



LPG and NGLs

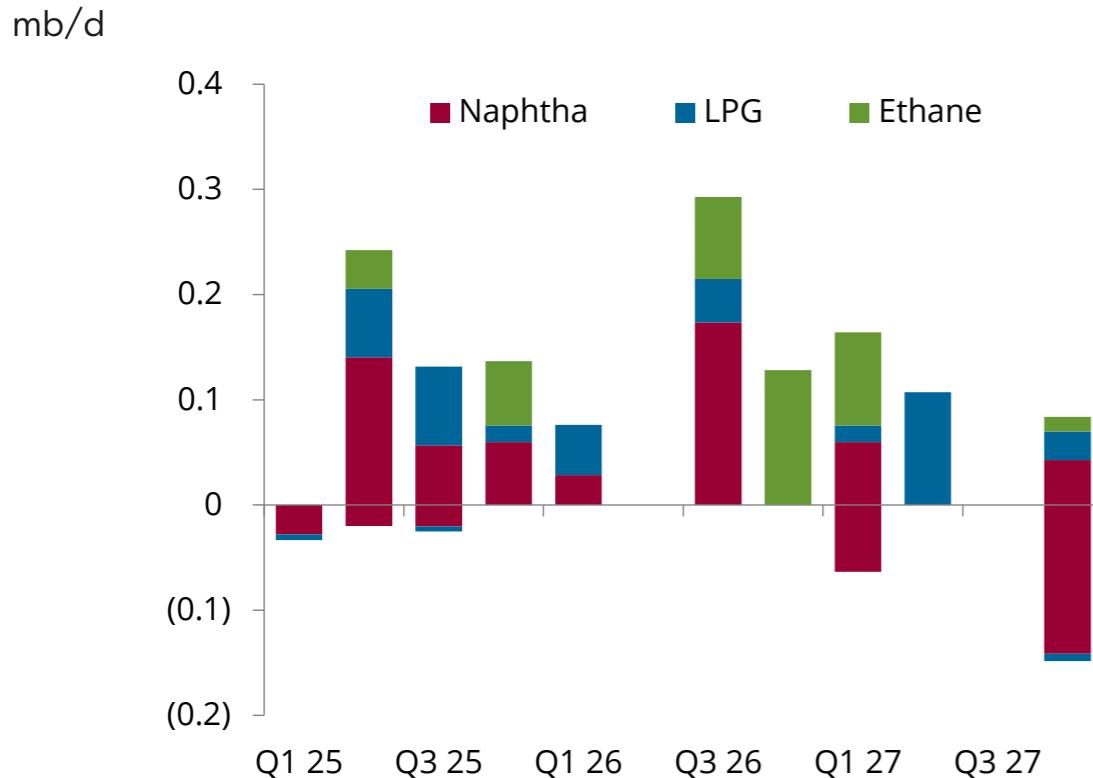
Outlook | October 2025

Off season



Unseasonal decline in global propane prices to buoy PDH, steam-cracking margins

Global steam cracker additions/closures by feedstock



- Naphtha markets and east–west spreads to remain supported by lower Russian naphtha production and steam cracker expansions. Further risk to Russian production possible if drone attacks continue.
- Asian petrochemical demand growth will be driven by China, which will add 1.3 Mt of naphtha demand y/y in Q1 26 and will require at least 80 kb/d of additional imports in 2026, keeping cracks higher y/y as balances tighten in Q1 26.
- But AFEI propane prices and structure will remain weaker y/y on limited buy-side liquidity and additional y/y Middle East and US supply that will clear into Asian markets (+40 kb/d in Q4 25–Q1 26).
- A considerably wider y/y Asian pro-nap spread will persist through at least end-Q4 25 as a result and prevent the typical feedstock switch for flexi crackers.
- This will see 0.1 mb/d more propane feedstock demand versus Q4 24, when propane was at premiums to naphtha, and 0.1 mb/d less naphtha feedstock demand. But with propane well supplied and naphtha supply compromised, this lack of feedstock switching should see the pro-nap spread narrow, although not back to historical norms.

Source: Energy Aspects

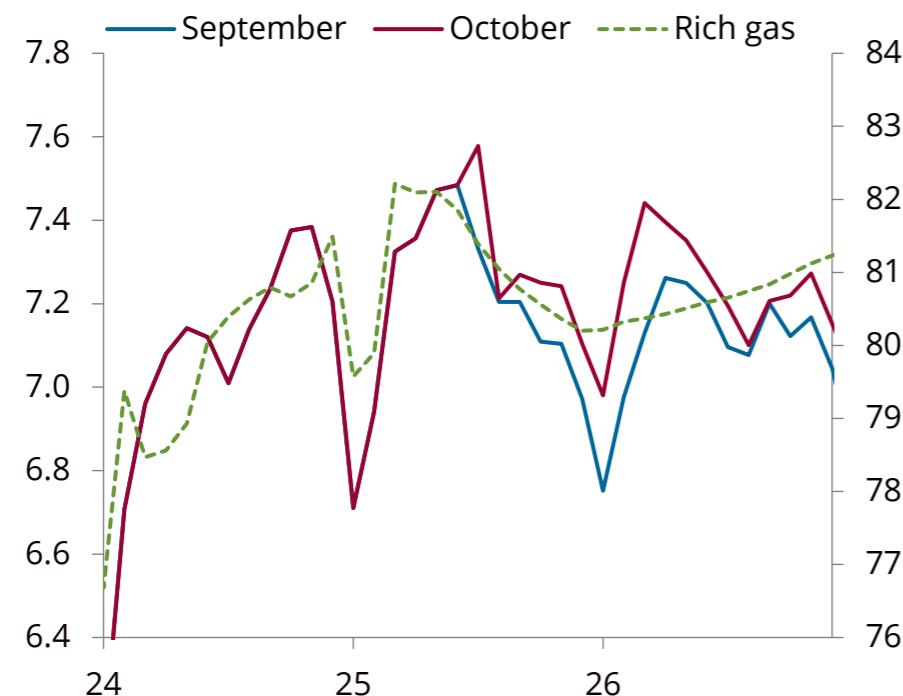
Global LPG outlook



Rising GORs and production in NGLs-rich basins lift US production forecast y/y

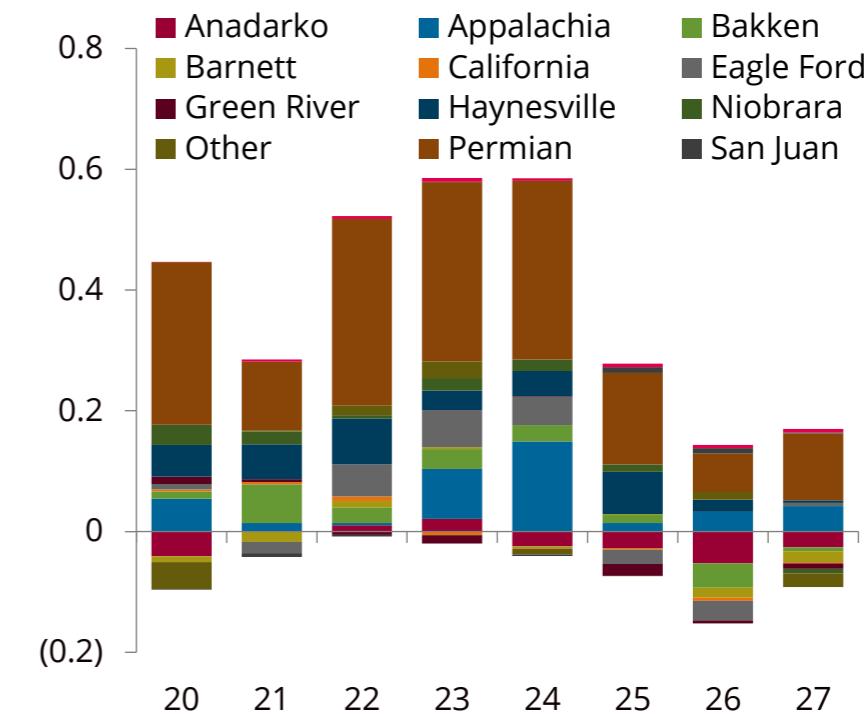
US NGLs production forecast comparison

mb/d (LHS); bcf/d (RHS)



US NGLs production, y/y

mb/d



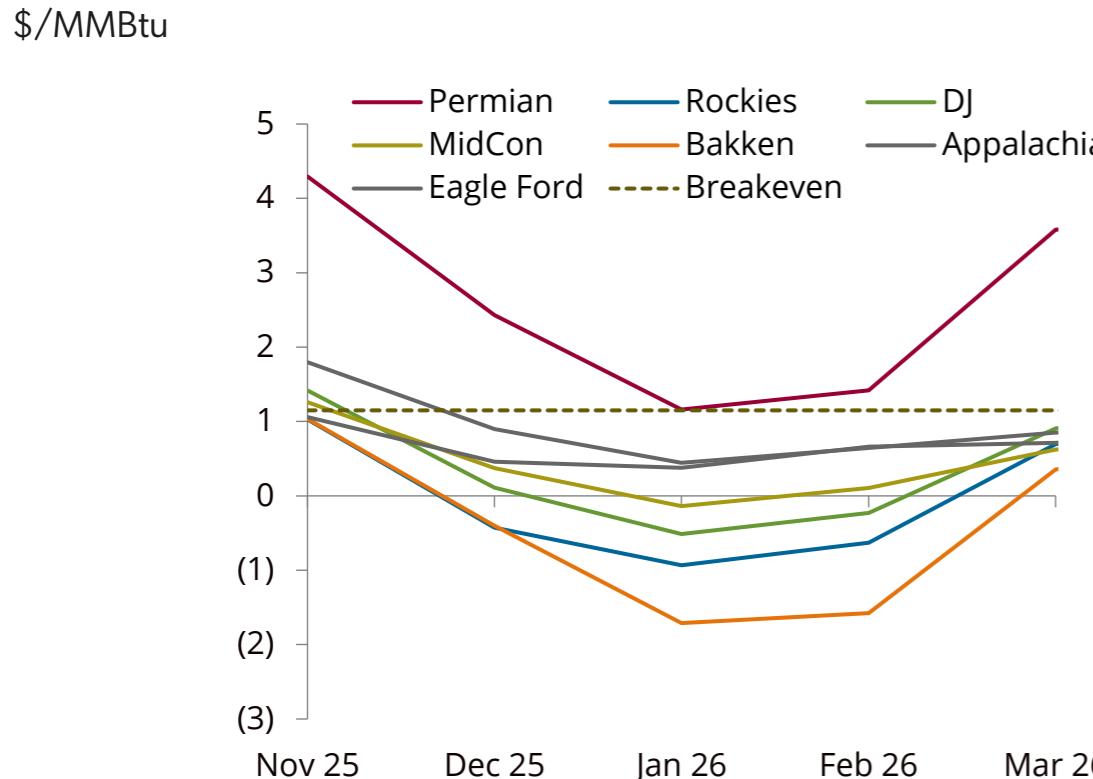
Key basins show higher m/m NGLs-gas production ratios, suggesting a growing E&P shift into gassier geology. This lifts our US NGLs production forecast by 0.13 mb/d through 2026.

