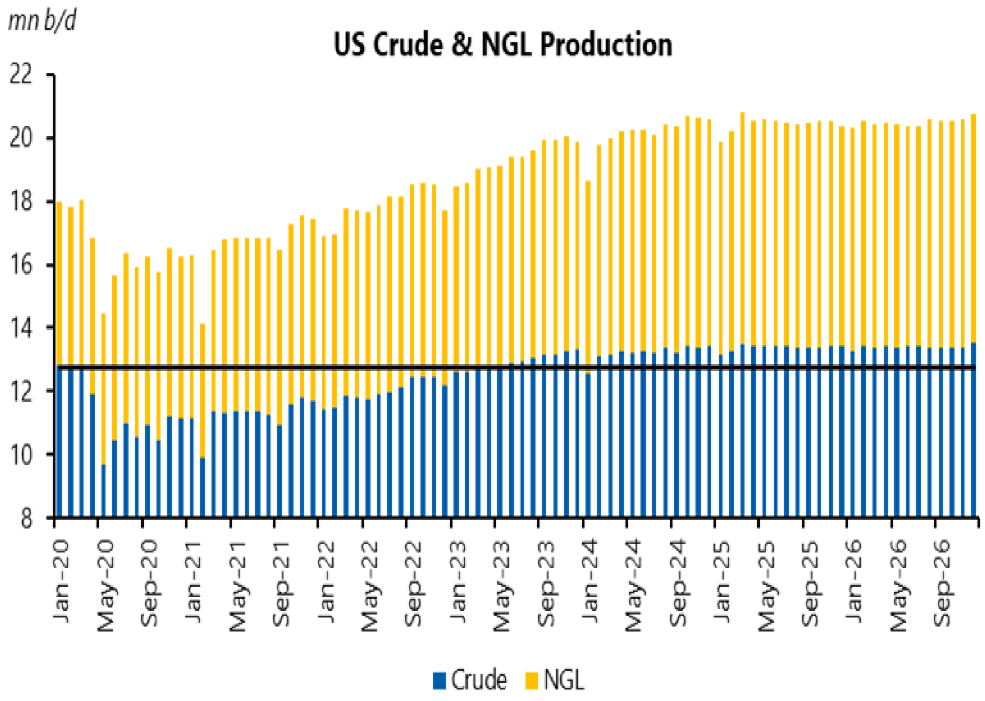


Volatile WTI time structure



Latin America continues to grow production – while the US struggles





Trends shaping global crude flows

A world of new variables will determine crude flows

Summary

- It is difficult to find any fundamentals supporting higher prices. By almost any measure, the market faces mounting oversupply if Opec+ pursues accelerated tapering.
- We already see a global stockbuild in the first quarter of this year, and we also put the market's need for Opec crude over the remainder of 2025 well below where production will be if the tapering process continues as planned whether or not Riyadh gets its way over continuing to increase aggressively in August and September
- This view does not fit with recent price rises. We should acknowledge that our crude price forecast is at odds with the fundamentals presented in the balance table. Regular readers, we hope, will understand that the table displays what we think will happen if what Opec+ currently plans is delivered. It assumes the accelerated programme through July and the more muted original March schedule beyond that. It is a market characterised by oversupply and therefore, potentially, low prices. For this reason it almost certainly will not happen.
- In 40 years, it is possible to count on one hand the number of times that prices have been left to look after them-selves. It happens on those rare occasions when the tensions of market management become too much to bear This could be such a time. But if there were to be a break-down in Opec+ cohesion, it would be brief - it always is. We are comfortable continuing to forecast prices at levels that are at odds with the global balance we show - in the expectation that Opec(+) will always eventually return to manage the market

Near-term price drivers

	Bullish	Bearish
Fundamentals	▲ Opec+ output hike for July not as large as feared by market ▲ Opec+ incremental crude exports tempered by surge in direct crude burn and refinery runs in Mideast Gulf ▲ Canadian wildfires/US hurricane season can threaten output ▲ Peak demand season in the northern hemisphere	▼ China crude stocks at record highs (Kpler) ▼ Brazil output up 14pc y-o-y in Apr, new FPSO on stream in May ▼ Norway's Johan Castberg field starts production
Sentiment	▲ Presidents Trump and Xi resume direct trade discussions ▲ Iran talks appear at a dead-end ▲ Russia-Ukraine escalation with Kiev's latest drone attack ▲ US Senate may introduce new Russia sanctions legislation	▼ Little progress in US trade talks with Japan, EU and other key trading partners, with end of 90-day tariff pause approaching ▼ Tariff uncertainty keeps GDP and oil demand growth projections on the soft side ▼ Longer-term concerns over US deficit
Macroeconomics	▲ ECB cuts policy rate to 2pc ▲ US dollar and treasuries markets stabilise ▲ Equity markets in recovery ▲ Likely short-term US boost from Trump's budget bill	▼ Weekly US jobless claims hit seven-month high ▼ Trump administration doubles steel and aluminium tariffs ▼ Gold market again breaching historical highs ▼ May manufacturing PMIs weak for US, Europe and China

Source: Argus Crude and Refined Products Outlook, June 2025

Now add infrastructure factors to crude flow calculus

Texas **rig counts** falling. Will WTI prices in low $60s cut rigs, build "DUCs" and cut exports of Permian light crude?

Could **new light crude processing capacity** in the US Gulf coast (recent refinery closures) also keep more Permian in the US?

Kazakhstan and Iraq have many **newly completed fields**, already producing above their OPEC+ targets. So does a 411kbd rise from OPEC+ really result in 411kbd of new crude on the market?

TMX is major new infrastructure that gets about 500kbd to the Pacific; has removed bottlenecks on pipelines to US Gulf. But will Canadian producers boost output to the point of the return of apportionment? Enbridge had 4% apportionment for June.

OPEC+ goes with 411kbd initial rise in May

OPEC+ were to add the 2.2mn b/d of allocation cuts back into the market at a rate of 137kbd each month from May ‘25 through September ‘26

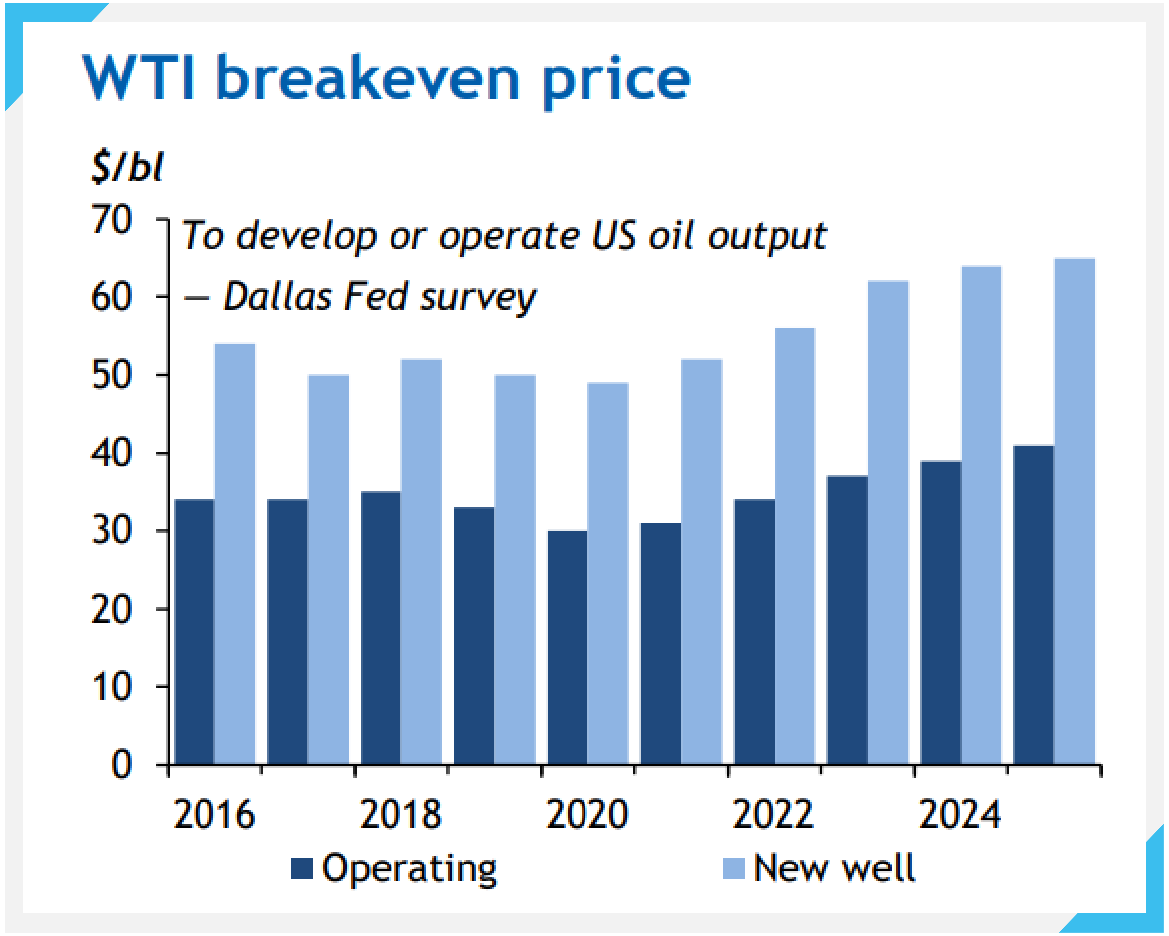
Not clear if they will return to the 137kbd monthly increments from August ’25

Iraq and Kazakhstan have been under the microscope for violations

New Opec+ targets *('000 b/d)*	May target	± Apr target	Compensation*, May	Effective rise
Saudi Arabia	9,200	166	6	160
Iraq	4,049	37	135	-98
Kuwait	2,443	22	15	7
UAE	3,015	77	10	67
Algeria	919	8	na	8
Russia	9,083	79	76	3
Oman	768	7	10	-3
Kazakhstan	1,486	13	57	-44
Total	**30,963**	**411**	**309**	**102**

*For previous overproduction

Oil & gas sector already feeling the pain



Source: Argus Global Markets, 4 April 2025

- **At $50 oil, production would decline significantly**
- **"$70 is the new $50"**
- **WTI breakeven prices for new wells up by 30% since 2020**
- **Tariffs hit op costs**

Lower oil prices and rising costs are squeezing profits for cash-hungry producers across the Texas-New Mexico shale oil sector. "At $50/bl oil, we will see US oil production start to decline immediately and likely significantly," another executive says. "The US oil cost curve is in a different place than it was five years ago; $70/bl is the new $50/bl." Average breakeven WTI prices for profitably drilling new wells are up by a third since 2020, rising from $49/bl to $65/bl this year, in the Dallas Fed survey (*see graph*). Operating costs are rising even faster, up by 37pc to $41/bl in 2020-25. Oil trade may be exempt from Trump's tariff plans, but most of the equipment and materials needed to produce it are likely to be affected. "The administration's tariffs immediately increased the cost of our casing and tubing by 25pc," another survey respondent says.

A timeline of US 2025 import tariffs

1 Feb

Announcement:

Canadian and Mexican oil imports to receive a **10pc tariff** starting 4 Feb

25pc tariff on all other imports from Canada and Mexico

3 Feb

Announcement:

30 day pause on all tariffs on Canada and Mexico.

Tariffs to come into effect on 4 March

4 Mar

Tariffs imposed as previously announced

4 Mar – 7 Mar

Canada and Mexico oil tariffs imposed

7 Mar

Announcement:

Goods covered under **USMCA free trade agreement** to be **exempt** from tariffs

This includes an exemption for oil imports

2 Apr

Announcement:

'Liberation Day' reciprocal tariffs announced

USMCA goods still exempt from tariffs

5 Apr

Baseline 10pc tariffs and **higher reciprocal tariffs** to come into effect

Oil imports still exempted

9 Apr

90 day pause on non-China import tariffs

US tariff on China hiked to 145pc

China tariff on US hiked to 125pc

8 May

US-UK trade deal announced

Certain sectors for each country see tariffs removed and markets opened up

12 May

90 day pause on US-China trade war

US tariffs on China reduced to 30pc

China tariffs on the US reduced to 10pc

Argus sees oversupply and lower prices through 1Q26

Forecast crude prices *($/bl)*									
	May	**Jun**	**Jul**	**Aug**	**2Q25**	**3Q25**	**2025**	**2026**	**2027**
Ice Brent	64.01	64.00	64.20	64.10	64.80	**64.50**	**67.80**	**69.10**	**71.10**
Nymex WTI	60.94	61.00	61.20	61.10	61.60	**61.50**	**64.60**	**66.60**	**68.60**
North Sea Dated	64.14	65.00	65.00	65.00	65.60	**65.30**	**68.60**	**69.90**	**71.80**
WCS Hardisty	50.78	50.80	50.10	49.70	51.40	**50.40**	**53.40**	**54.00**	**54.90**
WCS Houston	57.51	57.30	57.30	56.80	58.20	**57.50**	**60.90**	**62.30**	**63.40**

Summary of global oil balance *(mn b/d)*												
	1Q24	**2Q24**	**3Q24**	**4Q24**	**2024**	**1Q25**	**2Q25**	**3Q25**	**4Q25**	**2025**	**2026**	**2027**
Demand	100.6	102.3	102.5	102.4	**101.9**	101.6	102.3	103.6	103.7	**102.8**	**103.4**	**104.2**
Global balance*	0.5	-0.4	-0.9	-0.3	**-0.3**	0.4	0.8	0.8	1	**0.7**	**2.5**	**4.1**

*equivalent to global stock change, assuming Opec+ production cuts get unwind as per official Opec announcements at the time of publication

Source: Argus Crude and Refined Products Outlook, June 2025

Impressive Crude System

Links Canadian Crude into the US Refining system

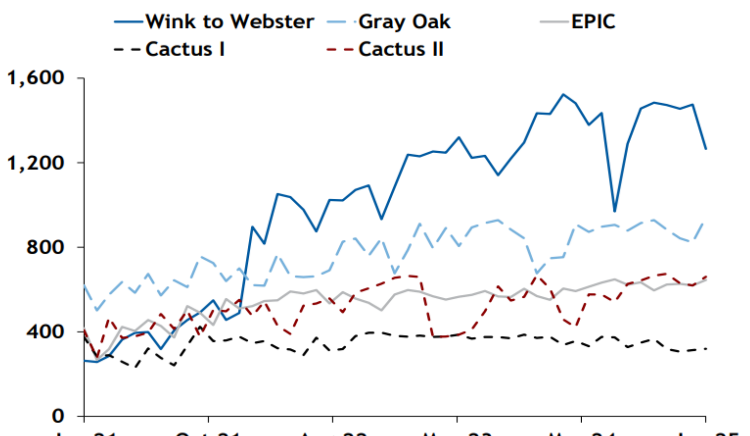
Major Pipelines into the International export market of WTI Crude

