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Argus LPG Outlook

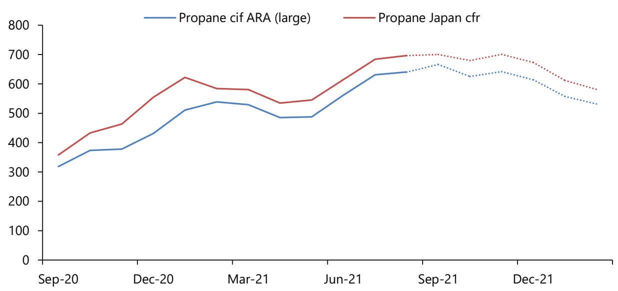
The quarter ahead

Crude prices are forecast to taper off from the highs they reached this summer as rising output from Opec+ producers and lower transport fuel demand will weigh on prices — dampening LPG prices on an outright basis. Bullish sentiment continues to drive the strength in LPG prices globally. The historically low level of US stocks remains a concern, and with only a few weeks left in the stockbuilding season it is unlikely that inventories will increase significantly, which will drive strong fundamentals in the coming quarter.

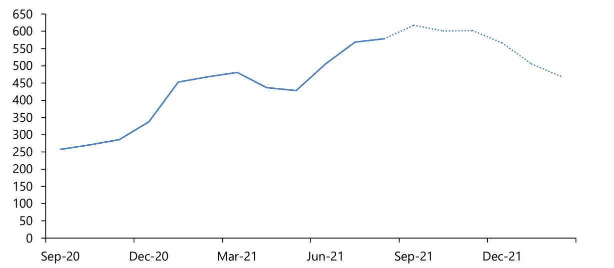
China continues to expand its propane dehydrogenation (PDH) capacity this year, requiring feedstock imports from the US and the Middle East. In the immediate term, planned turnarounds will weigh on import demand — but propane's premium to naphtha is expected to persist throughout the rest of this year. In the longer term, eroding petrochemical margins owing to firm feedstock costs could be a factor contributing to lower operating rates and consumption. Uncertainty over the global economy could delay further PDH plant start-ups in the next two years.

Very large gas carrier (VLGC) spot freight rates are forecast to remain in line with levels seen in 2019 and 2020. The increase in tonne-mile demand and VLGC capacity additions will support a well-balanced freight market.

Propane cif ARA, cfr Japan $/t



Propane Mont Belvieu (EPC) $/t



LPG
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Forecast prices									$/t
	Sep 21	Oct 21	Nov 21	3Q21	4Q21	1Q22	2021	2022	2023
Propane cif ARA (large)	666	625	642	646	627	531	578	445	415
Butane cif ARA (large)	684	633	626	657	619	540	570	450	419
Propane Mt Belvieu EPC	618	601	602	588	590	472	525	385	354
Butane Mt Belvieu EPC	665	647	654	607	648	505	530	412	380
USGC propane export	642	625	626	614	616	508	543	422	392
Propane Conway	597	587	591	584	579	474	519	377	340
Propane Edmonton	521	524	539	498	525	417	414	330	293
Mixed butane Edmonton	557	563	584	498	575	436	413	338	323
Propane Japan cfr	700	680	701	694	685	581	635	493	462
Butane Japan cfr	691	679	678	687	677	616	622	518	485
Daf Brest Propane	743	675	680	674	668	552	615	467	436
Propane Saudi CP	665	645	665	648	670	618	610	500	433
Butane Saudi CP	665	655	670	650	680	638	602	518	451
North Sea Dated (*$/bl*)	71.00	70.00	69.00	72.25	69.00	65.00	67.70	57.92	55.00
LLS (*$/bl*)	70.47	68.59	67.87	70.68	67.97	64.50	66.65	57.52	54.34
Naphtha cif NWE	636	617	605	650	604	561	597	494	466
Naphtha Japan C and F	641	625	613	655	612	579	604	512	483

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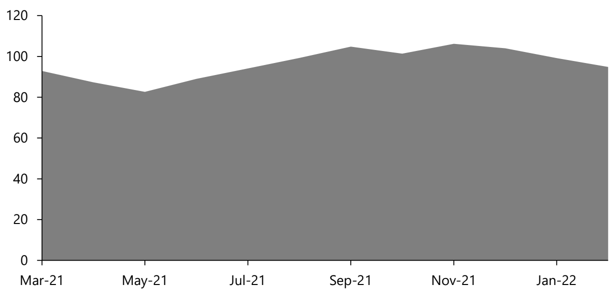
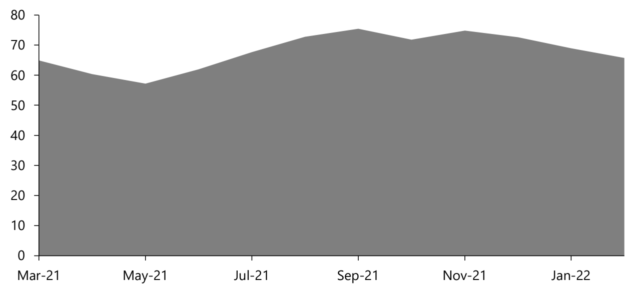
Petrochemical feedstock prices - Aug		$/t
	Price	±
Ethane fob Mt Belvieu (¢/USG)	33.53	+2.20
Naphtha cif NWE	645	-25
Naphtha c+f Japan	646	-30
Ice gasoil	578.81	-20