Source: EIA, Energy Aspects

Higher NGLs-gas ratios have lifted our US NGLs production forecast, with 2026 production now showing only a 6 kb/d y/y decline versus 82 kb/d last month.

Rising US ethane exports boost recovery economics in otherwise marginal basins

US forward ethane frac spreads by basin

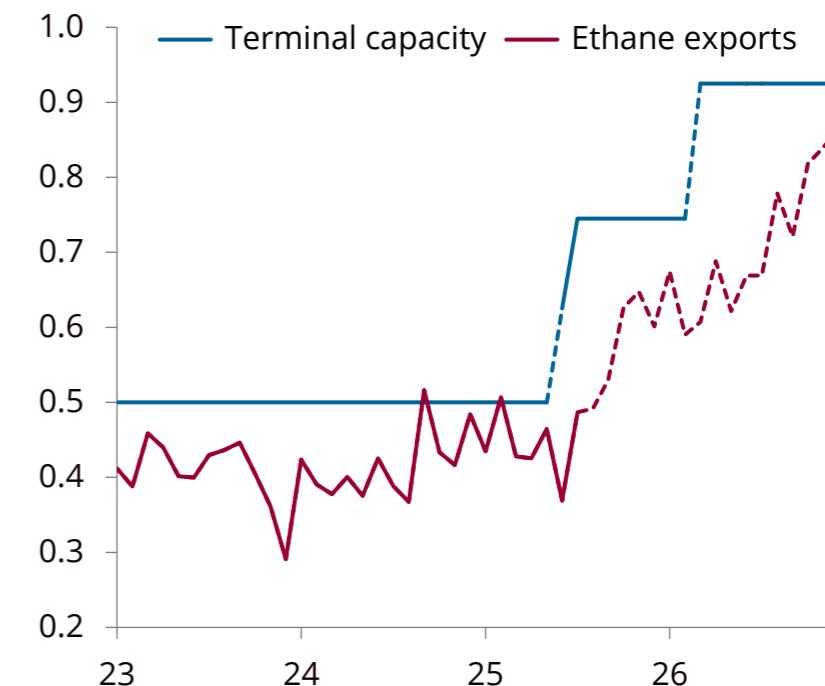


Ethane recovery is broadly economic, even in the marginal Bakken. But seasonal natural gas demand will disrupt recovery incentives in Q4 25, pushing ethane prices higher.

Source: Argus Media Group, Bloomberg, EIA, Energy Aspects

US ethane export forecast and terminal capacity

mb/d

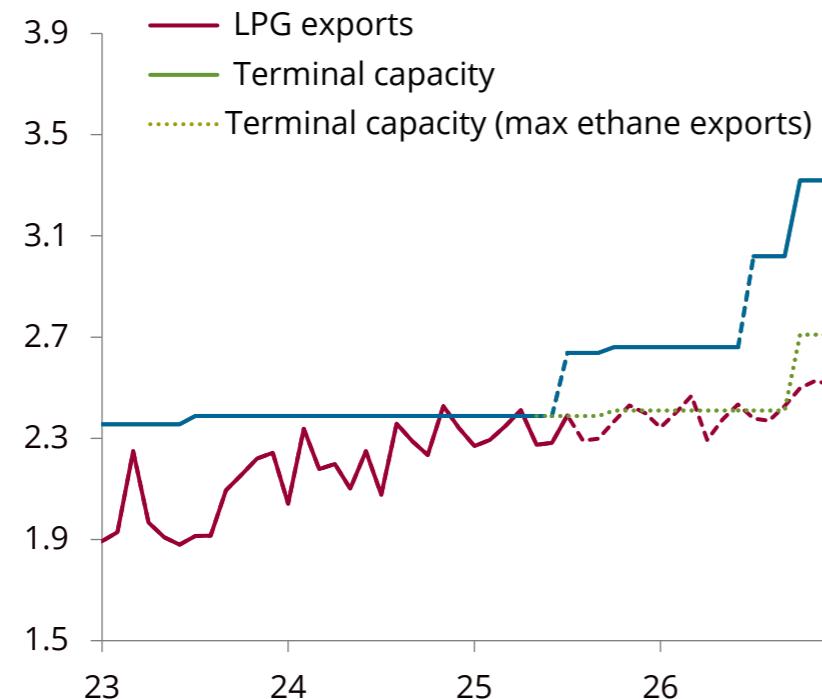


Rising ethane export demand will keep flexi-terminal capacity favouring ethane, while cracking demand in Asia and Europe grows by 0.15 mb/d q/q in Q4 25.

Thin US–Asia netbacks limiting US propane exports; stocks to peak in October

US LPG exports forecast

mb/d

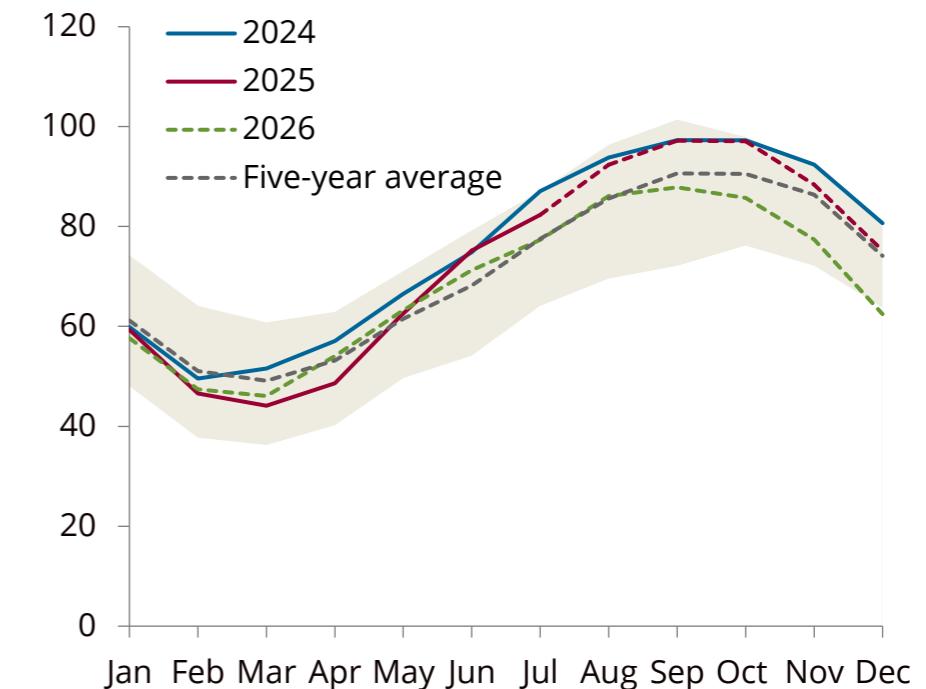


Higher y/y VLGC freight rates and Middle East supply will weigh on USGC prices, while preference for ethane in flexi terminals will cap propane export upside.

Source: EIA, Energy Aspects

US propane stocks forecast

mb

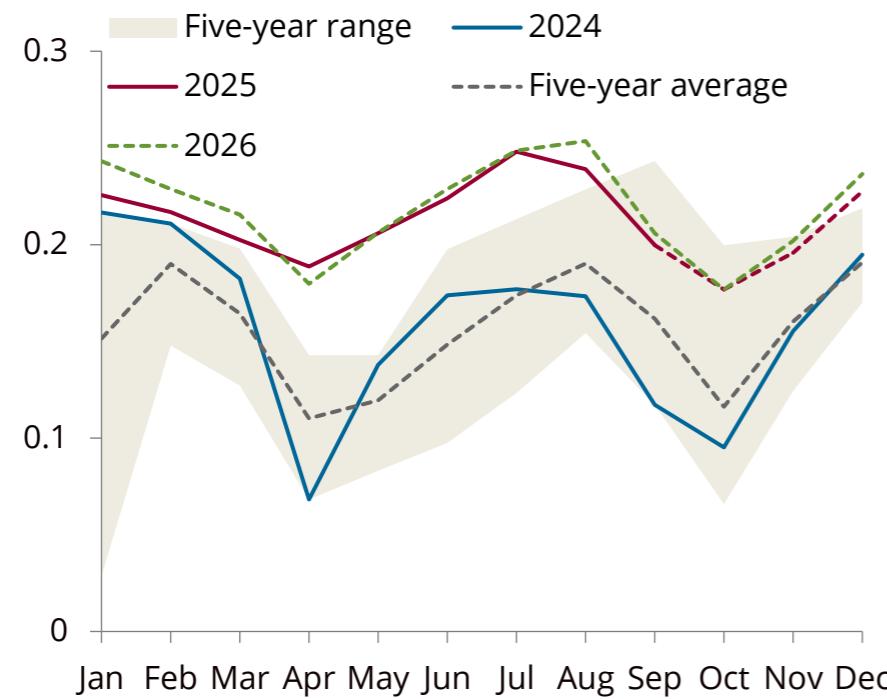


Thin Asian netbacks are pushing US propane stocks higher. We expect stocks to peak in October near seasonal highs (97.1 mb) ahead of seasonal heating demand.