Focus on US Gulf coast

Infrastructure makes it the global crude trade crossroads

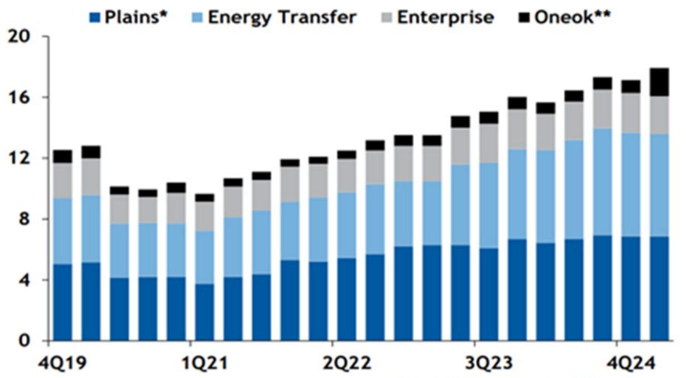
US export crude pipeline network is flexible, but few new mega projects given unknown costs/tight capital

Key Permian pipelines monthly deliveries *('000 b/d)*



— Texas Railroad Commission

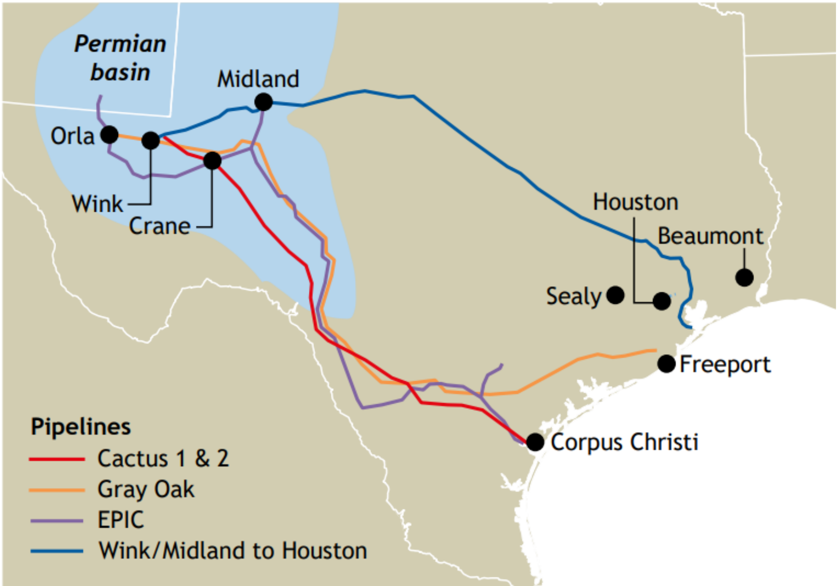
US Midstream company crude pipeline thruputs *(mn b/d)*



**Total Permian tariff volumes*
***Formerly Magellan*
— Company financials

"Buying, not Building" (eg ONEOK)

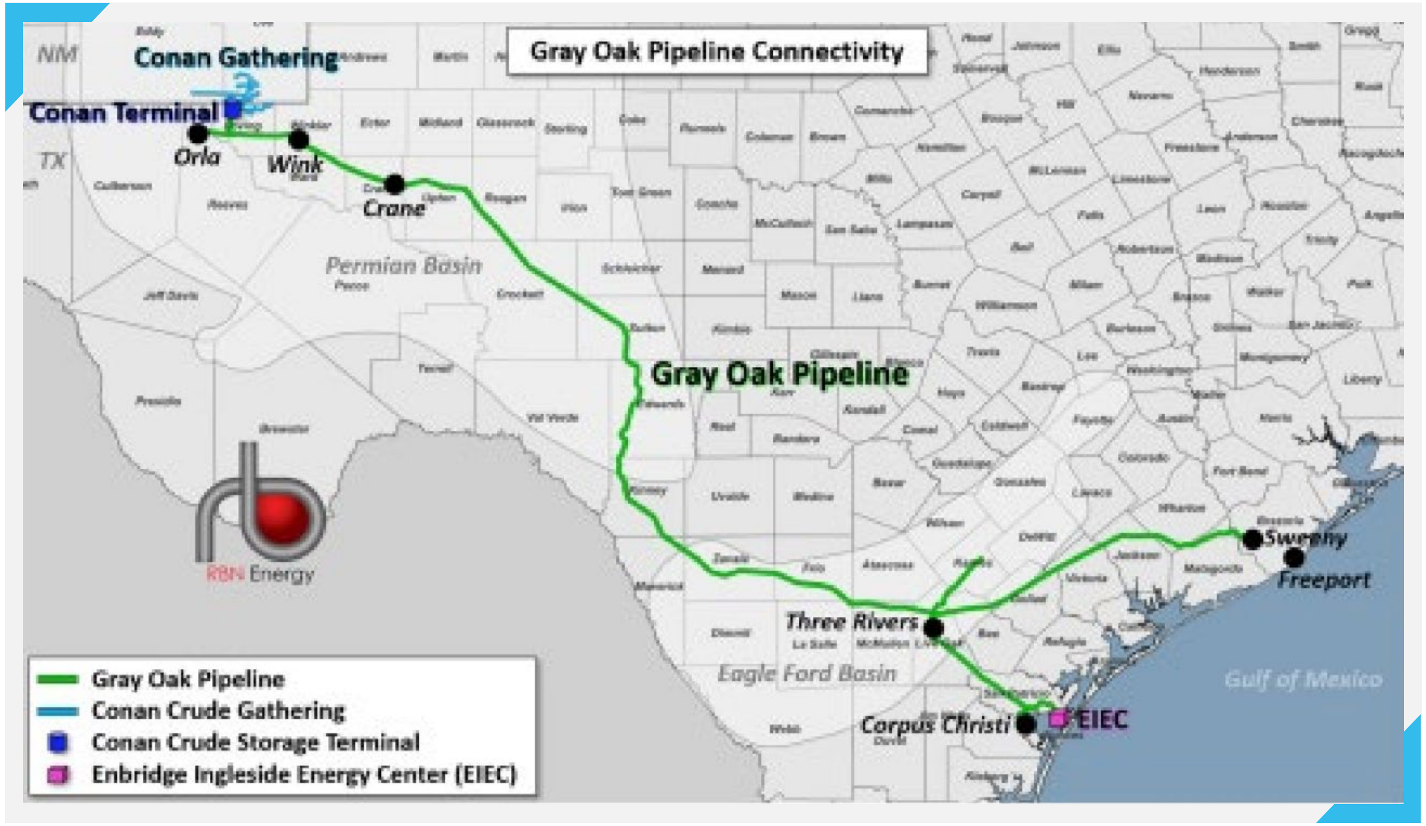
Key Permian basin pipelines



Source: Argus Petroleum Transportation, 16 May 2025

Enbridge Gray Oak example of incremental build out

- Gray Oak jointly owned by Enbridge (68.5%), Marathon Petroleum (25%) and P66 (6.5%)
- Recently added 80,000 b/d westward expansion to pull crude from Wink, Orla and Marathon's Conan gathering hubs. Eagle Ford connects at Three Rivers
- Gray Oak is pursuing a 120kbd capacity expansion, of which 80kbd was completed in April 2025. The remaining 40kbd capacity boost will come in April 2026. Total capacity will be 1.02mn b/d. DRA may be part of the plan.
- Enbridge also expanding capacity at its Ingleside dock complex (EIEC), which already accounts for 30% of all US crude exports.
  Adding 2.5mn bl of new storage at EIEC; total storage will be 20.5mn bl in 2026
- Recent completion of Phase II of Corpus Christi Channel Improvement Project (dredging +) now enables EIEC to load up to 1.6mn bl onto a 2mn bl VLCC (so only one Aframax needed to top off the VLCC). Lower cost operations.

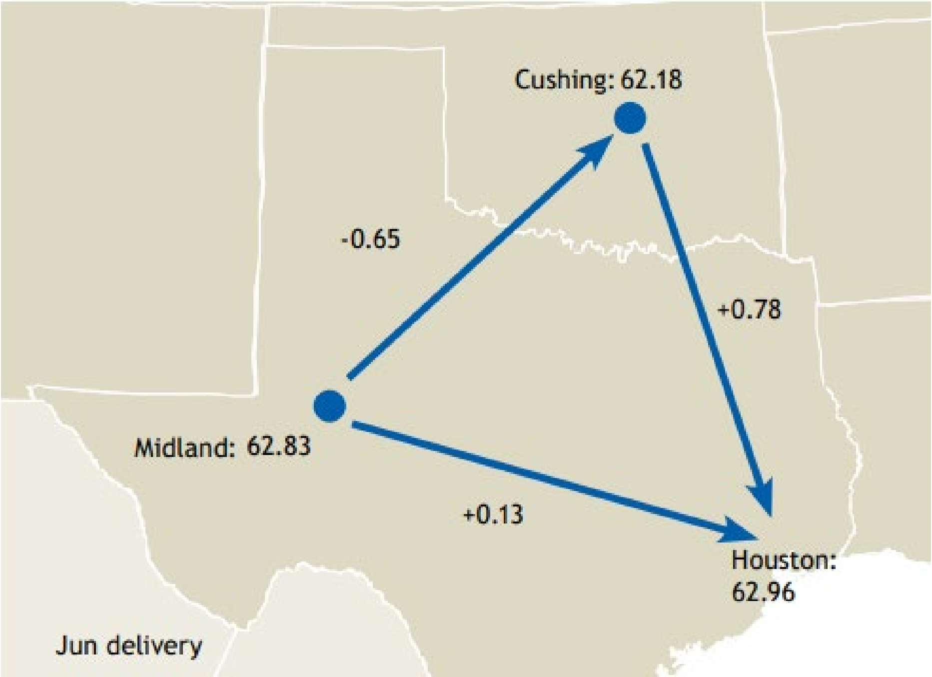


Source: RBN blog, 22 May 2025

Midland-Houston Spread Changes

WTI Mid to Houston spread

WTI regional prices and spreads *($/bl)*



Midland-Houston price spread hit $22.35/bl on 28 Aug 2018

On Friday, 23 May 2025 the spread was 13 cents

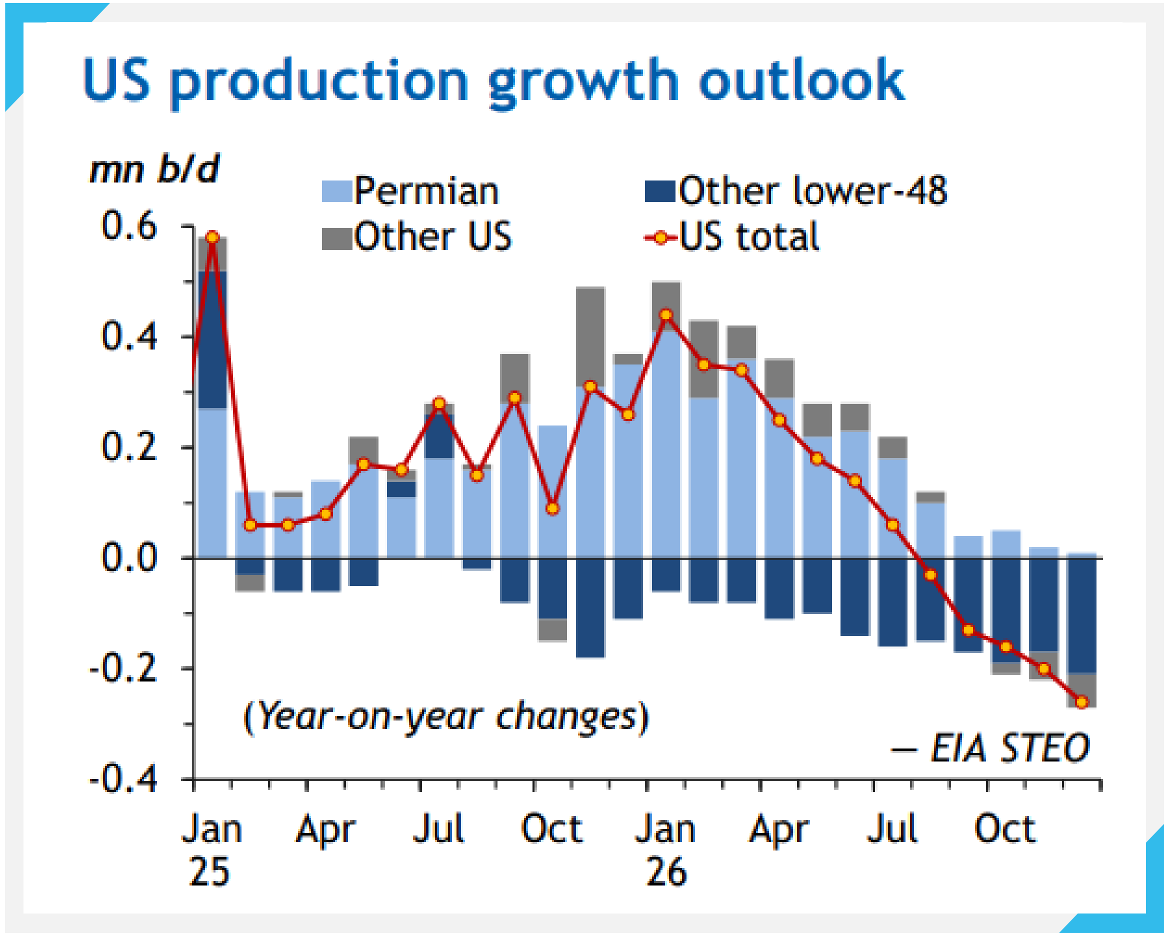
Infrastructure makes US Gulf coast the "epicenter" of global light crude price discovery

Why it's the Epicenter:
9.9mn b/d production meets 9.5mn b/d refining capacity + 4.3mn b/d exports

Market implications:
The US Gulf nexus of supply & demand makes WTI a global benchmark price:

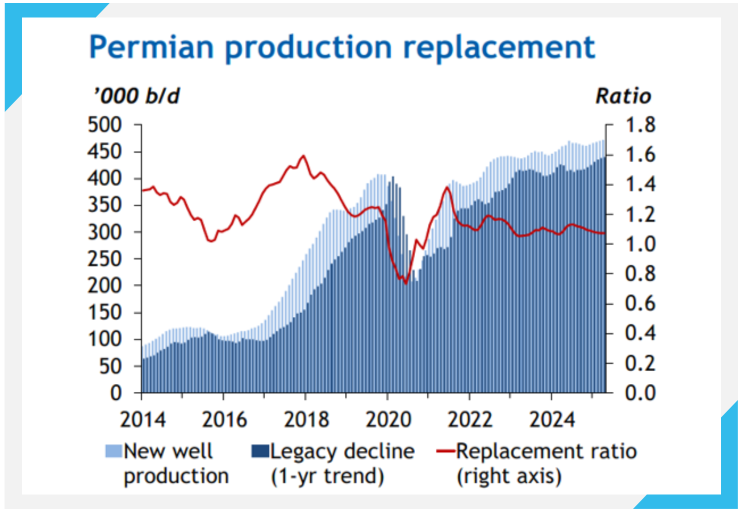
- June of 2023 – WTI begins setting the price of North Sea Dated roughly ½ of all trade days; often > 1mn b/d of WTI going to Europe.
- Transparency of US pipeline markets (specifically WTI Houston at ONEOK's East Houston terminal) draw European refiners to buy WTI in US Gulf market instead of waiting for it to get to Rotterdam.
  - North Sea buyers hedge with WTI Houston.
  - WTI Houston now also in many Asian contracts
  - Price of WTI Houston determines flows globally.
- Thanks to pipeline and dock complex infrastructure, flows of WTI to Europe and Asia are essentially uninhibited.