"Buy Canadian" and larger y/y US corn crop will limit propane price downside

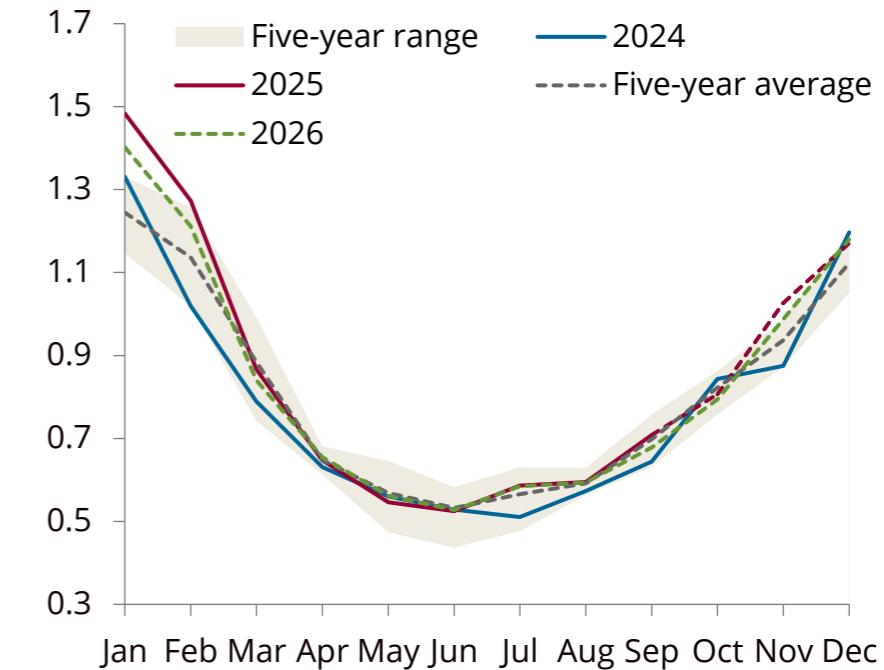
Canada propane demand forecast

mb/d



US propane demand forecast

mb/d



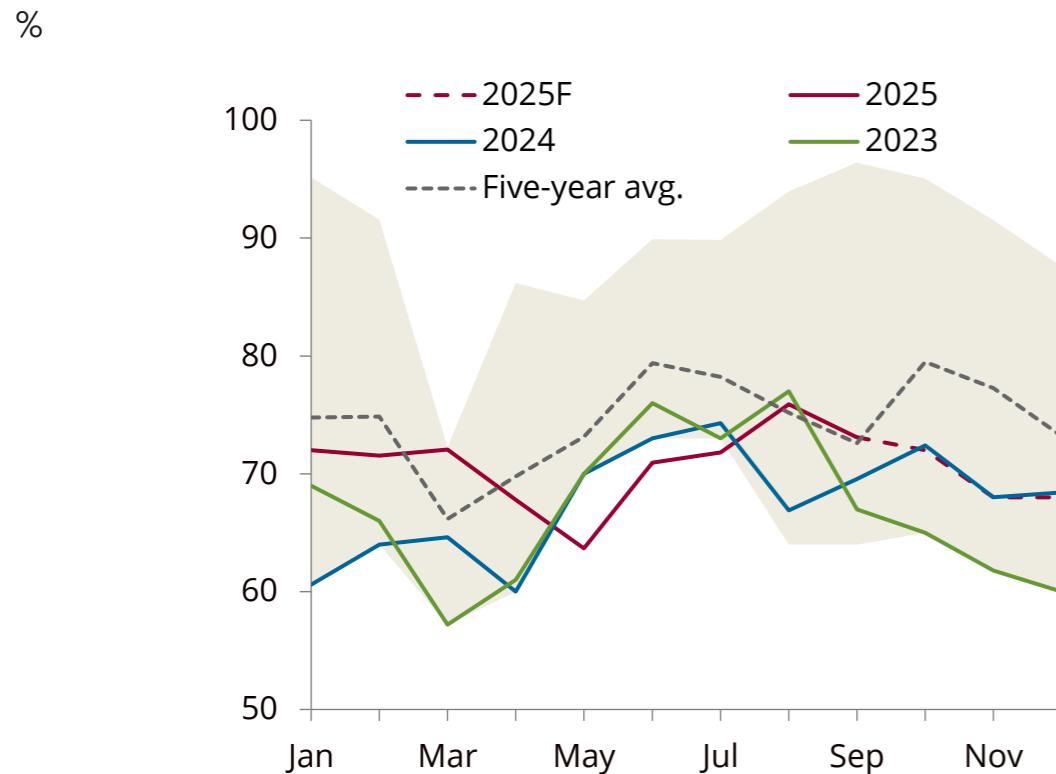
Rising Canadian preference for domestic energy will increase propane demand by 54 kb/d y/y in 2025 and weigh on exports into the US y/y.

Source: USDA, EIA, StatCan, Energy Aspects

This year's US corn crop is 13% larger y/y, requiring more propane for crop drying. This has lifted our Q4 25 propane demand by 61 kb/d y/y and will limit USGC price downside.

Weak Asian delivered propane prices spur modest Chinese PDH feedstock demand

Chinese PDH utilisation rates

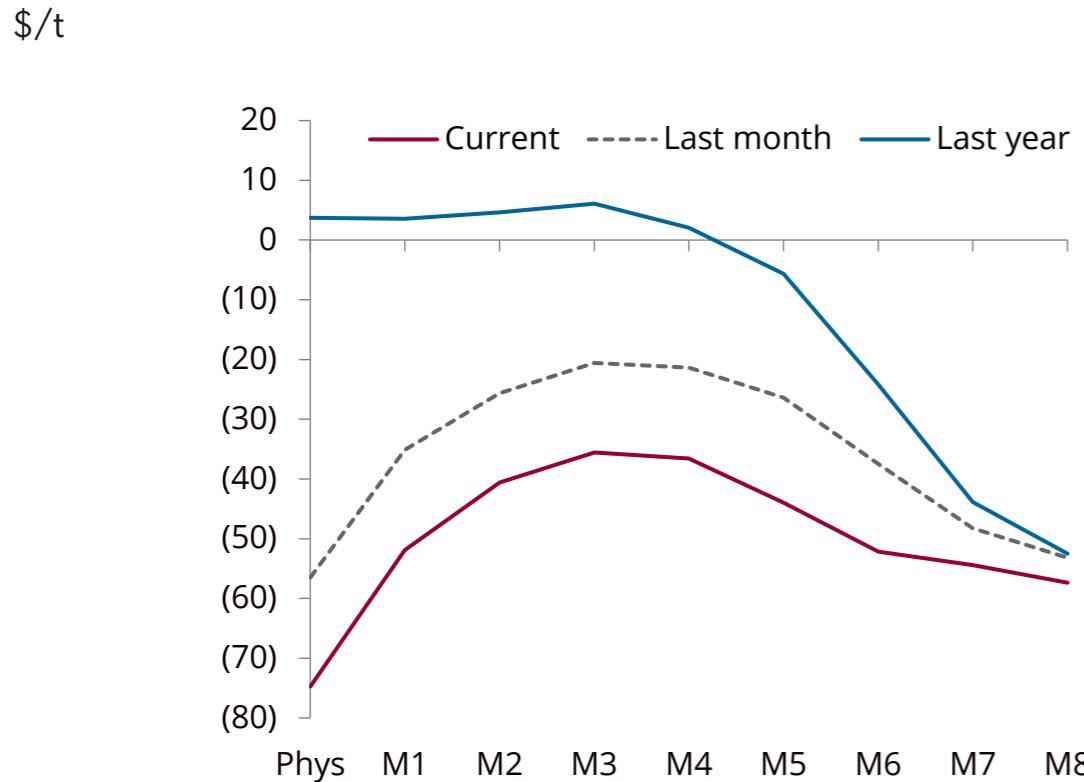


- We expect propane flat price to remain under pressure at key export pricing centres like the Middle East, where Q4 25 LPG balances are 85 kb/d looser y/y, offering some upside to Chinese buying for PDH feedstocks.
- We also expect broadly lower y/y prices in the Middle East due to higher freight costs and higher supply y/y. The unexpected drop in Saudi Aramco CP prices reinforced this view and has buoyed Chinese PDH margins.
- This should reignite some demand for propane, which had evaporated as Chinese delivered propane flat prices oscillated around \$600/t, too high for most PDH buyers.
- While we expect more buying interest, we still maintain our view of seasonally weaker structure y/y, so AFEI propane cash differentials will sit at discounts of \$5–10/t to swaps, while forward structure should remain in contango through to December—a contrast to the backwardation seen a year ago.
- China's actual PDH utilisation for September was 73.1%. We have raised our Chinese PDH utilisation rate expectations for October by 2 ppts, to 72%. This is still 1 ppt lower m/m, but should increase propane demand by 50 kb/d. The possible return of Wanhua's Yantai No.1 steam cracker unit from upgrade works will also add 64 kb/d of mixed LPG feedstock demand in November.

Source: Oilchem, company reports, Energy Aspects

Wider y/y Asian pro-nap on ample propane supply; no Q4 25 switch to naphtha

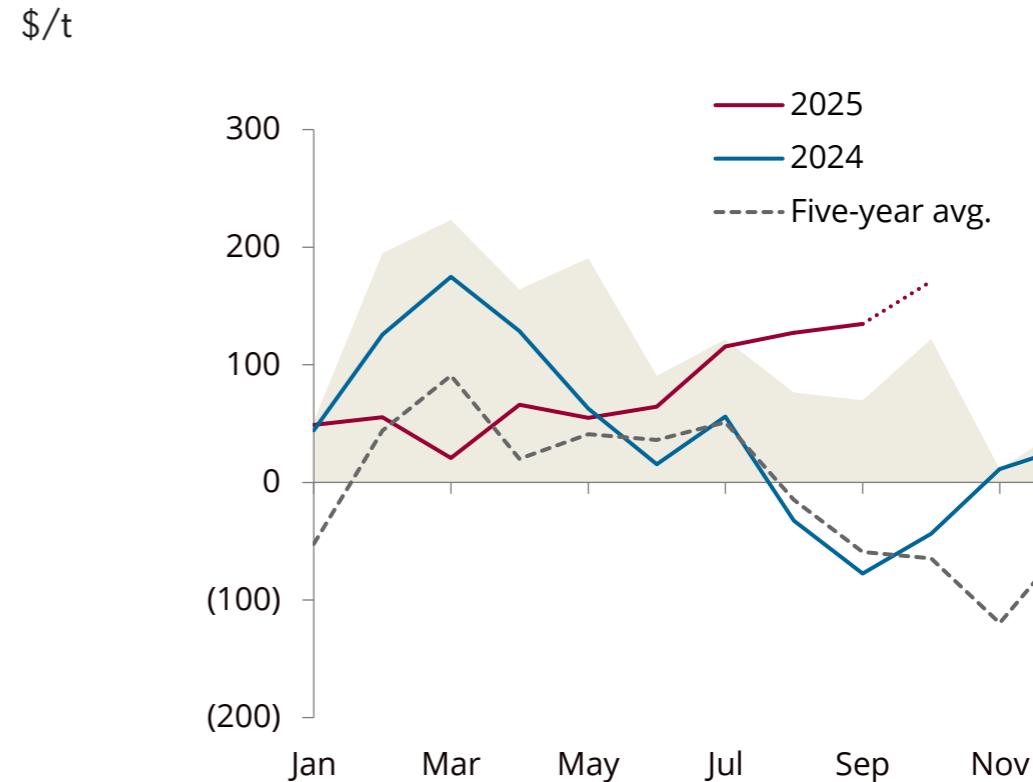
Asia forward pro-nap spread



Considerably wider y/y pro-nap spread will persist bal-2025 and remain beyond switching levels until at least January, as AFEI propane contango is likely to roll down m/m in Q4 25.

Source: OilX, Energy Aspects

Asian propane/naphtha cracking margin difference

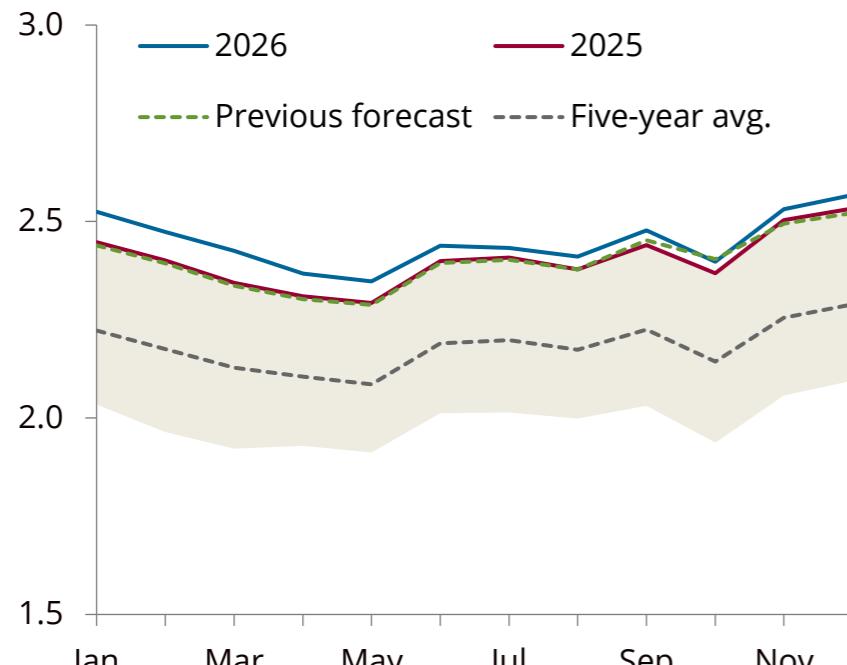


This will delay the typically seasonal flexi-cracker feedstock switch that occurs in the fourth quarter and add 0.1 mb/d more propane demand for cracking feedstocks than in Q4 24.

OPEC8+ increase, weak Asian delivered LPG keep Middle East LPG prices lower y/y

Middle East LPG supply forecast

mb/d



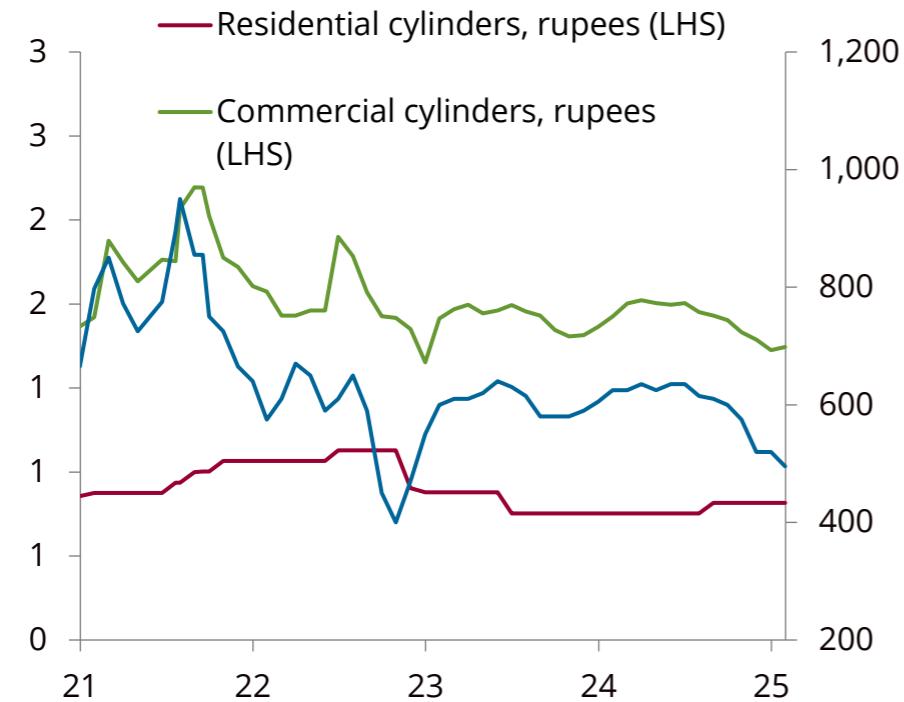
- We maintain our view that Middle Eastern LPG prices and forward Aramco propane structure will remain weaker y/y in Q4 25 and likely into Q1 26. Higher y/y supply (driven by successive OPEC8+ unwinds), lacklustre delivered Asian LPG prices and demand and higher y/y freight will all weigh on regional export prices.
- Indeed, Saudi Aramco reinforced this by unexpectedly cutting October LPG CP prices, the first m/m cut to October prices since 2020, during the Covid-19 pandemic. OPEC8+ further added to bearish sentiment by hiking November crude production by 0.137 mb/d (realistically around 74 kb/d), which will add about 7 kb/d of LPG production.
- We previously said Aramco CPs could still seasonally rise in bal-2025 but at a much slower rate y/y, and we maintain this view, so November and December CPs may edge higher. But overall sentiment will remain considerably weaker y/y for Middle East LPG prices.
- Market soundings indicate lacklustre interest in 2026 term volumes, and with VLGC freight likely to remain higher y/y (even after falling recently), exporters like Aramco have little choice but to cut prices to lure spot buyers to clear supply onto the water.

Source: Energy Aspects

Indian commercial LPG cylinder prices rise, but Q4 25 Indian LPG demand unaffected

Aramco LPG CP; Indian LPG cylinder prices

\$/t; Rupees



Indian LPG prices halted their downward trajectory (as expected) despite a surprise fall in Aramco CP prices. Cylinder prices are still lower y/y, so our current demand forecast holds.

Source: CME, Argus Media Group, PPAC, Energy Aspects

Indian LPG supply and demand forecasts

kb/d

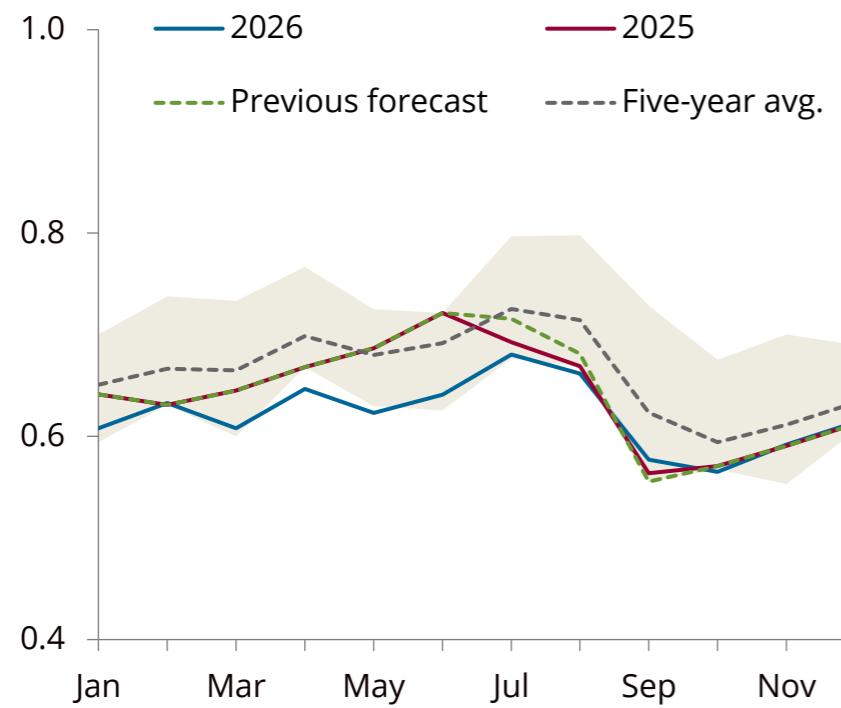
	Q1 25	Q2 25	Q3 25	Q4 25
Demand	1,049	988	1,056	1,088
y/y chg.	40	82	58	60
m/m adj.	0	2	15	20
Supply	476	476	468	491
y/y chg.	(4)	5	18	21
m/m adj.	0	0	0	0
Runs	5,568	5,412	5,320	5,418
y/y chg.	186	28	120	95
m/m adj.	0	37	9	9

Overall Indian LPG demand has averaged around 60 kb/d higher y/y in 2025 YTD. Even with slightly higher commercial prices, demand should stay around 60 kb/d higher in Q4 25.