EIA sees US crude output peaking late this year



Latest US EIA Short-term Energy Outlook (STEO) sees US tight oil output peaking in August 2025 at 9.3mn b/d. Permian output edges up past August, but other shale basins decline

COP and Diamondback among others talking about reduced capex spending in Permian



Permian must produce about 400,000 b/d of new oil each year to replace legacy well decline.

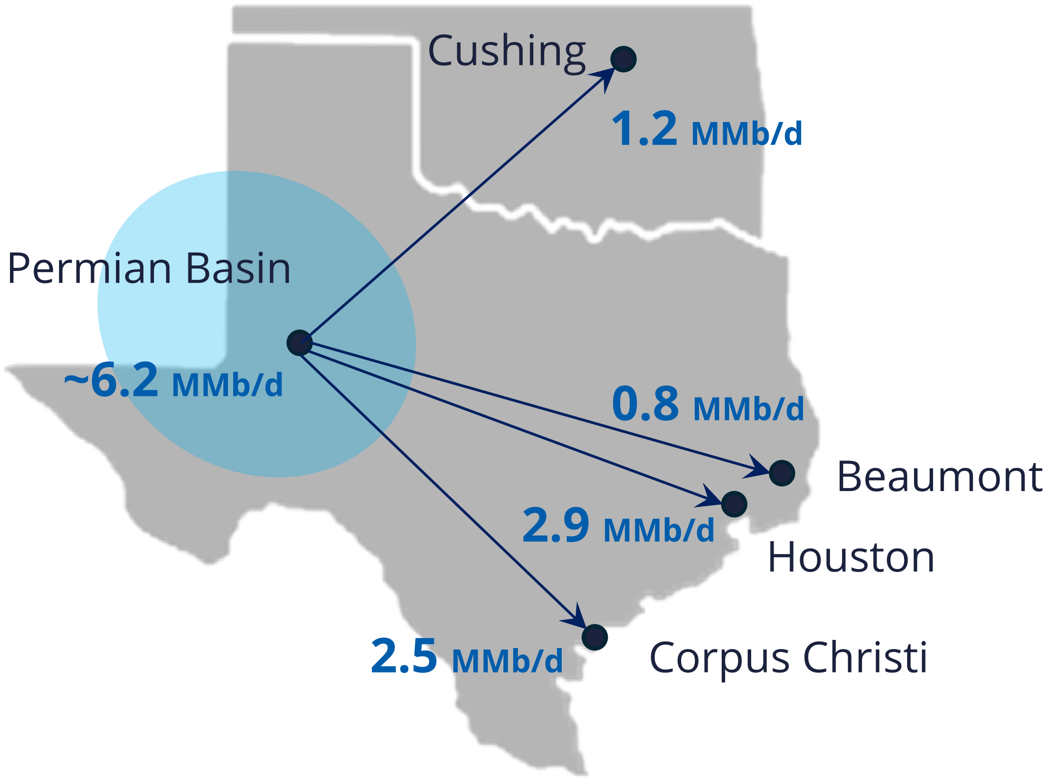
PADD 3 - Argus WTI Houston at the Epicenter of Crude Price Discovery

Production	Refining	Exports
12%	10%	10%
Of Global Oil Production	Of Global Refining Capacity	Of Global waterborne volumes

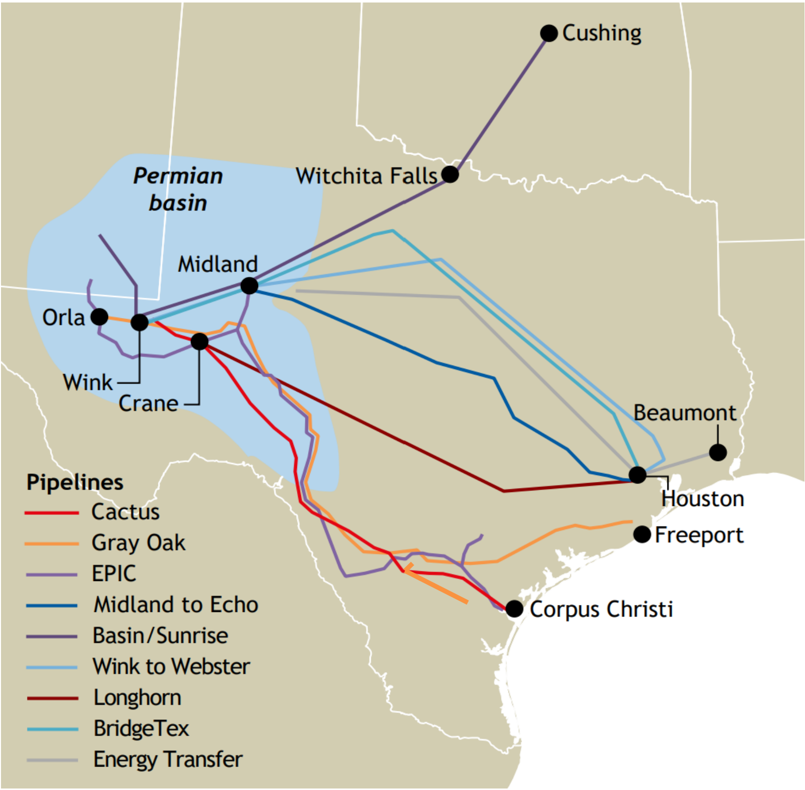
9.0+ mmb/d production	50+ complex refineries	4.0+ mmb/d exports
6.0+ mmb/d Permian Basin	10.0 mmb/d CDU capacity	20+ major loading terminals
7.5+ mmb/d Permian takeaway	16.4pc global coking capacity	70+ destination countries

Midland WTI: Pipeline Transportation

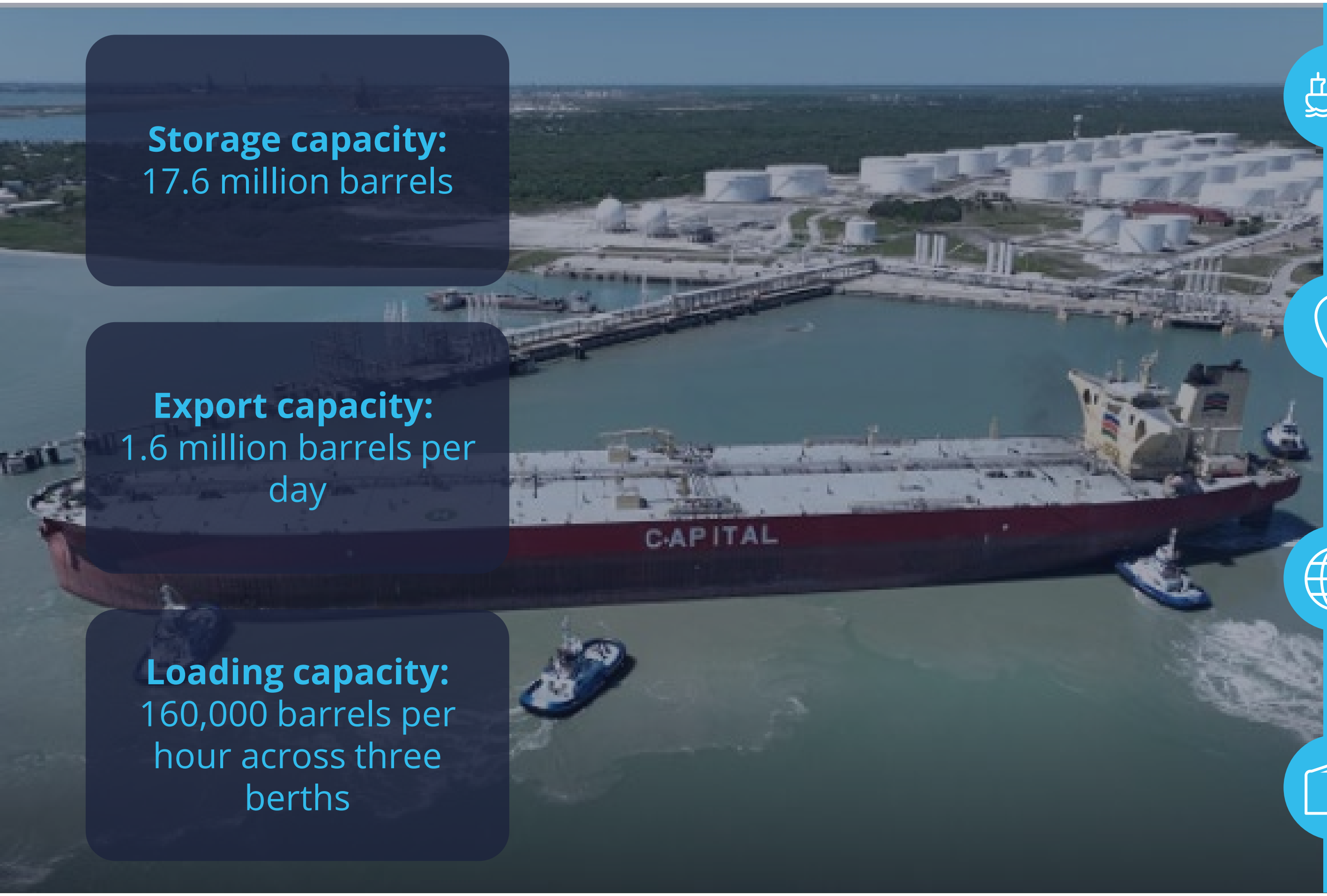
Permian Take-Away Capacity



Numerous Pipelines and Refinery Connectivity



Enbridge Ingleside Energy Center



EIEC is the largest crude oil export terminal by volume in North America, loading an average of 25% of all U.S. Gulf Coast crude exports yearly.

Its strategic location at Ingleside, Texas, positions the facility at the gateway of international shipping lanes. EIEC is a strategic intersection of pipeline connectivity and export optionality, making it a cost-advantaged location for transporting crude oil and other products.

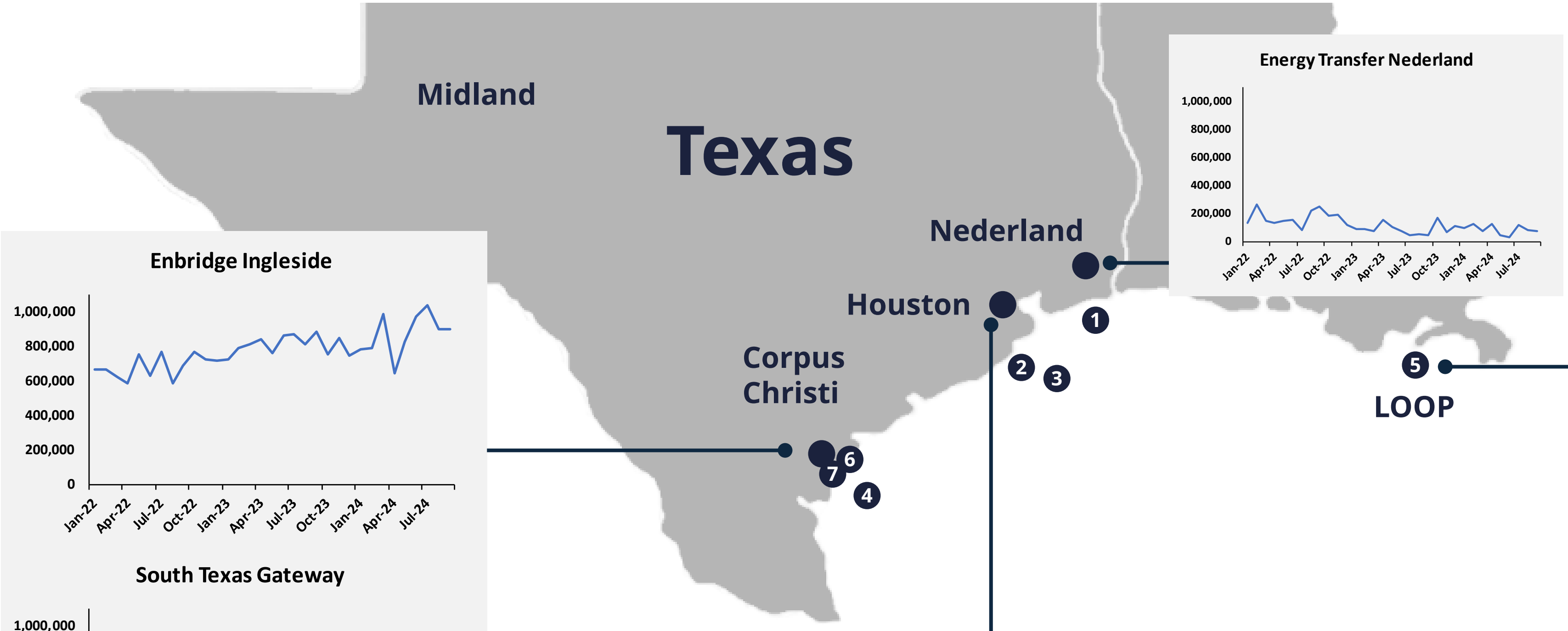
EIEC has been a key link in the expansion of WTI into international markets. In 2024, WTI was included in the Brent trading market, with EIEC barrels contributing to the price in the world market.