Lower European LPG supply forecast offset by higher y/y US–Europe LPG flows

European LPG supply forecast

mb/d



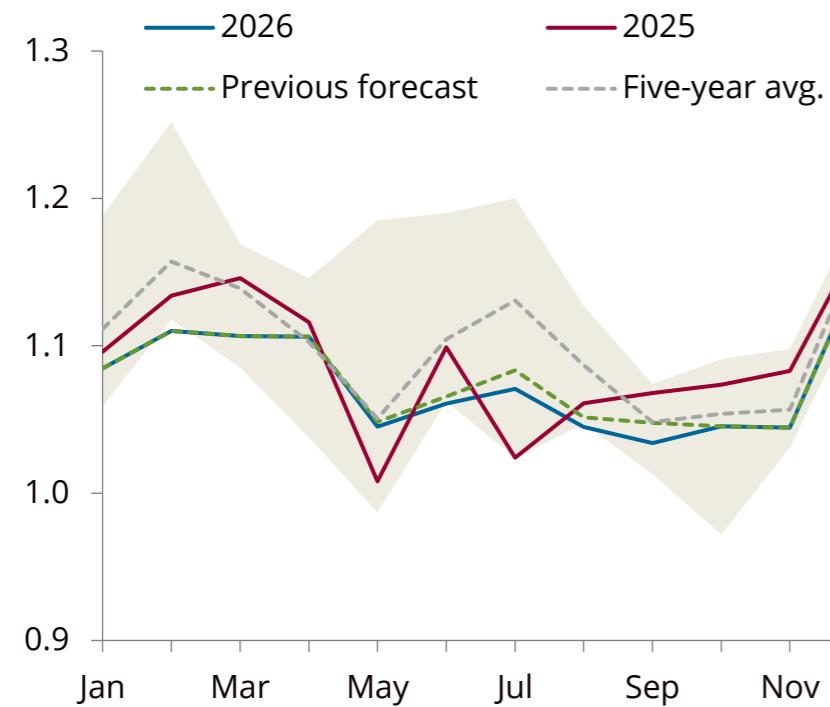
- European LPG demand is forecast to sit around 50 kb/d lower q/q and around 32 kb/d lower y/y in Q4 25, as regional supply remains constrained by higher y/y propane reinjection (spiking) and generally lower upstream production from the North Sea.
- We do not expect this to impact ARA propane prices though, as overall US–Europe LPG flows will exceed lower regional output, forecast at around 0.1 mb/d for October. US–Europe flows have averaged around 70 kb/d higher y/y through 2025 YTD.
- Delivered prices in Europe have not had to rise to pull more US supply into the region despite considerably higher VLGC freight rates y/y through most of 2025. This is likely to remain the case through Q4 25, with higher y/y US production and lower y/y Chinese demand for US-origin LPG likely to ensure lifters of US LPG (mostly propane) will still clear volumes into Europe.
- PADD 1 LPG export terminals have always cleared supply to Europe, although this year PADD 3 exports have notably increased flows to Europe y/y, with lower volumes clearing to Asian markets (primarily China). We expect this trend to persist through bal-2025.

Source: Energy Aspects

European LPG demand to fall slightly y/y in Q4 25 driven by petchem market

European LPG demand forecast

mb/d

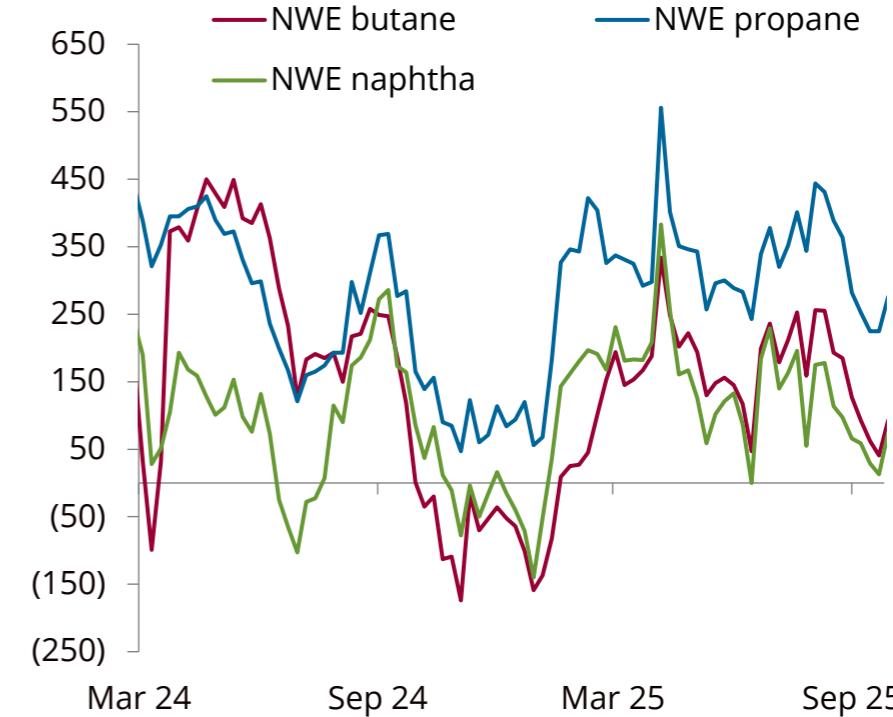


European LPG demand will be around 20 kb/d lower y/y in Q4 25, with downward revisions to Q3 25 as actual data came in around 20 kb/d lower than forecast.

Source: Energy Aspects

European steam-cracking margins

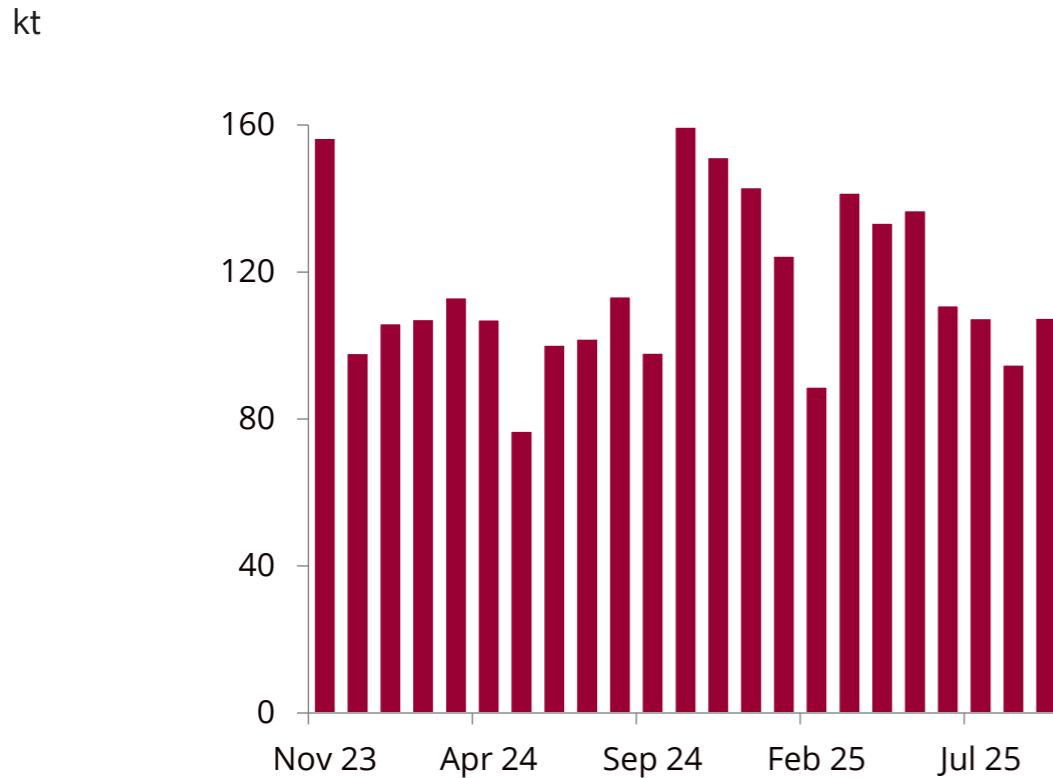
\$/t



Weak LPG demand is driven by bearish petrochemical sentiment. We previously wrote that strong margins masked the poor downstream picture; margins have since fallen sharply.

NWE butane's percentage to naphtha may rise on EU sanctions, but still lower y/y

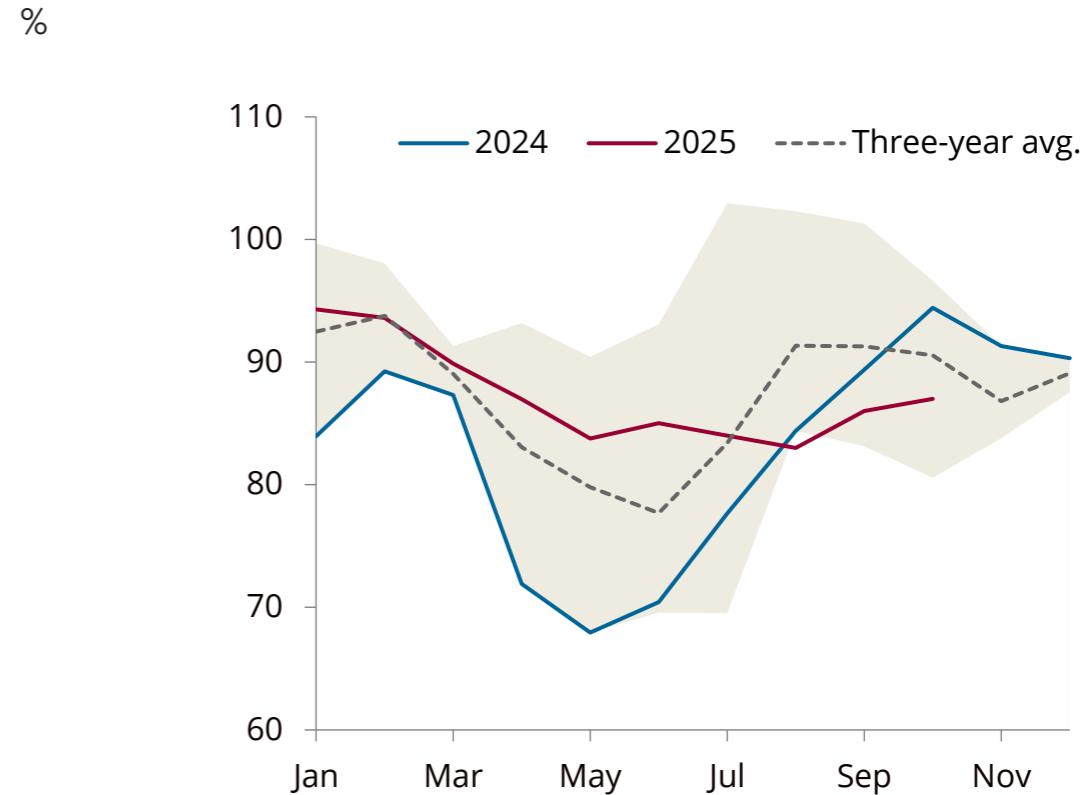
Polish waterborne LPG imports



As butane is the most affected LPG by proposed EU sanctions, more waterborne volumes may flow into Poland (if not sourced by rail), which could support butane's naphtha factor.

Source: OilX, CME, Energy Aspects

Spot butane – NWE naphtha factor



But upside may focus on n-butane and isobutane coasters' premiums, which have limited influence on butane-naphtha factors relative to mixed butane, so likely to remain lower y/y.