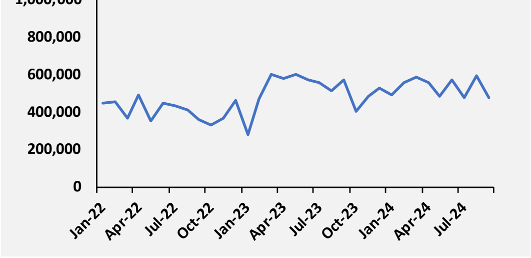
With direct connectivity to Cactus I, Cactus II, Gray Oak, EPIC, and Harvest, EIEC can receive multiple crudes into the facility from the Permian and Eagle Ford basins.

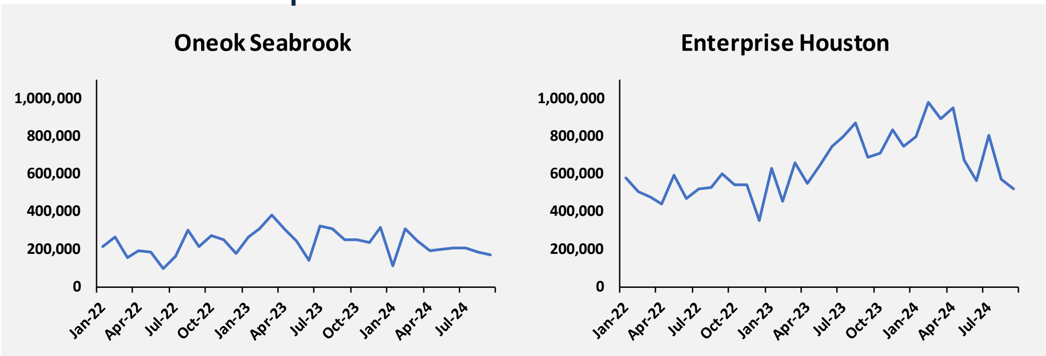
Gibson Energy Terminal – South Texas Gateway

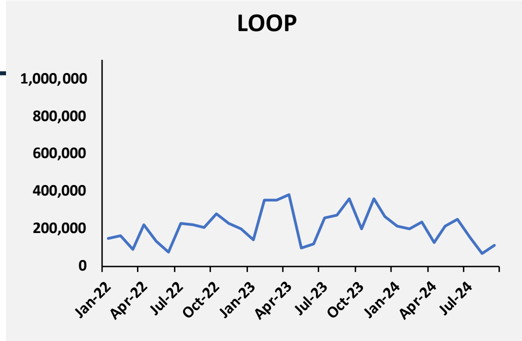
20 tanks, 8.6 million bbls
2.7 mbpd of Permian and Eagleford connectivity
2 Deep water docks for VLLC
2nd largest US crude export terminal

USGC Exports: Corpus Christi takes over as top hub









- Corpus Christi has consistently loaded more than 50pc of US crude exports since 2021
- Growth supported by 2020 infrastructure start ups:
  - 600,000 b/d Epic pipeline
  - 670,000 b/d Cactus 2 pipeline
  - 900,000 b/d Gray Oak pipeline
- Houston maintains optionality

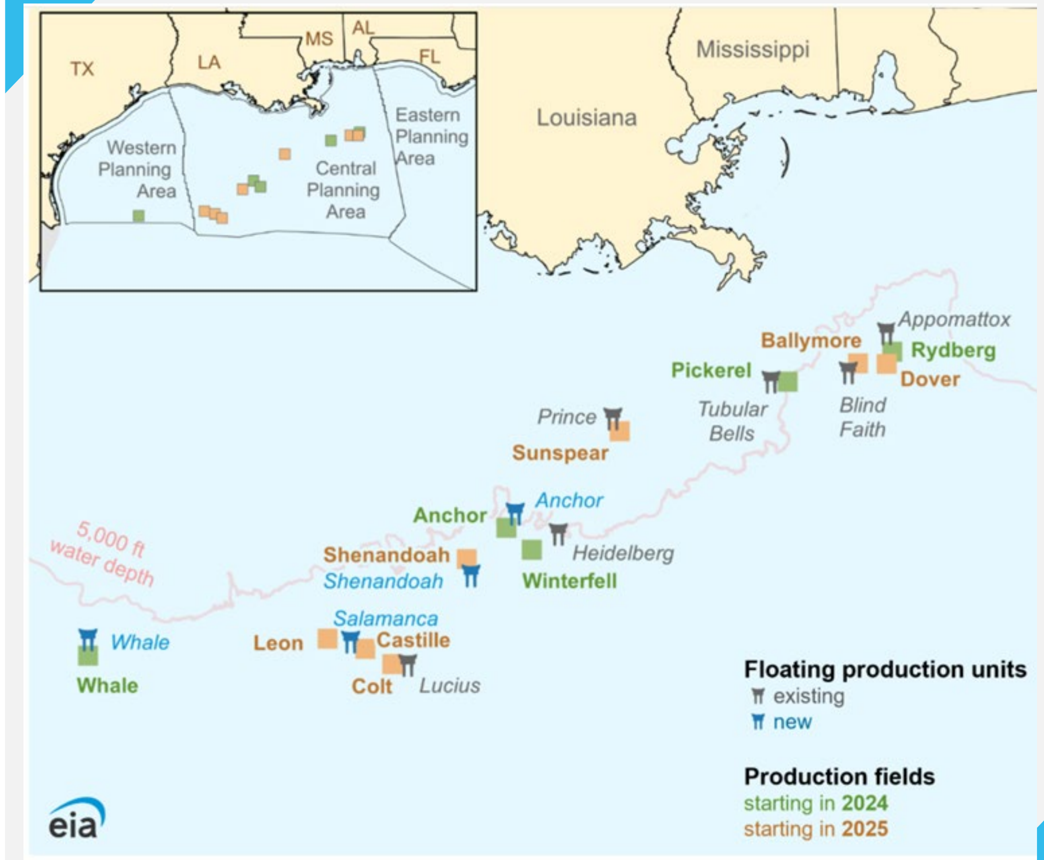
VLCC Loading Terminals

	Name	Owner	VLCCs/month
Planned			
1	Blue Marlin	Energy Transfer	20
2	SPOT	Enterprise/Endbridge	1/day
3	GulfLink	Sentinel Midstream	15
4	Bluewater	P66/Trafigura	16
Existing			
5	LOOP	Marathon/Shell/Valero	variable
6	EIEC (Partial)	Enbridge	variable
7	STG (partial)	Gibson Energy	variable

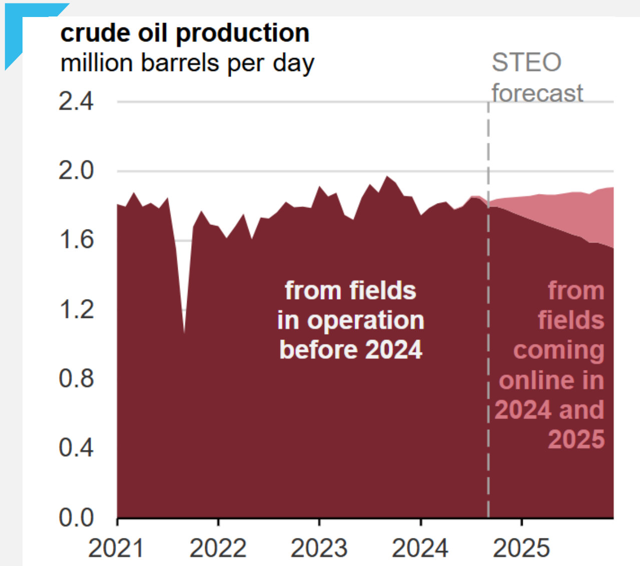
- Companies, MARAD applications

Don’t forget offshore US Gulf

New platforms adding medium sours



Source: US Energy Information Administration.



Supply of offshore US Gulf coast medium sours is rising; 12 new fields in 2024/25

Export demand for medium sour Mars currently down, but blending "synthetic" Mars in Asia has been popular:

- *WCS + Midland-quality WTI*
- *TMX + Murban or ESPO*

Infrastructure (free connection from ECHO to Beaumont on Seaway) makes WCS Houston work

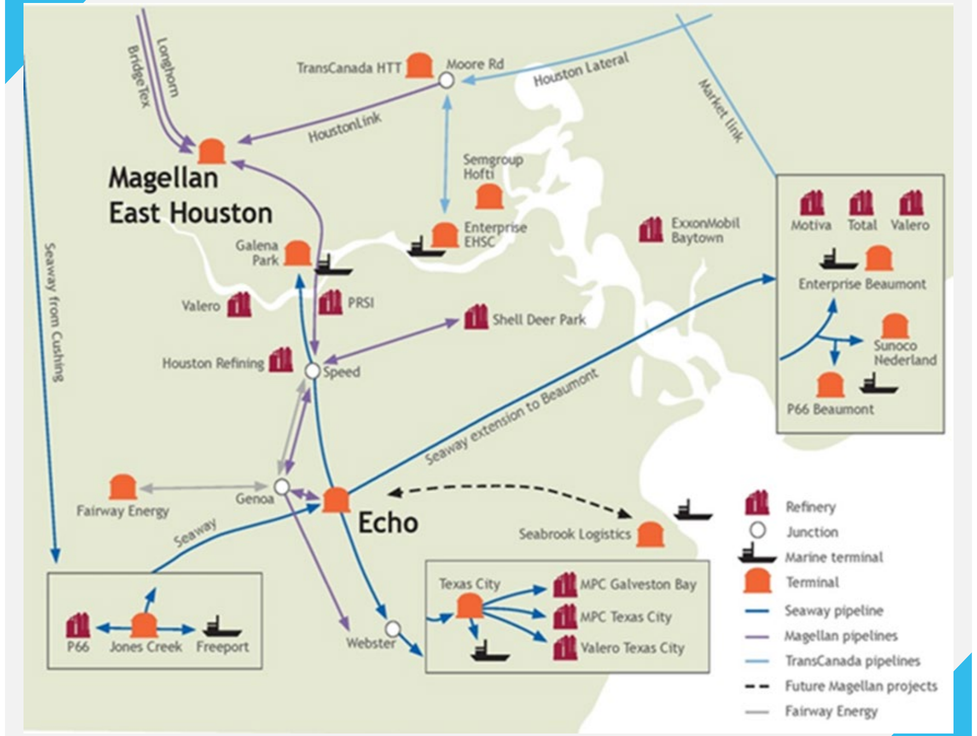
WCS Houston + VLCC freight to China competes with *Pacific Cold Lake fob Vancouver + Aframax freight to China* to determine where China sources its heavy Canadian crude

TMX High TAN DES Shandong competes with other delivered grades/determines crude flow to China:

Delivered Shandong prices *($/bl)*

Grade	Timing	Basis	Diff Mid	Low	High	Price	±
ESPO Blend	Jun	Aug Ice Brent	+2.00	66.51	67.11	66.81	+0.49
Djeno	Jul	Sep Ice Brent	+3.80	67.76	68.36	68.06	+0.72
Tupi	Aug	Oct Ice Brent	+4.30	67.77	68.57	68.17	+0.46
	Aug	Jul Dated	+3.20	na	na	na	-0.10
Johan Sverdrup	Aug	Oct Ice Brent	+5.30	67.67	70.67	69.17	+0.76
Oman	Jun	Aug Ice Brent	-2.20	62.11	63.11	62.61	+0.49
Urals	Jul	Sep Ice Brent	+2.00	65.96	66.56	66.26	+0.42
TMX high TAN	Aug	Oct Ice Brent	-2.30	61.37	61.77	61.57	-0.44

Source: Argus Crude, 20 May 2025



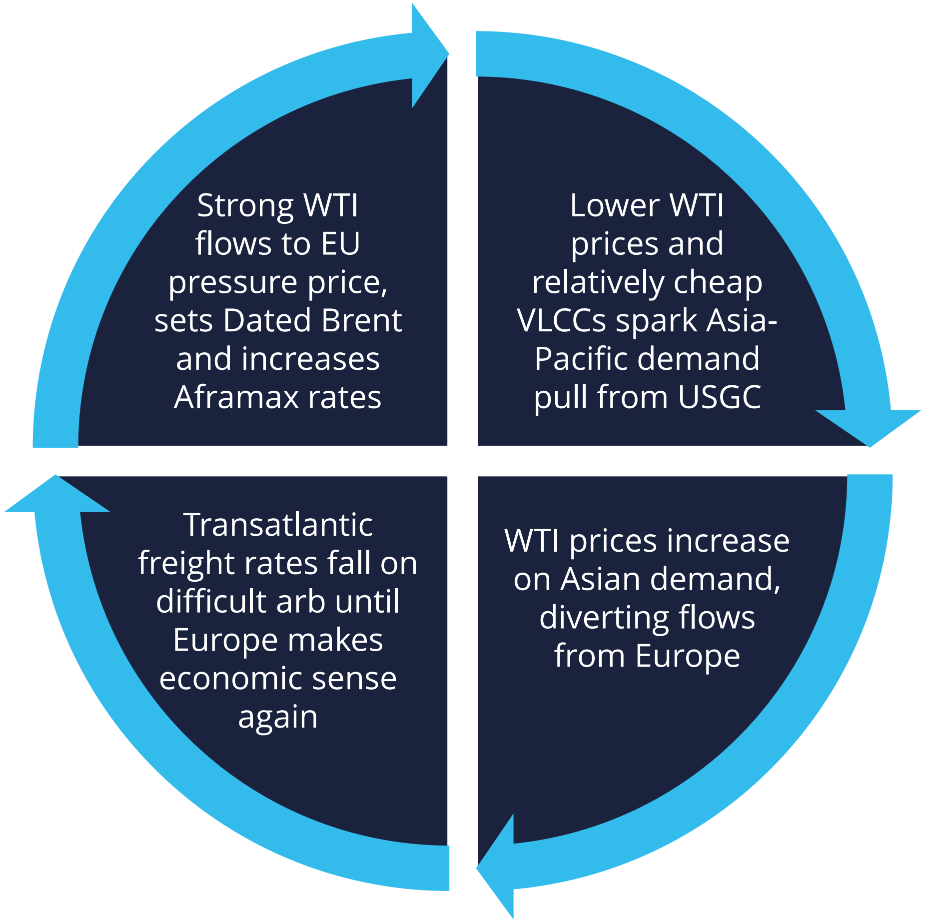
Quality:

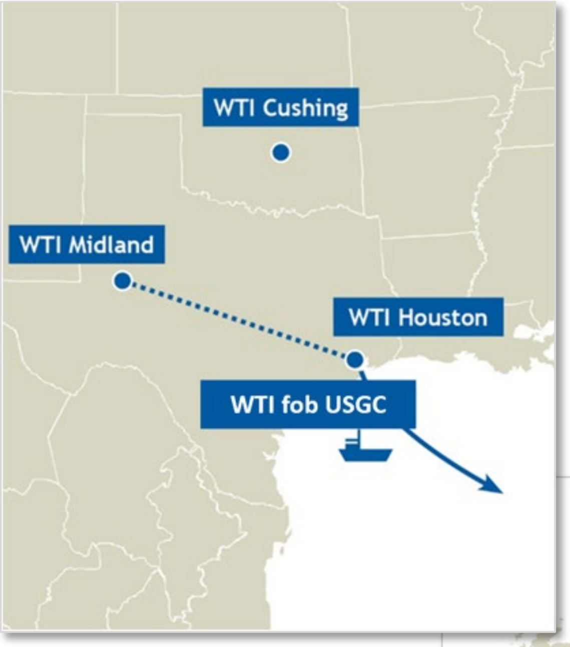
- Cold Lake and WCS quality converge after 1,000 miles (+) in pipelines, storage tanks.
- The grades typically trade within 5 cents of each other in Houston

Location:

- WCS and Cold Lake price at parity at ECHO, P66 Beaumont and Nederland terminals
- Argus WCS Houston physical price pools trades of CLK and WCS, typically reflects 300,000 – 400,000 b/d of reported trades

The cycle will always go on...

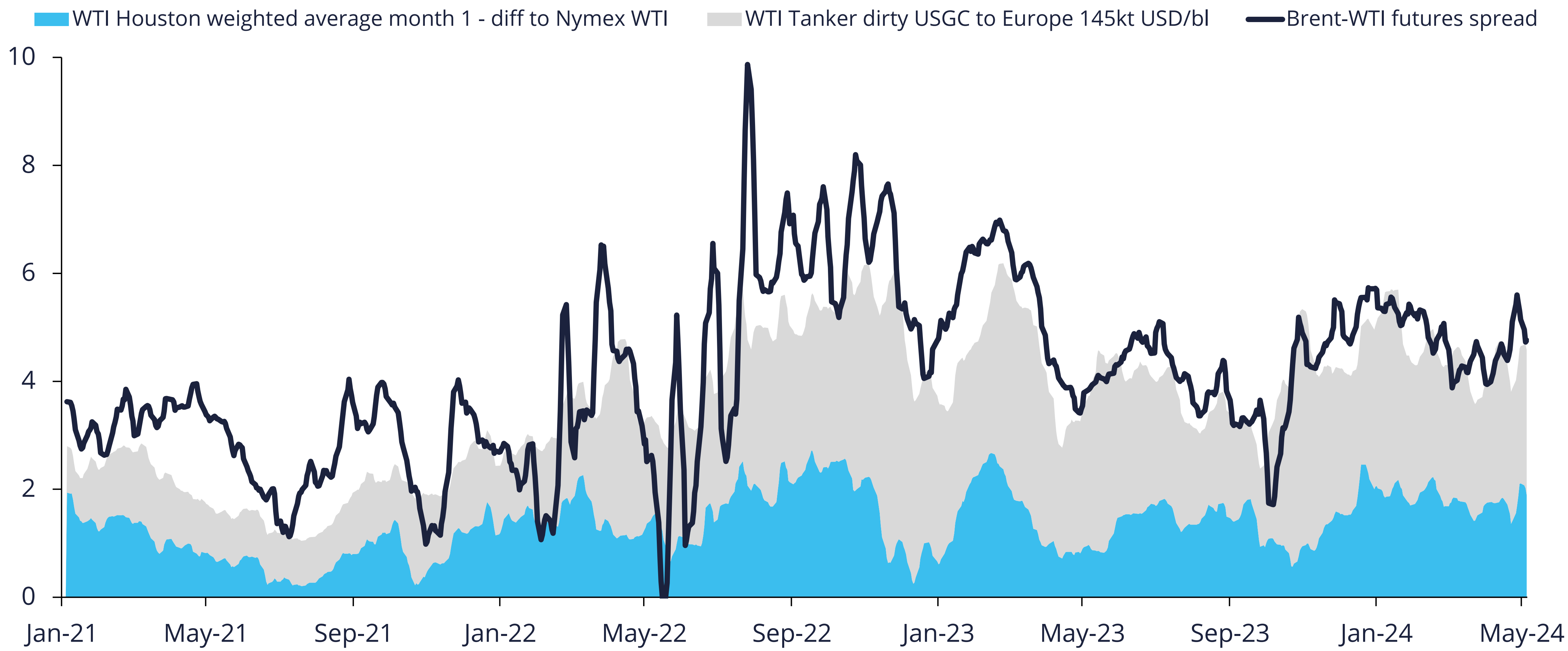




Each pricing point has a specific role to play in the ebbs and flows of the global market

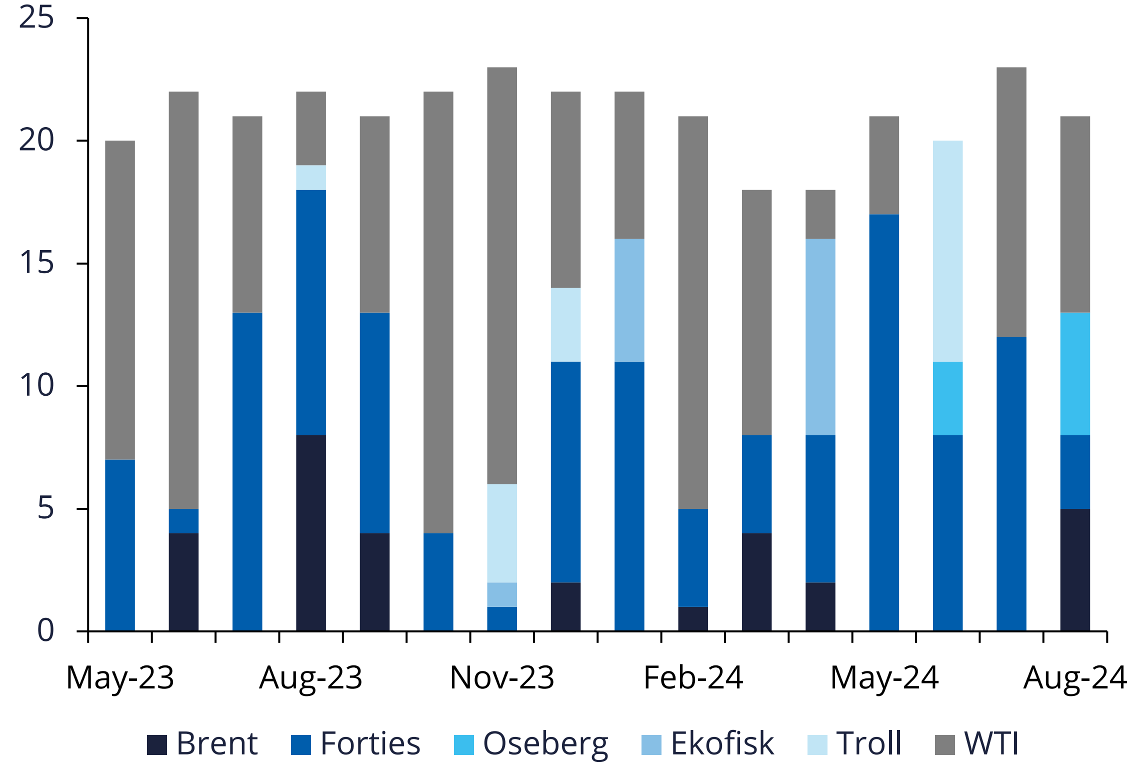
The USGC has matured into a center for price discovery

Brent now effectively WTI + Freight

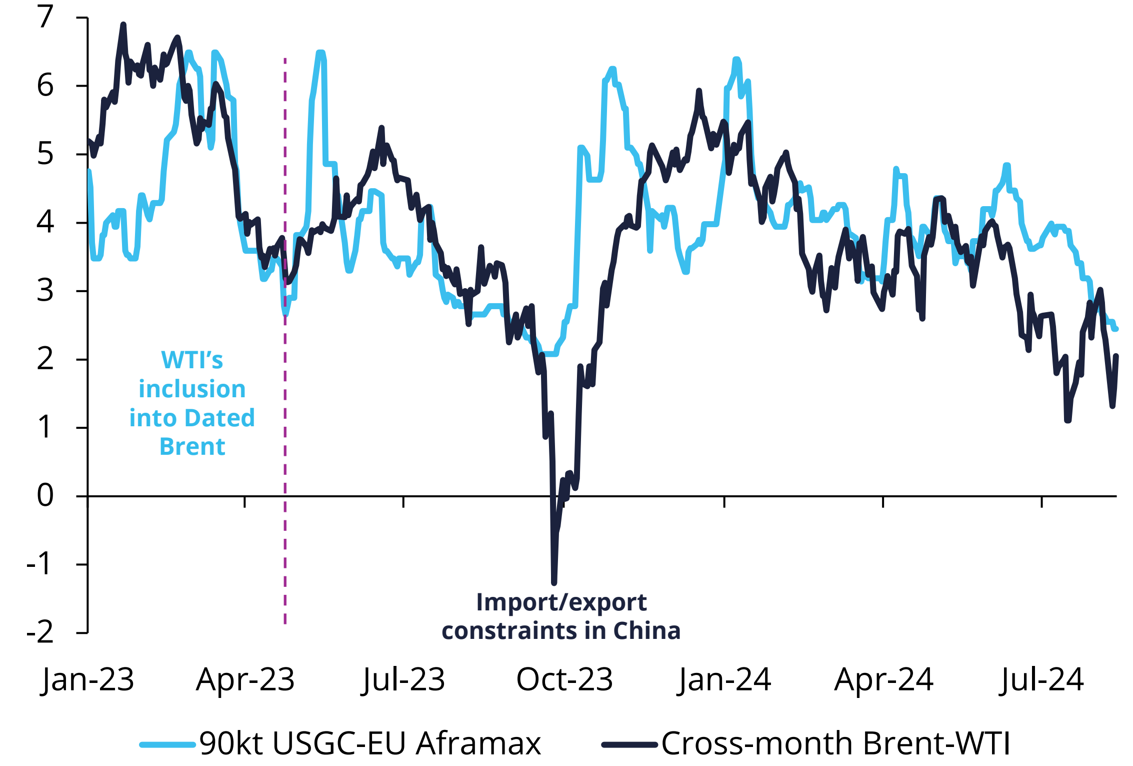


WTI shapes Dated Brent benchmark

What sets Dated? (days/month)