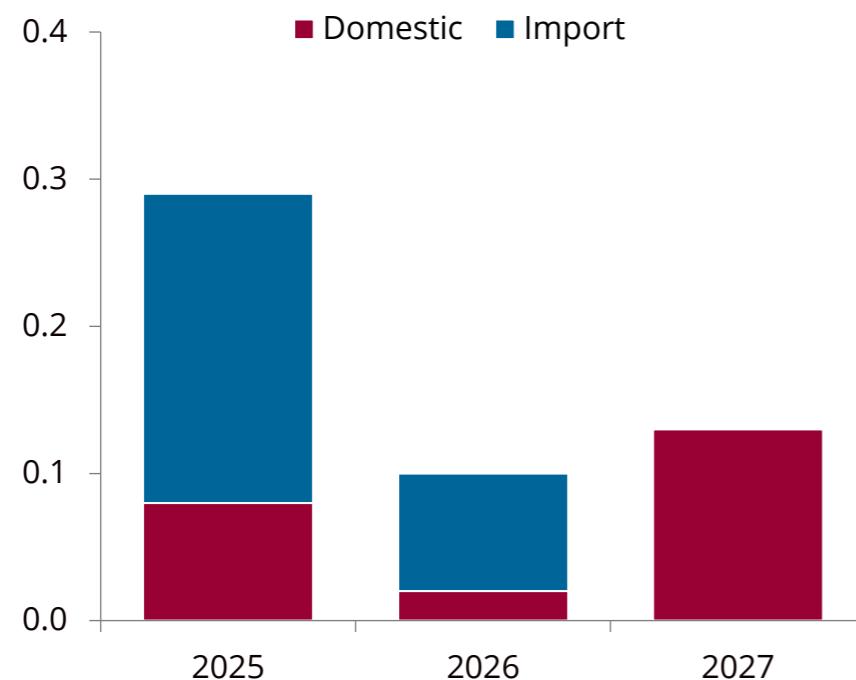
Global naphtha outlook



Asia to pull more on global merchant naphtha market in 2026

Chinese cracker naphtha demand additions by source

mb/d

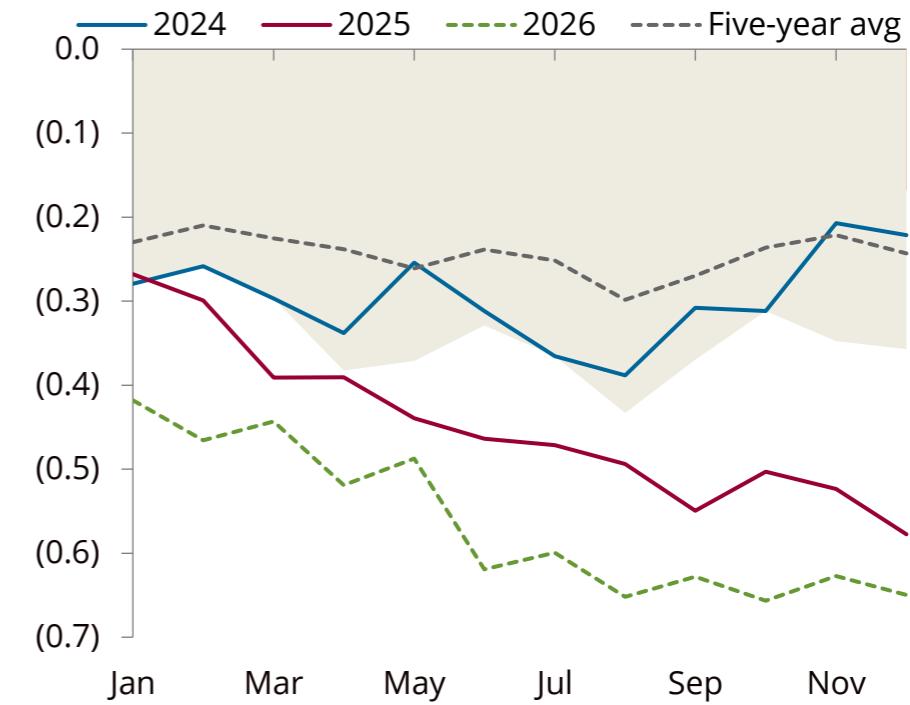


Chinese naphtha imports will need to rise by at least 80 kb/d in 2026.

Source: Energy Aspects

Naphtha net length in China

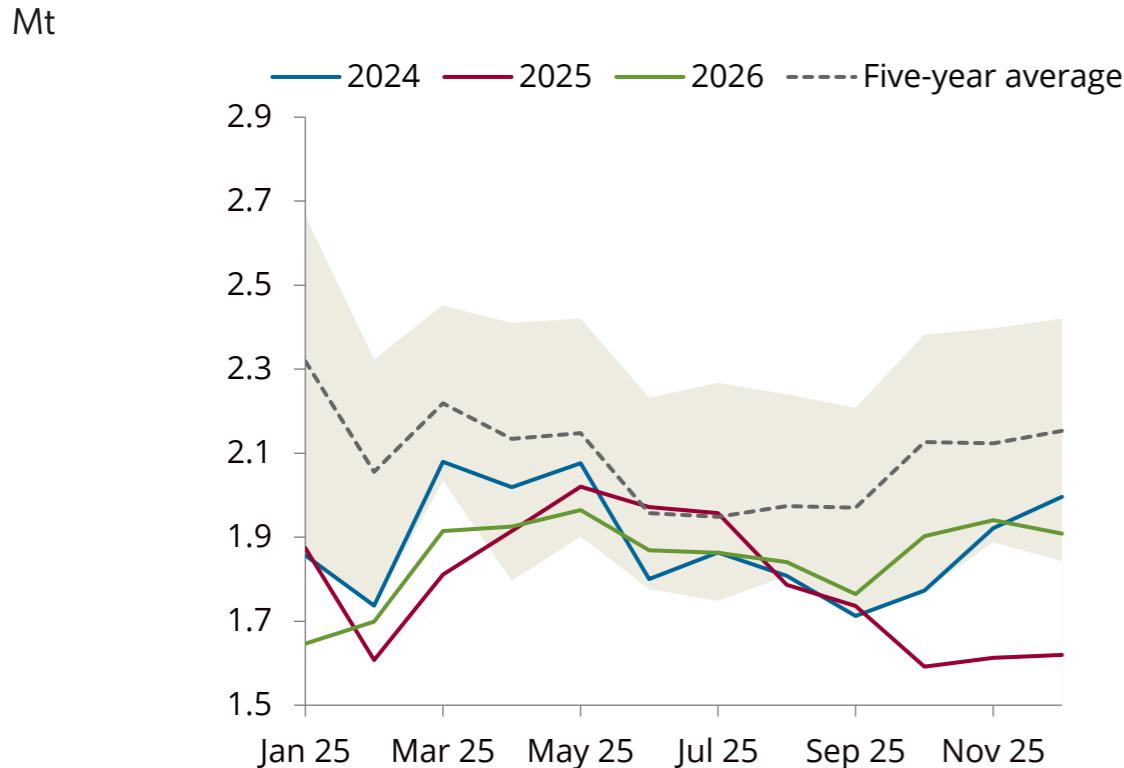
mb/d



Naphtha length will fall y/y in Q4 25 and the trend will continue into 2026, adding to China's need to import, even as domestic refinery output increases.

Russian production will not fully recover until Q1 26, east–west to remain elevated

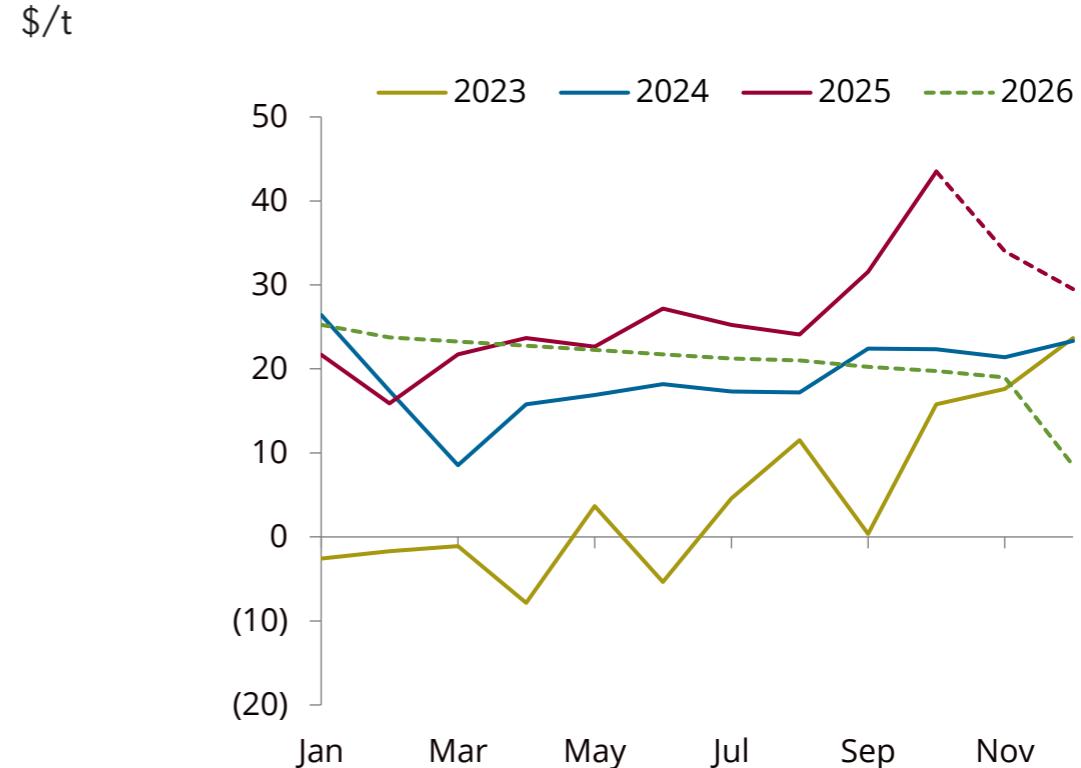
Russian naphtha production



Russian naphtha production down by 0.9 Mt y/y in Q4 25, full recovery not expected until Q1 26. Further risk to Russian supply possible if attacks on oil infrastructure continue.