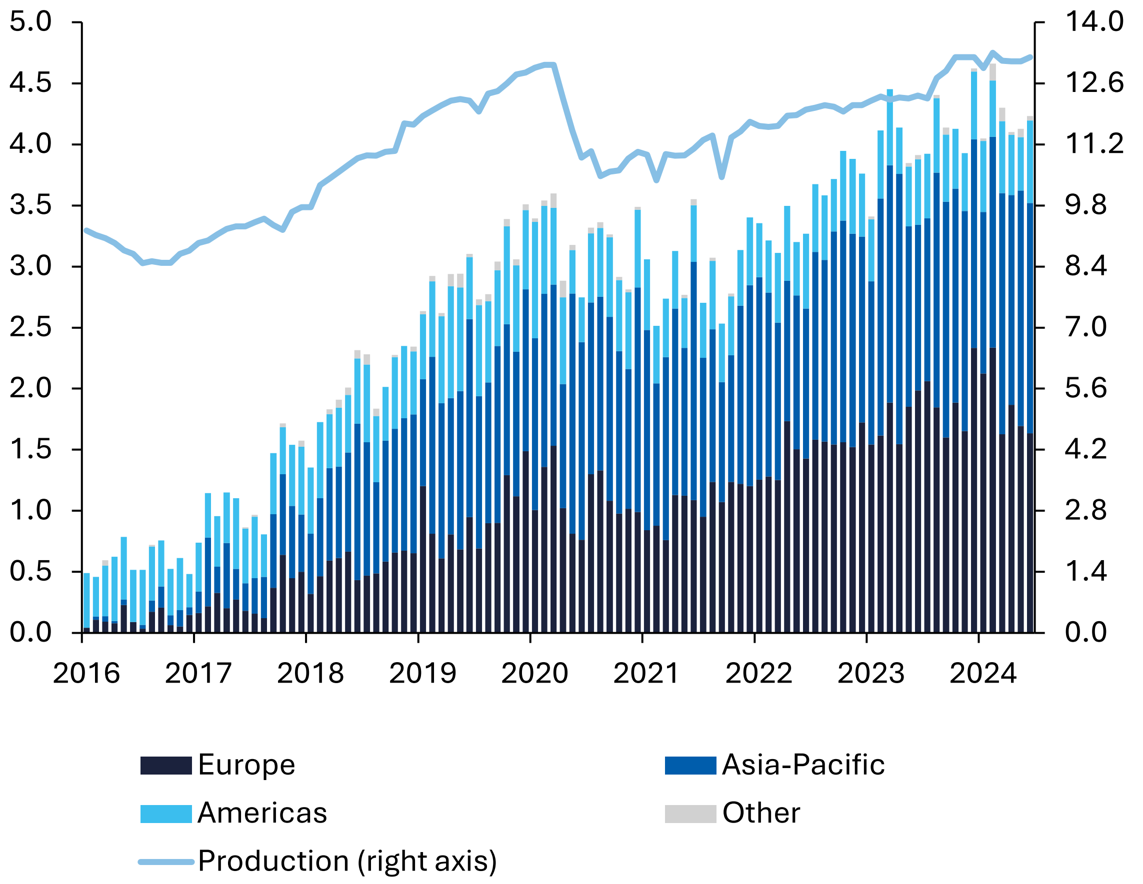


Aframax rates become key determinant *($/bl)*

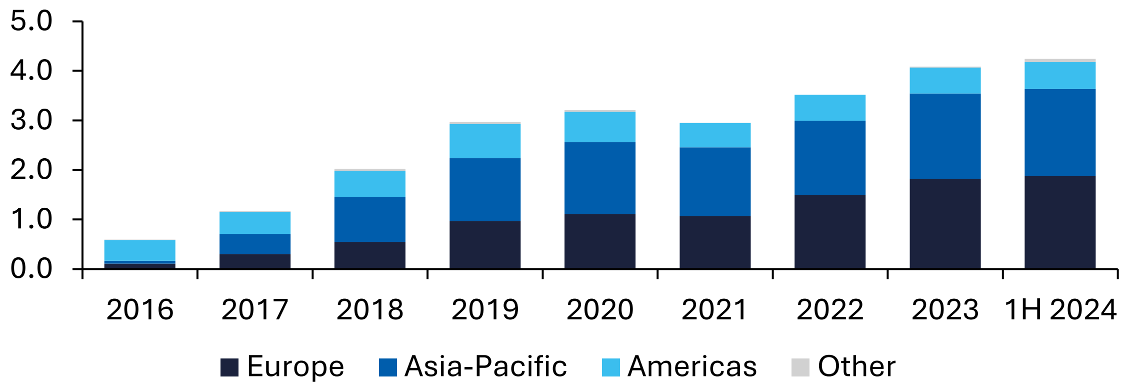


Midland WTI: Impacting global markets

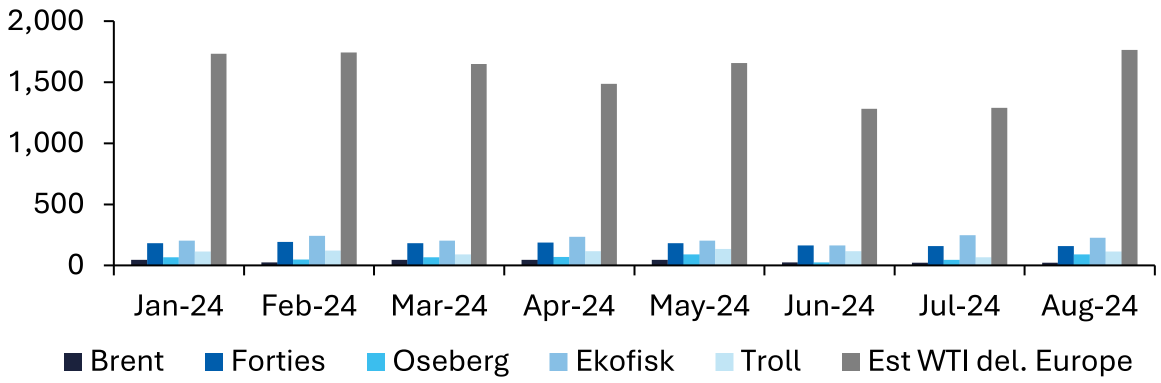
US crude exports vs production *(MMb/d)*



US export loadings by destination region *(mn b/d)*



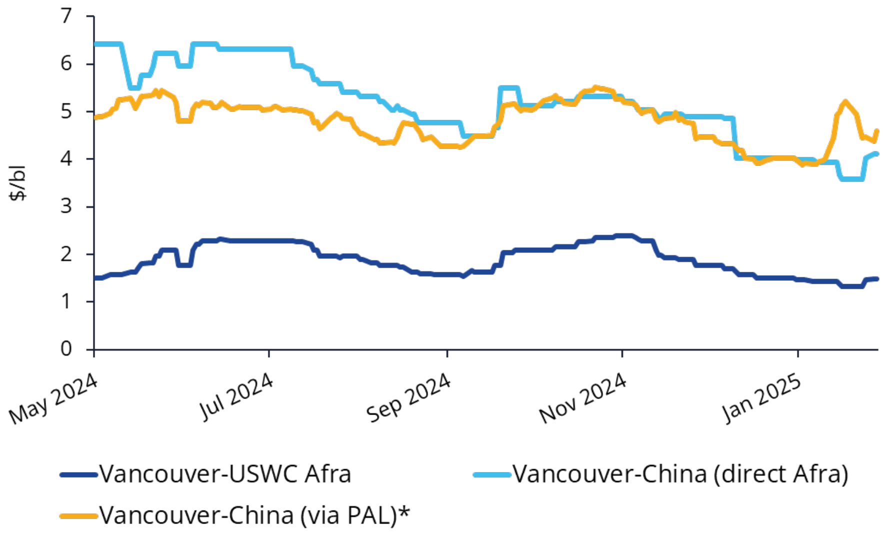
WTI dominates BFOET loadings *('000 b/d)*



North/South infrastructure

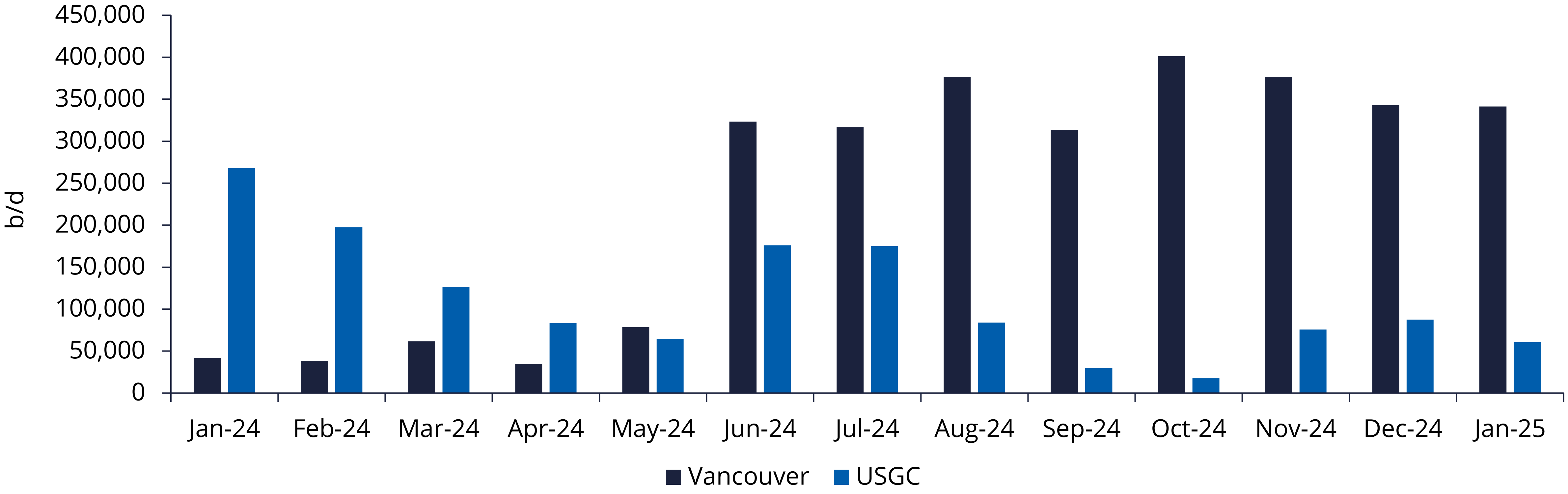
TMX/Westridge docks change everything in the Pacific

- Aframaxes directly to Asia are currently less expensive and faster than VLCCs
- Incentivizing Canadian producers to charter ships and sell on a delivered basis



- Tariff worries seen in shift of TMX cargoes away from California. (Went from about 12 cargoes/month early this year to just four May-loading cargoes as of 22 May)

Vancouver replaced USGC in exports of Canadian heavy crude

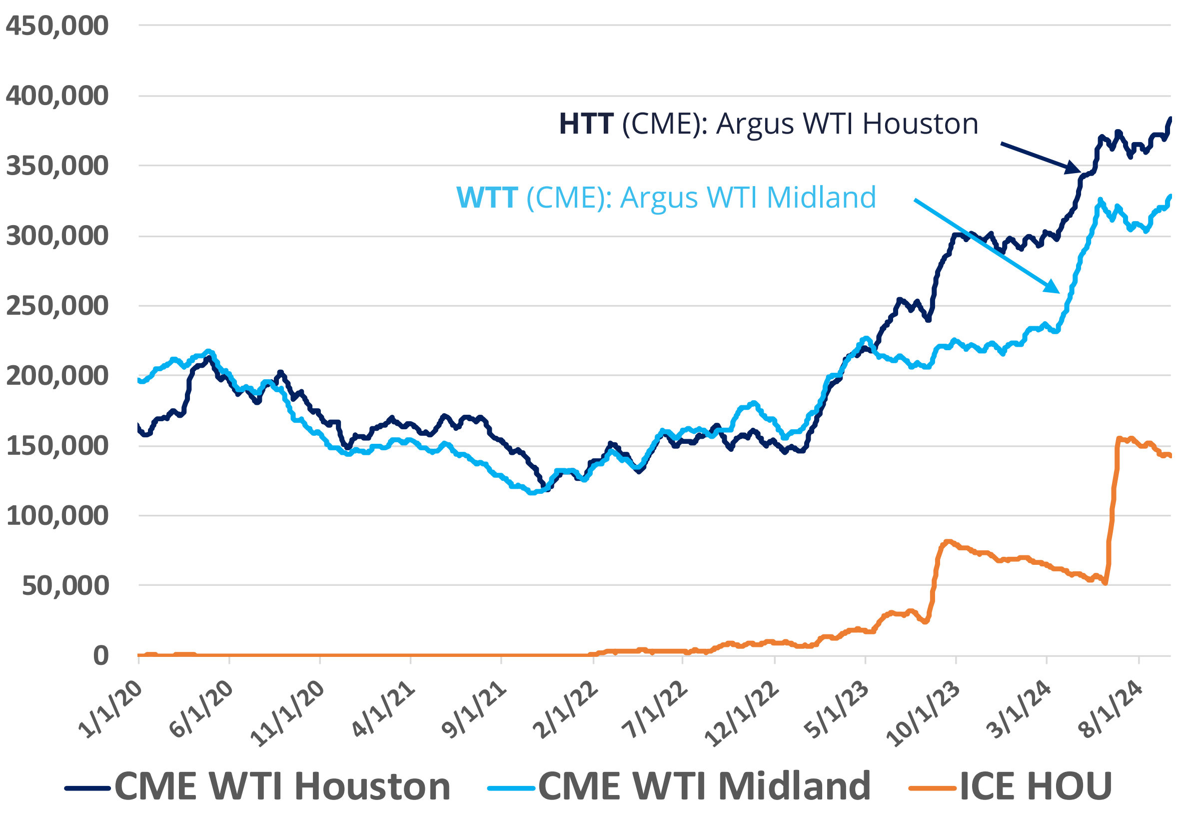


But Spain, India, perhaps Thailand could find US Gulf a better source of heavy Canadian crude

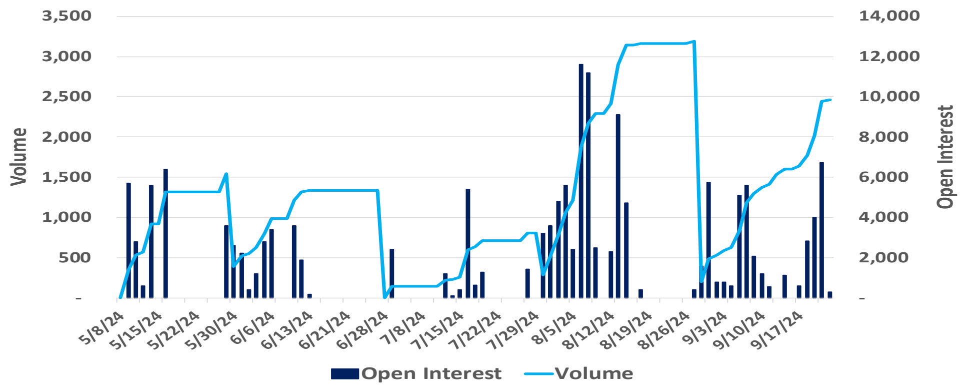
Source: Vortexa

Midland WTI: Robust Financial Tools

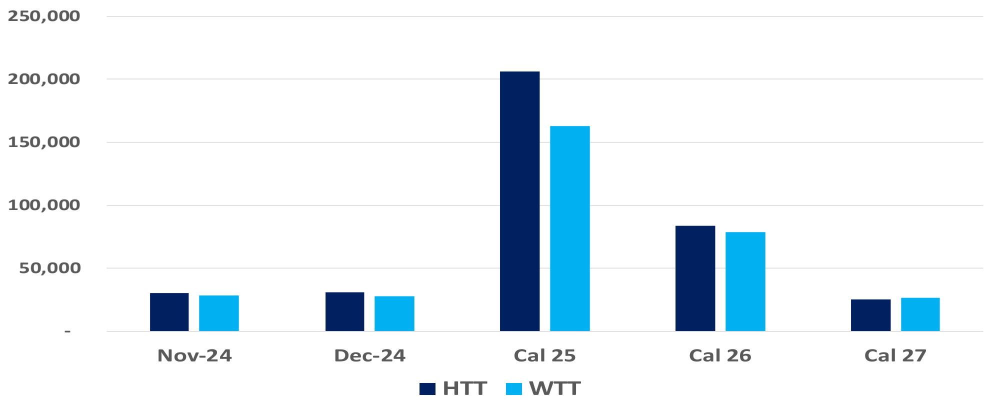
WTI Houston & Midland Open Interest 14 day/avg