Source: OilX, Argus Media Group, Energy Aspects

Prompt east–west naphtha spread and forward curve

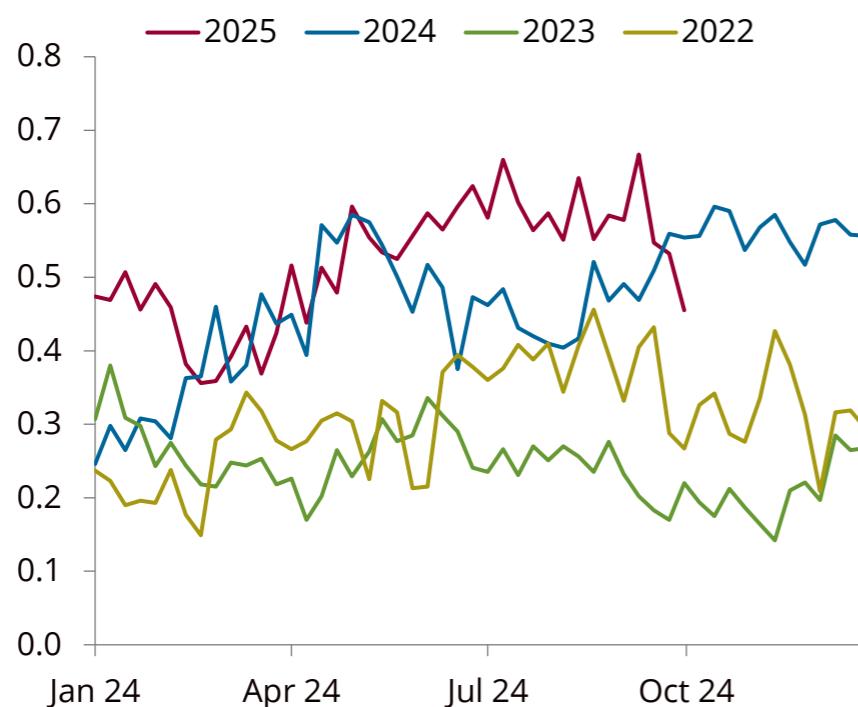


East–west spreads to remain around \$30/t until Russian supply issues resolved. Spread to remain stronger y/y, even when Russian supply normalises.

Demand pull from Asia will keep European downside capped

ARA naphtha stocks

Mt

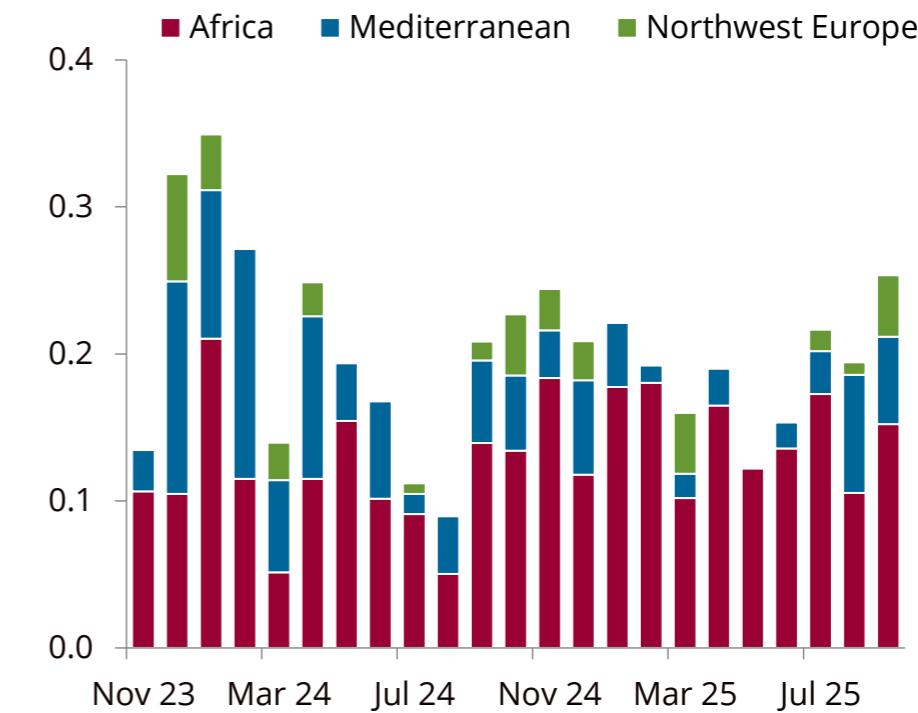


Stocks in Europe will be lower y/y for bal-2025 while Asia pulls on Algerian supply, away from Northwest Europe.

Source: Refinitiv, OilX, Energy Aspects

European and Mediterranean naphtha flows to Asia

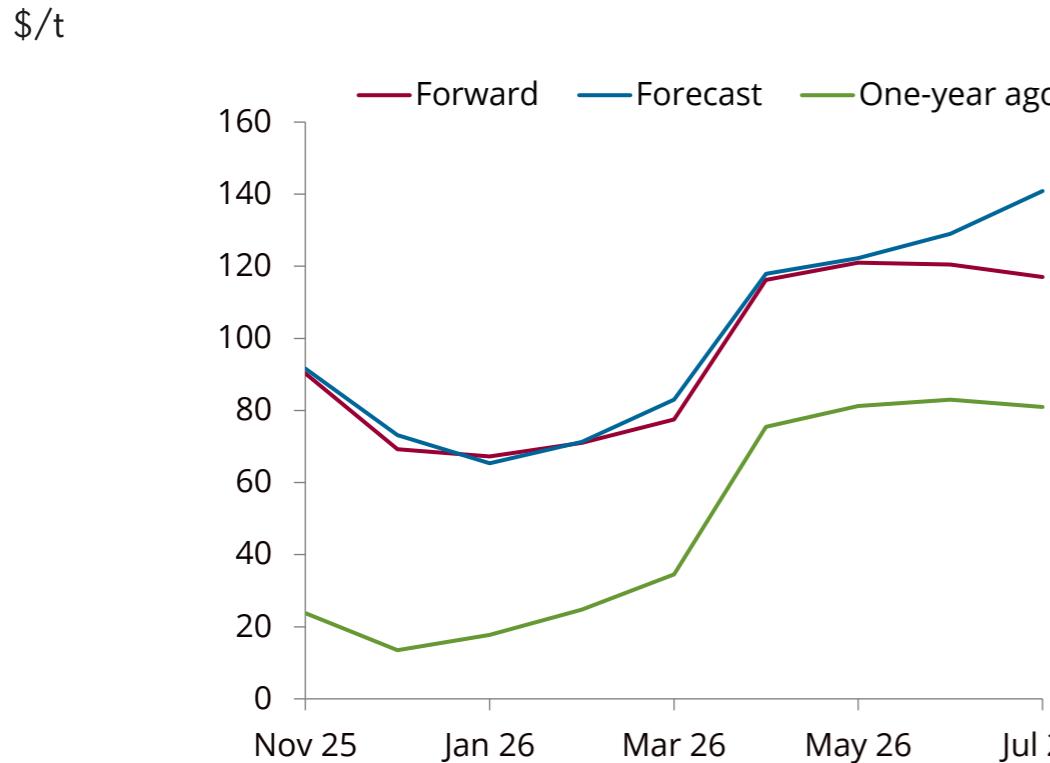
mb/d



Flows east from Europe and Mediterranean hit highest point since February 2024 in September, to replace lost Russian supply. Elevated flows will continue until beginning Q1 26.

Gasoline–naphtha spreads incentivise blending, upside possible

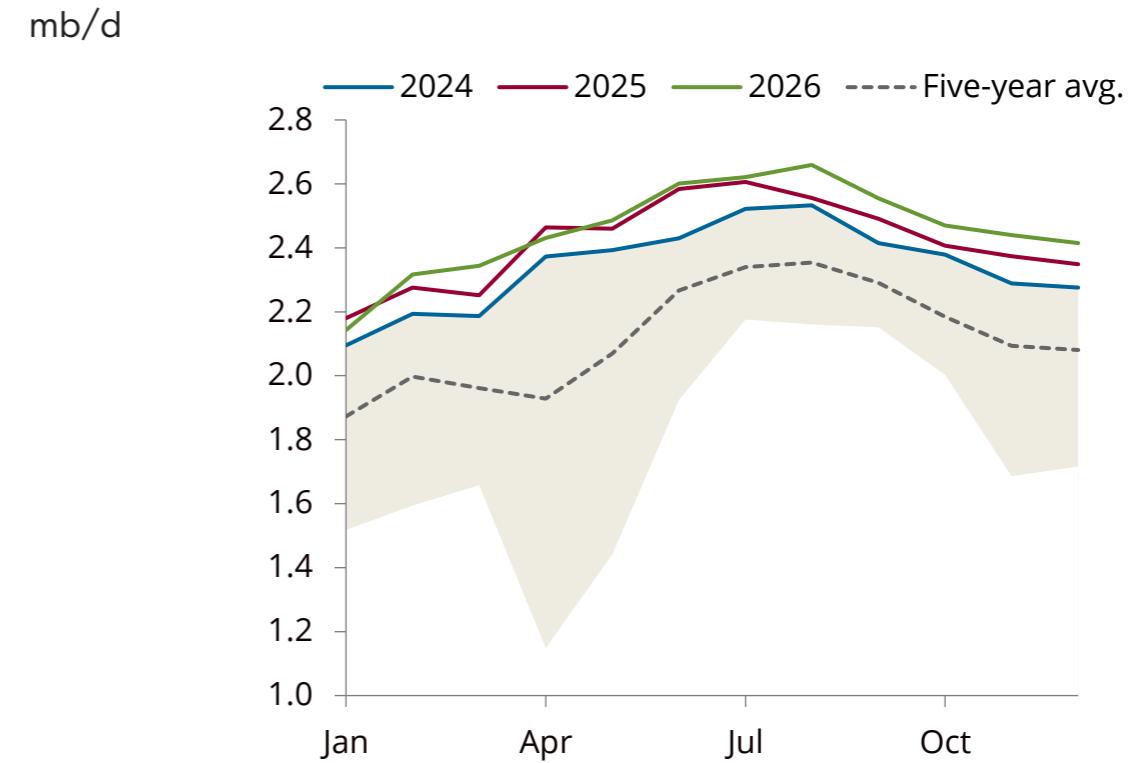
Gasoline–naphtha spread in Northwest Europe



Blending incentive will be higher y/y in Q1 26 and upside to gasoline–naphtha possible if disruption to gasoline production re-occurs at Dangote.

Source: Argus Media Group, General Index, CME, Energy Aspects

European gasoline demand



Blending demand in Europe will grow y/y by 40 kb/d in 2026, supporting gasoline–naphtha spreads y/y.