HTT (CME): Balmo Volume & Open interest



WTI Houston & Midland Open Interest 9/30/24



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10 YEAR ANNIVERSARY of WTI Houston

Summary

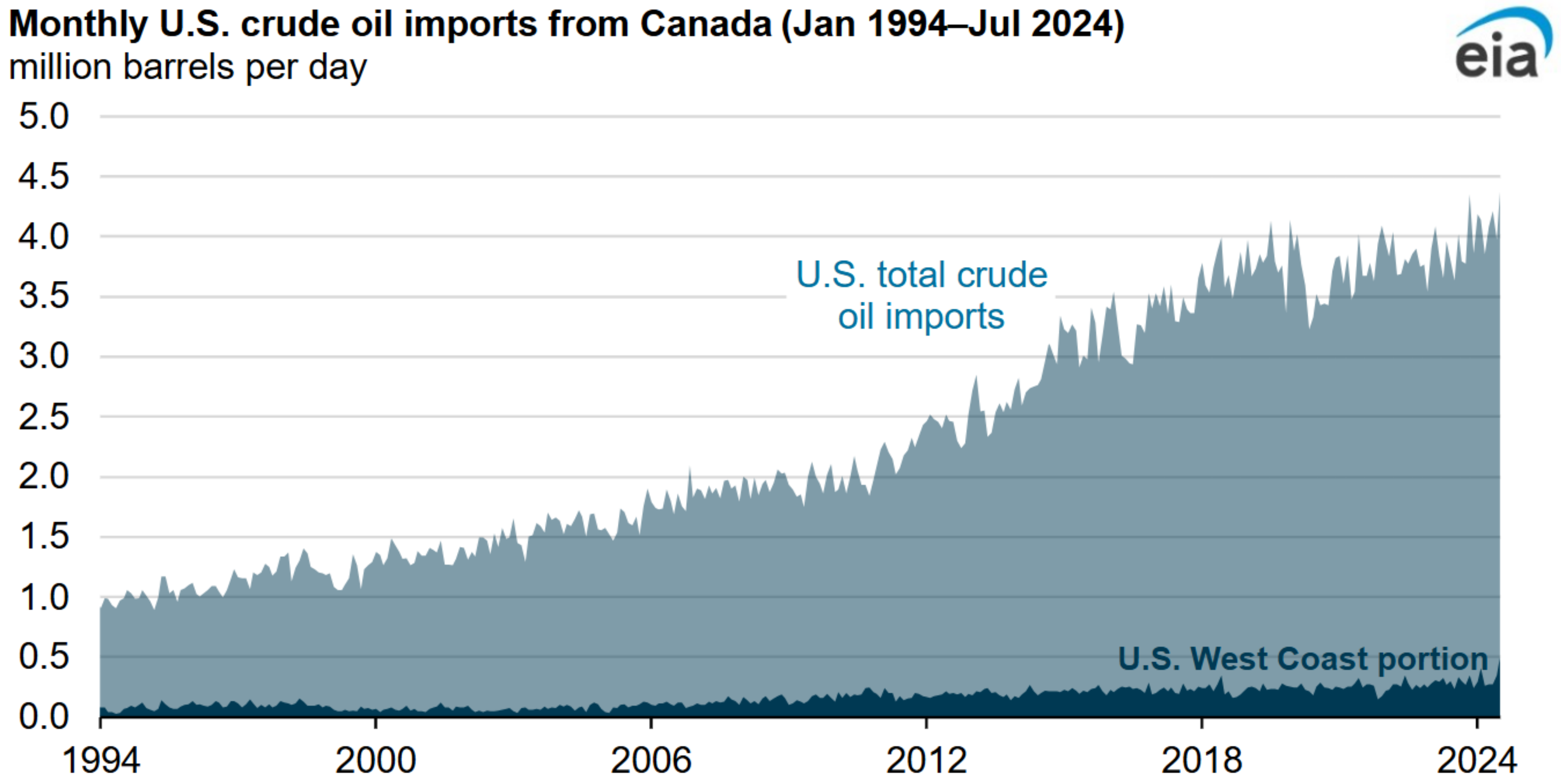
- Infrastructure is key to crude flows – can you get your hands on that cheap sweet barrel you want?
- There are few midstream mega projects planned in crude infrastructure in North America right now. Tight capital, uncertain demand, tariffs and sanctions.
- But incremental expansions are happening; Gray Oak is an example. M&A is capturing some efficiencies
- US crude production growth is slowing. Permian will be more resilient than most other basins, and we expect growth offshore US Gulf coast and even in Alaska.
- TMX is the big infrastructure story in North America. It not only connects Canadian heavy crude to Asia and California; it also removes bottlenecks on lines to the US Gulf coast, narrowing the discount Canadian sellers have to accept at Edmonton and Hardisty.
- In spite of TMX, there will continue to be re-exports of Canadian heavy from the US Gulf coast – to India, Spain and other locations where there is a freight advantage.

Canadian crude exports

Argus

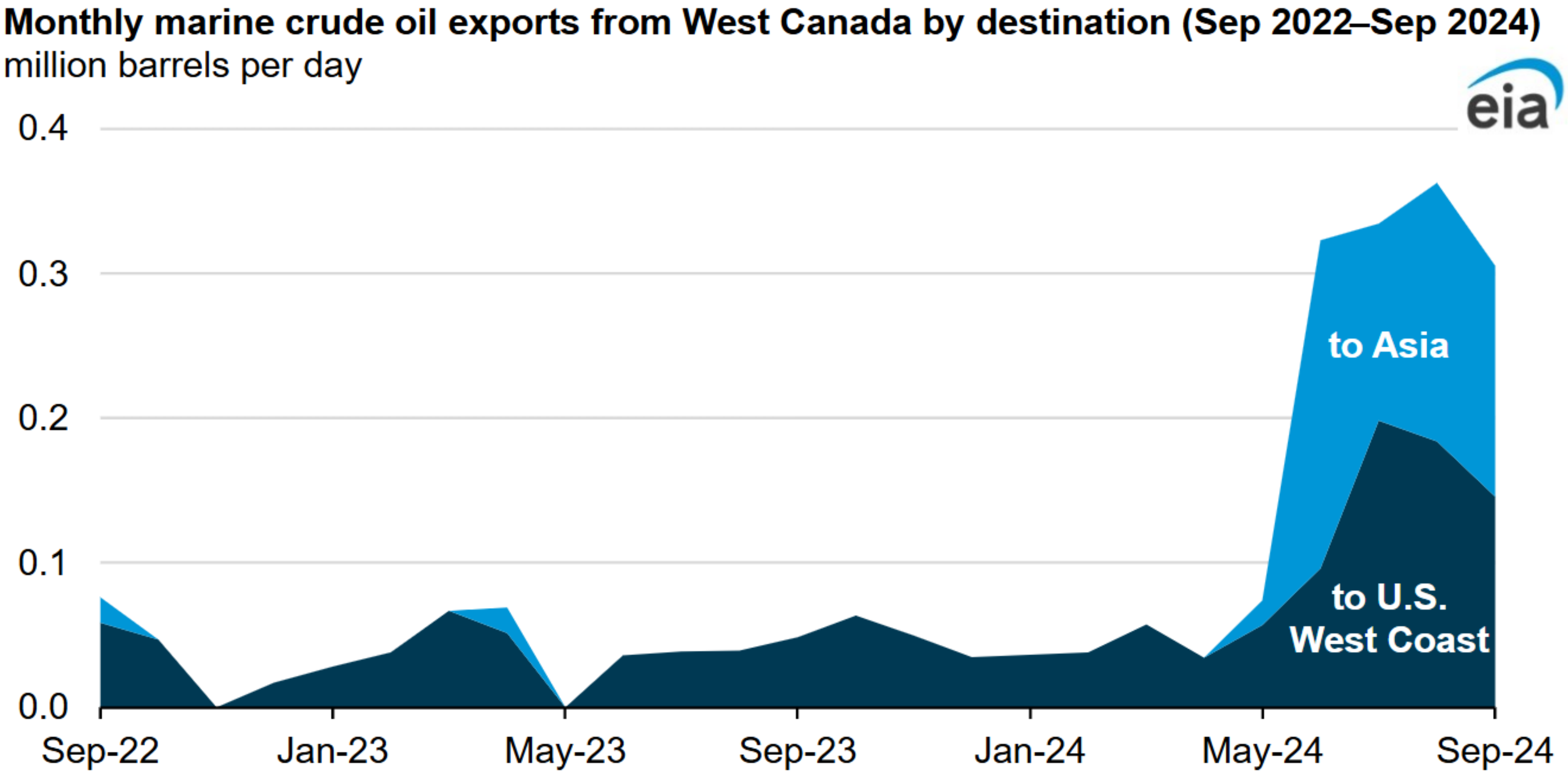
26 August 2025

Canada's exports to the US quadrupled from the mid-90s to early 2024; but mainly via pipelines



Data source: U.S. Energy Information Administration, *Petroleum Supply Monthly*

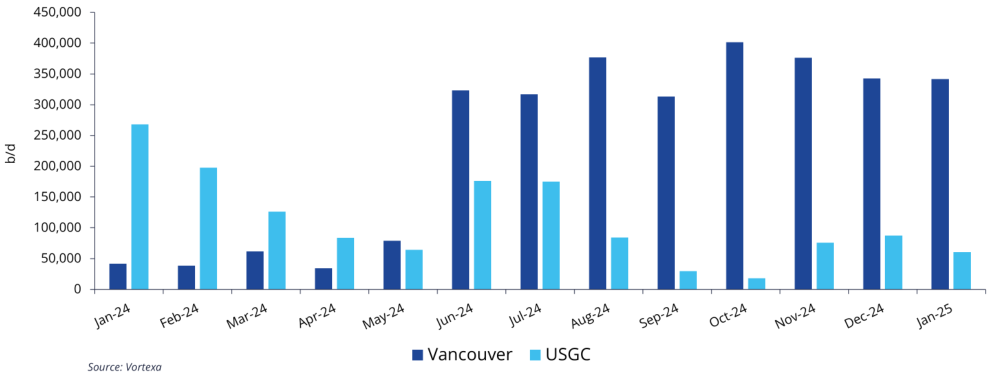
TMX makes western Canada a maritime exporter



Data source: Vortexa Analytics

TMX eliminated bottlenecks, narrowed the discounts for crude produced in Alberta, and moved most exports of Canadian heavy grades from the US Gulf coast to Vancouver

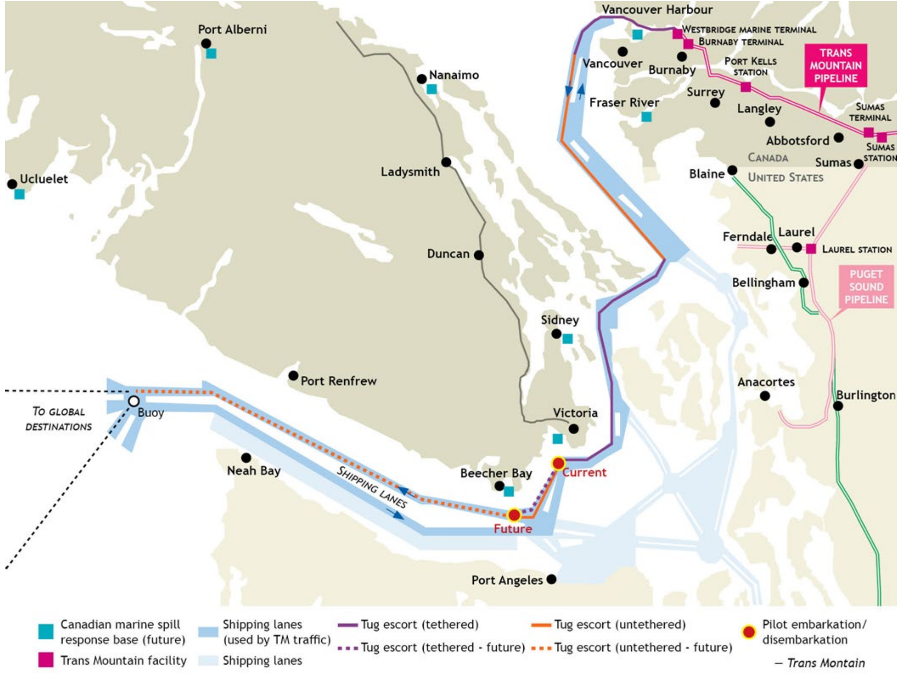
Vancouver replaced USGC in exports of Canadian heavy crude



Source: Vortexa

But Spain, India, perhaps Thailand could find US Gulf a better source of heavy Canadian crude