Regional balances



US NGLs balances – Increasing GORs and NGLs content in gas will add market length

US NGLs balances

kb/d

	Q1 '25	Q2 '25	Q3 '25	Q4 '25	Q1 '26	Q2 '26	Q3 '26	Q4 '26
United States	2,902	4,318	3,845	3,058	3,139	4,120	3,648	2,913
Demand	3,819	3,285	3,513	3,748	3,792	3,321	3,500	3,933
Supply	6,721	7,604	7,358	6,807	6,931	7,441	7,148	6,847
Ethane	482	695	444	591	567	644	376	443
Demand	2,394	2,406	2,529	2,396	2,362	2,392	2,500	2,570
Supply	2,877	3,101	2,972	2,987	2,929	3,036	2,876	3,013
Propane	1,260	1,992	1,941	1,495	1,370	1,937	1,900	1,494
Demand	1,205	573	642	1,019	1,173	601	644	1,018
Supply	2,466	2,565	2,583	2,514	2,543	2,538	2,544	2,513
Normal Butane	589	929	831	378	584	890	793	360
Demand	19	83	115	110	50	106	136	126
Supply	609	1,012	947	488	634	996	928	486
Isobutane	259	223	267	265	296	252	275	268
Demand	200	224	226	223	207	223	220	219
Supply	459	447	493	488	503	476	495	487
Natural Gasoline	311	480	362	330	322	395	303	349
Demand	--	--	--	--	--	--	--	--
Supply	311	480	362	330	322	395	303	349
Total	2,902	4,318	3,845	3,058	3,139	4,120	3,648	2,913
Demand	3,819	3,285	3,513	3,748	3,792	3,321	3,500	3,933
Supply	6,721	7,604	7,358	6,807	6,931	7,441	7,148	6,847

- We have revised our US NGLs production forecast higher by 61 kb/d in 2025 and by 0.15 mb/d in 2026, reflecting increasing NGLs content in our produced natural gas sample. While Anadarko, Appalachia and Bakken basins are exhibiting these signs now, we expect this shift will occur across most NGLs-producing basins in the coming months and years.
- We revised Permian production down by 20 kb/d for bal-2025 and higher by roughly the same amount in 2026, reflecting the impact of natural gas pipeline constraints in the near term and higher GORs and NGLs content in produced gas over the medium term.
- Ethane markets are loosening q/q in Q4 25 as rising ethane export demand compresses domestic cracking demand on the USGC. Furthermore, widening ethane–natural gas spreads have incentivised more ethane recovery in Q4 25. That said, rising natural gas prices during the winter heating season will pressure ethane recovery margins from below.
- US propane markets are tighter y/y in Q4 25 driven by a much larger corn crop (+13% y/y), which will boost propane demand into Q1 26. Furthermore, higher domestic Canadian demand y/y will reduce the amount of propane available to export into the US, further tightening balances.

Source: Energy Aspects

Asia LPG balances – Higher y/y Middle East flows mask tighter y/y Q4 25 balance

Asia LPG balances

kb/d

	Q1 '25	Q2 '25	Q3 '25	Q4 '25	Q1 '26	Q2 '26	Q3 '26	Q4 '26
China	(1,147)	(1,008)	(1,238)	(1,172)	(1,191)	(1,289)	(1,237)	(1,067)
Demand	2,785	2,754	2,925	2,789	2,930	2,987	2,974	2,801
Supply	1,638	1,746	1,687	1,617	1,740	1,698	1,737	1,734
India	(573)	(512)	(589)	(598)	(607)	(518)	(612)	(628)
Demand	1,049	988	1,056	1,088	1,086	1,000	1,085	1,118
Supply	476	476	468	491	479	482	474	490
Japan	(431)	(334)	(256)	(400)	(431)	(313)	(251)	(375)
Demand	515	413	341	481	505	387	324	446
Supply	85	79	85	82	74	74	73	71
Korea	(244)	(257)	(267)	(261)	(271)	(293)	(286)	(270)
Demand	326	337	347	337	344	366	358	342
Supply	81	79	80	76	73	73	72	72
Southeast Asia	(72)	(130)	(116)	(117)	(104)	(160)	(154)	(134)
Demand	524	580	570	567	562	612	608	591
Supply	452	450	453	450	457	452	454	457
Other Asia	(11)	(8)	(16)	(14)	(10)	(8)	(14)	(11)
Demand	225	224	235	236	228	231	235	237
Supply	214	216	220	222	219	223	221	226
Total	(2,477)	(2,249)	(2,482)	(2,562)	(2,615)	(2,581)	(2,554)	(2,484)
Demand	5,423	5,296	5,474	5,499	5,657	5,583	5,585	5,535
Supply	2,945	3,047	2,992	2,937	3,042	3,002	3,031	3,050

Source: Energy Aspects

- Asian Q4 25 LPG balances are slightly tighter y/y and around 0.12 mb/d tighter q/q, though looser y/y Q4 25 Middle East LPG balances (by 85 kb/d) and considerably weaker y/y propane demand sentiment will remain the price driver for Asian LPG markets in Q4 25.
- Indian LPG balances remain around 60 kb/d tighter y/y in Q4 25 due to robust demand but relatively steady domestic LPG supply. Since India plans to buy more US-origin LPG, Middle East LPG prices will not benefit by strong Indian LPG demand.
- Chinese Q1 26 LPG balances are slightly looser y/y, as the 0.15 mb/d higher y/y demand is partially met with 0.1 mb/d higher y/y domestic LPG supply.

Naphtha balances – Q1 26 balances tighter y/y as Asian market pulls on global supply

Global naphtha balances

kt

	Q1 '24	Q2 '24	Q3 '24	Q4 '24	Q1 '25	Q2 '25	Q3 '25	Q4 '25	Q1 '26	Q2 '26
N. America	1,952	2,572	2,018	2,374	1,754	2,231	1,551	1,827	1,716	2,372
Demand	2,567	1,880	2,016	2,458	2,347	2,383	2,333	2,386	2,457	2,132
Supply	4,519	4,452	4,034	4,831	4,101	4,614	3,884	4,213	4,172	4,503
Europe	(996)	(2,313)	(1,075)	(1,446)	(921)	(1,398)	(640)	(989)	(690)	(693)
Demand	13,157	13,113	12,313	12,672	13,139	12,554	12,067	12,207	12,653	11,993
Supply	12,161	10,800	11,238	11,226	12,218	11,156	11,427	11,218	11,963	11,299
FSU	4,397	4,593	4,081	4,370	3,992	4,605	4,159	3,448	3,951	4,432
Demand	1,429	1,418	1,464	1,448	1,432	1,442	1,473	1,471	1,431	1,430
Supply	5,826	6,011	5,545	5,818	5,424	6,047	5,632	4,919	5,382	5,862
M. East	6,701	6,139	6,373	6,490	6,093	6,080	6,725	6,642	6,035	6,174
Demand	4,420	5,108	5,133	4,712	4,950	5,028	4,798	4,453	4,685	5,068
Supply	11,121	11,247	11,506	11,202	11,043	11,108	11,523	11,095	10,720	11,242
Asia-Pac.	(12,172)	(12,478)	(13,149)	(13,229)	(13,047)	(13,704)	(15,539)	(15,223)	(14,699)	(15,837)
Demand	54,589	52,878	54,596	55,526	53,782	53,917	55,848	56,854	56,581	57,429
Supply	42,417	40,400	41,447	42,298	40,735	40,213	40,309	41,632	41,882	41,591
China	(3,024)	(3,277)	(3,860)	(2,765)	(3,433)	(4,596)	(5,391)	(5,376)	(4,649)	(5,708)
Demand	23,205	22,354	23,932	23,814	23,318	23,986	24,667	25,608	24,950	26,254
Supply	20,181	19,077	20,072	21,049	19,886	19,390	19,277	20,232	20,301	20,546
Global	2,054	716	731	1,609	(179)	(337)	(1,552)	(1,753)	(1,629)	(1,516)
Demand	78,859	77,211	78,227	79,132	78,290	77,928	79,104	79,729	80,475	80,760
Supply	80,913	77,927	78,958	80,741	78,111	77,591	77,552	77,976	78,846	79,244

- Global balances will tighten by 1.6 Mt y/y in Q1 26, largely driven by steam cracker additions in Asia.
- Asian demand is set to grow by 2.6 Mt y/y in Q1 26, tightening balances by 1.7 Mt.
- European demand will fall by 0.5 Mt y/y in Q1 26 as poor petrochemical margins and cheaper propane pressure steam cracker utilisation.
- Middle East supply will fall by 0.3 Mt y/y in Q1 26.
- Russian supply will recover from 2025 low in Q4 25 into Q1 26, rising by 0.4 Mt q/q but still marginally lower y/y.
- Asian naphtha demand revised lower by 0.2 Mt in Q4 25 on our expectation of weaker propane-naphtha spreads until Q1 26, keeping propane a favoured feedstock until then.

Source: Energy Aspects

Price forecasts

Energy Aspects LPG/NGLs price actuals vs forecast (2024-27)

		Mont Belvieu				ARA		Saudi CP		AEI	
		Ethane (¢/USg)	Propane (¢/USg)	Propane (\$/t)	Butane (¢/USg)	Propane (\$/t)	Butane (\$/t)	Propane (\$/t)	Butane (\$/t)	Propane (\$/t)	Butane (\$/t)
2024	forecast	19	78	405	96	545	541	600	597	633	630
1st quarter	actual	20	83	432	102	527	585	627	637	611	621
2nd quarter	actual	19	75	391	89	517	470	592	591	621	615
3rd quarter	actual	16	74	386	96	584	542	580	565	655	642
4th quarter	actual	21	79	410	96	550	568	601	595	646	643
2025	forecast	27	75	393	91	486	497	522	519	551	550
1st quarter	actual	20	91	475	109	562	579	608	605	623	623
2nd quarter	forecast	26	70	364	83	441	451	470	468	497	493
3rd quarter	forecast	31	75	390	89	481	480	506	505	544	546
4th quarter	forecast	30	66	343	84	460	478	502	497	540	538
2026	forecast	33	72	376	88	467	478	501	498	531	529
1st quarter	forecast	37	74	385	91	456	473	493	490	505	506
2nd quarter	forecast	30	67	348	80	421	430	449	446	475	471
3rd quarter	forecast	35	75	390	89	480	480	506	504	544	545
4th quarter	forecast	32	73	381	91	510	528	557	552	599	596
2027	forecast	33	76	394	91	489	500	525	522	556	555

Source: Argus Media Group , LSEG, Energy Aspects



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Energy Aspects Ltd is registered in England No. 08165711.
Registered office: Level 10, 25 North Colonnade, London E14 5HZ, United Kingdom

analysts@energyaspects.com