We need a new vocabulary

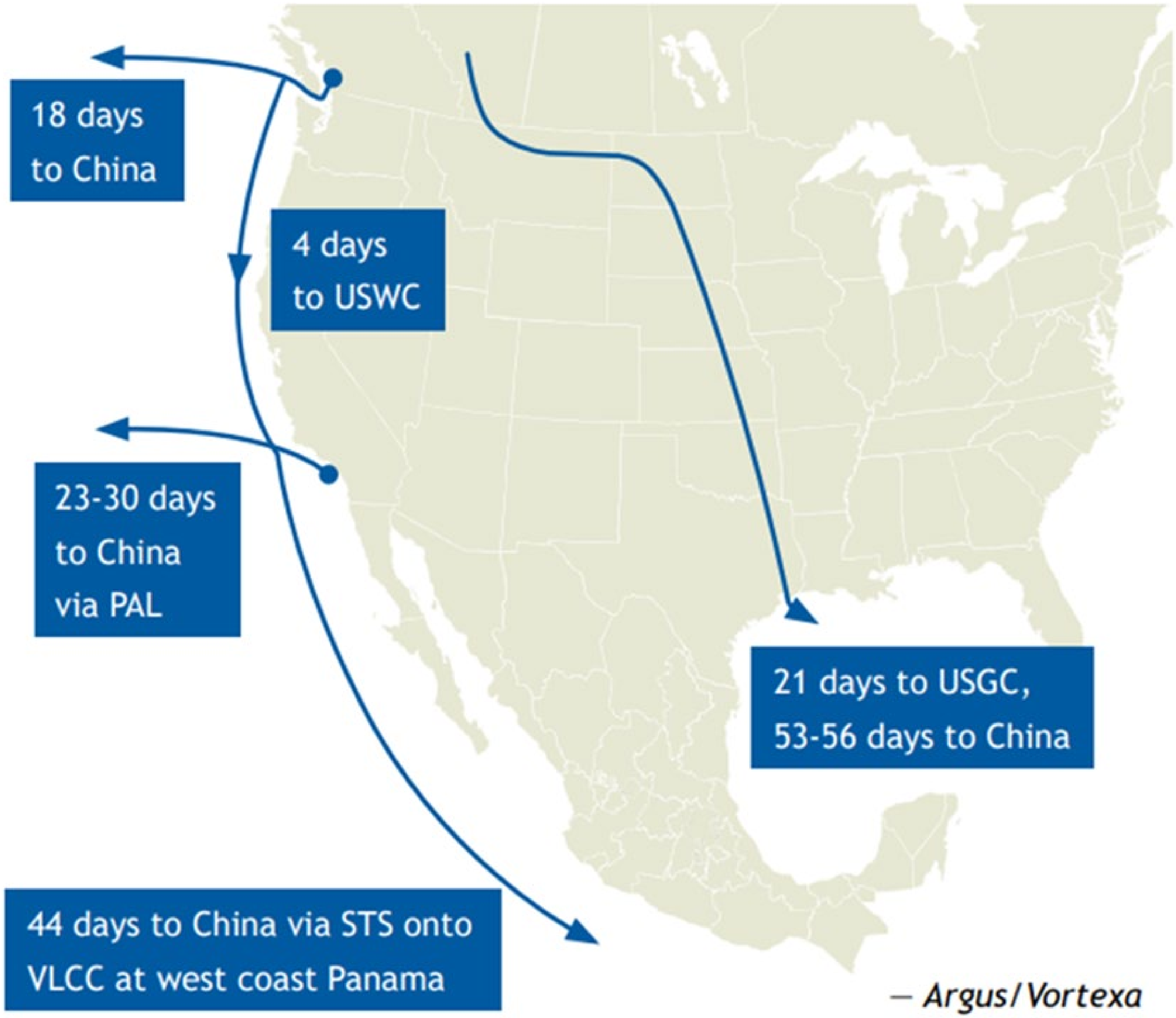


- Injection schedule
- Apportionment
- Pipeline Tolls
- B/D

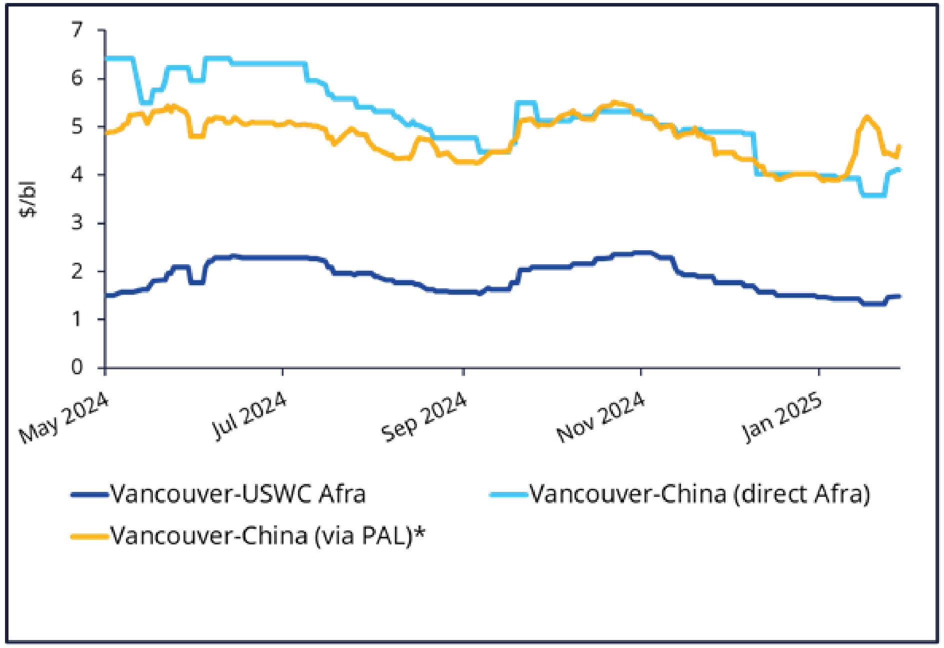
- Laycan
- Demurrage
- World Scale
- Aframax or VLCC

Shorter routes = less exposure to market structure

- Edmonton + 9 days to Westridge + 18 days by Aframax to China = 27 days
- Or, Edmonton + 9 days to Westridge + 23 to 30 days by Aframax to PAL off southern California, then to China by VLCC = 39 days
- Or, Edmonton + 21 days to US Gulf coast by pipeline, then 53-56 days by VLCC Current = 77 days b
- *Shipping times also compel a seller moving crude to China via the US Gulf coast to commit to the move earlier than the seller moving to China via the TMX line, Westridge docks and 18-day Aframax voyage to China.*



Unforseen trend: Cheap Aframaxes & expensive VLCCs



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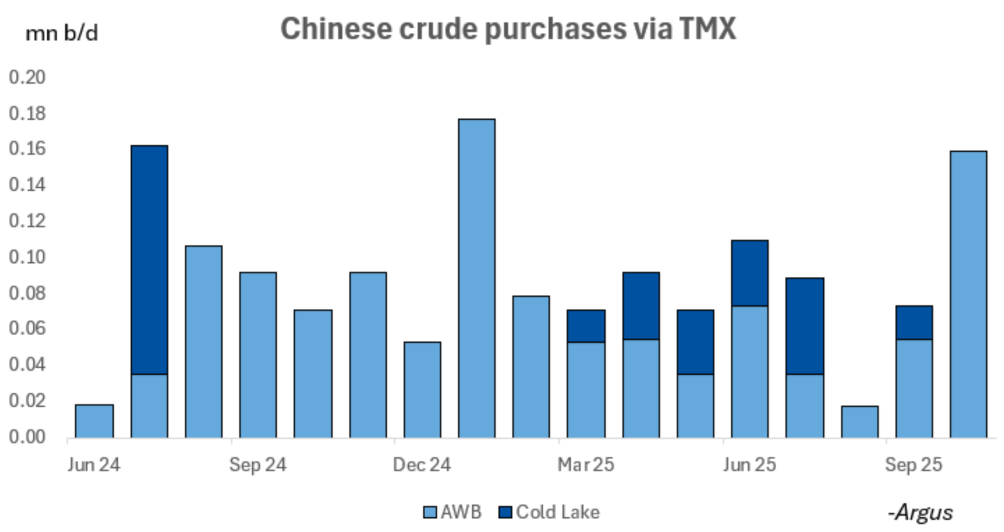
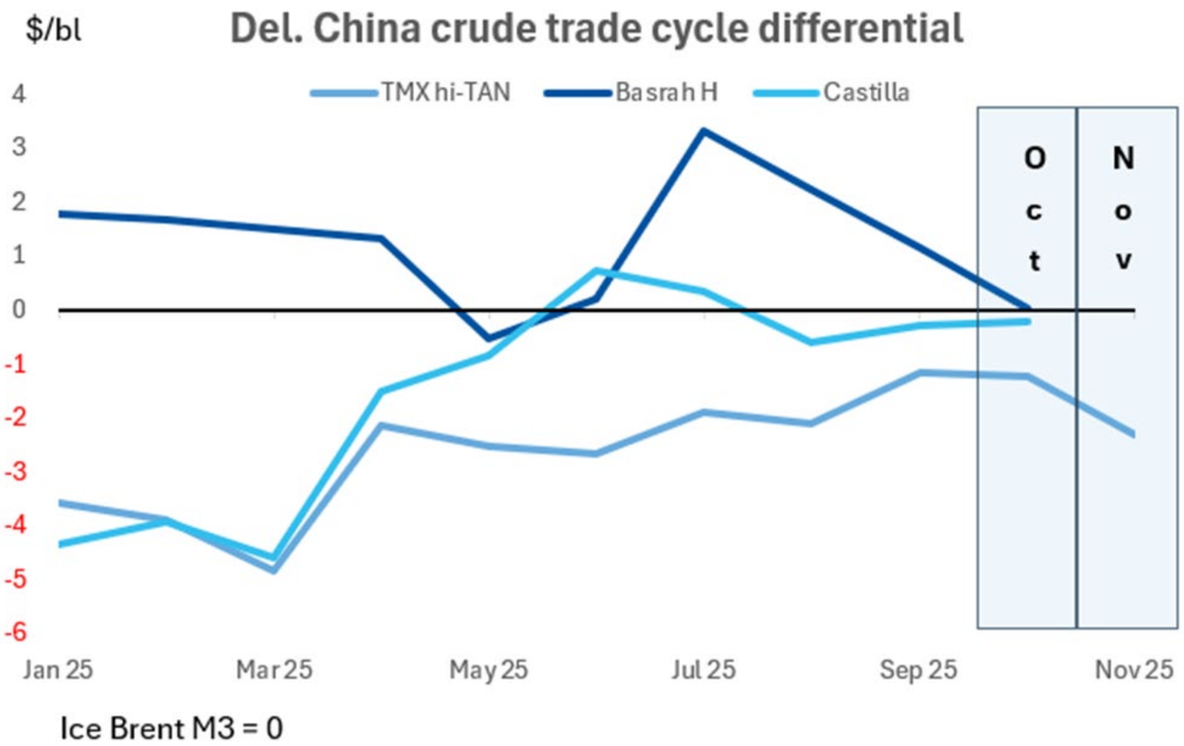
October (August trading at Vancouver) has been a big month for China buying TMX





Remember Texas – WCS Houston continues to be one of the most actively traded spot physical crude markets in the continent

WCS Houston + VLCC freight to China competes with *Pacific Cold Lake fob Vancouver + Aframax freight to China* to determine where China sources its heavy Canadian crude

TMX High TAN DES Shandong competes with other delivered grades/determines crude flow to China:

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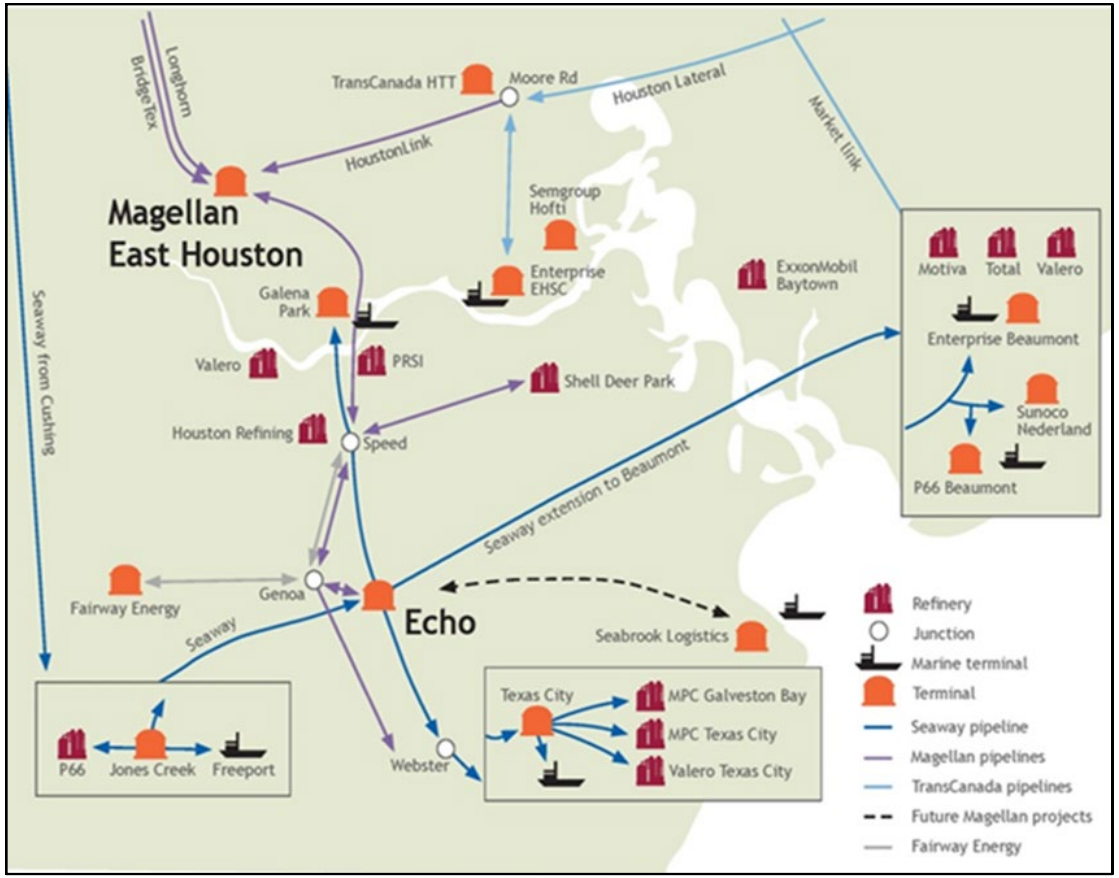

Thank you

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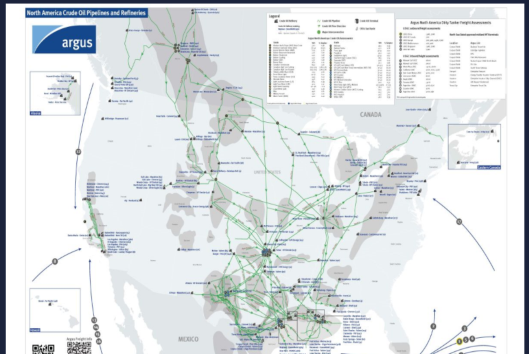
Crude oil pipeline and refinery maps

Visualise some of the world's most important crude oil infrastructure regions with our free wall maps, currently available for North America, the US Gulf coast, Houston, Permian Basin, Rockies/Bakken, Eagle Ford, US West Coast, North Sea Europe, Greater Europe, China, Shandong, Latin America and Vancouver.

Digital copies are not available. Physical copies will be mailed to the address provided. Therefore, we need your full postal address; PO box addresses are not valid.

Our Maps reflect

- Terminals
- Refineries with operator and capacity
- Pipelines, both operating and under development
- Storage facilities
- Operational ports
- Oil fields
- Argus crude assessment locations



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