Crude prices - Aug		$/bl
	Price	±
North Sea Dated	70.75	-4.2
Ice Brent	70.51	-3.8
Louisiana Light Sweet	68.55	-4.5
Nymex WTI	67.71	-4.7
Dubai	69.28	-3.5

Propane cif ARA large as percentage of naphtha cif



Propane cif ARA large as percentage of North Sea Dated



Outlook summary

- Strong LPG prices are eroding petrochemical margins — driving down consumption of LPG in flexible ethylene steam cracking operations.
- Bullish fundamentals are expected to dominate during peak seasonal LPG demand.
- Weaker crude prices are forecast for the rest of this year, with North Sea Dated averaging $69/bl in the fourth quarter.

Crude prices are forecast to ease from the highs of recent months. Atlantic basin benchmark crude North Sea Dated peaked in July at $75/bl — the highest monthly average since October 2018. *Argus* expects this price to move in line with weaker market fundamentals in the coming months.

Global gasoline and diesel demand are back to pre-pandemic levels and OECD stocks are below the five-year average, but bearish factors such as weaker Asia-Pacific demand owing to renewed lockdowns, rising Opec+ output and signs of weaker road fuel demand are likely to weigh on crude prices.

Demand for naphtha as a gasoline blending stock is expected to decline seasonally in the fourth quarter, and as propane and butane prices rise to a premium to the heavier feedstock, we forecast increased consumption of naphtha in steam cracking, in turn supporting naphtha prices.

LPG follows the wider energy market in that outright values will be weaker, but LPG fundamentals are particularly bullish going into peak seasonal demand.

Japan cfr propane and butane prices averaged 108pc and 107pc of naphtha, respectively, in August, the highest ratio for the month in recent years. This strength was driven by continuing concerns over US propane inventory levels. Stronger demand this year, especially from the Chinese PDH sector, and tighter supply are well reflected in LPG assessments.

The Chinese PDH expansion continues — 600,000 t/yr of capacity is scheduled to come on line this quarter and another 416,000 t/yr in the fourth quarter. But planned turnarounds will weigh on import demand in the short term.

PDH cash margins on a spot propane Japan cfr basis have been weakening for several weeks, owing to high propane prices . We noted in previous issues of this report that persistently weak margins could result in operating rates falling, but this is yet to materialise, suggesting that overall margins along the product chain — from propane, propylene and downstream polyproylene — are still economical.

Planned additional PDH capacity in 2022 is expected at around 4mn t/yr, with a further 6mn t/yr in 2023. But the global macroeconomic environment will be an important factor determining the start-up schedules and operating rates of these plants. The latest PMI survey shows weaker expectations for manufacturing and services activity in China. And in the US, China's largest trading partner, growth in consumer spending and manufacturing shows signs of slowing.

High prices in Asia-Pacific are filtering through to northwest Europe. Propane cif ARA large cargoes averaged at close to parity with naphtha in August. This compares with an average August ratio of 83pc between 2016 and 2020. High LPG feedstock prices are eroding margins for petrochemical producers. Operators switching to naphtha for better economics means there is no shortage of LPG in the immediate term.

VLGC spot freight rates have maintained the highs of 2019, and increasing tonne mile demand is expected to further support rates on the main trading routes. This raises the question of whether there is sufficient VLGC capacity available to meet demand.

VLGC deliveries totalled 13 vessels in the first half of this year. This is expected to be matched in the second half, bringing our estimate for new VLGCs to 26 across 2021. A number of large orders contributed towards this, with Malaysia's Petronas significantly expanding its capacity and Belgian firm Exmar gaining two of the world's largest dual-fuel VLGCs.

We expect fleet growth to outpace LPG demand growth in the short and medium term. The orderbook currently stands at just over 50 VLGCs, up from around 40 last October. This level of fleet growth is reminiscent of the surge in newbuild VLGCs that led to a market downturn between 2016 and 2018. But demand increases may prove more sustainable this time around.

Global fundamentals								'000t
	2020	1Q21	2Q21	3Q21	4Q21	2021	2022	2023
LPG supply								
Gas processing	211,728	51,796	56,042	54,980	50,297	213,115	218,420	223,217
Refining	114,142	30,460	32,575	32,202	29,375	124,611	130,464	132,682
Total LPG supply	325,871	82,256	88,617	87,181	79,671	337,726	348,884	355,899
Capacity ('000 b/d)	98,102	99,271	99,271	99,271	99,271	99,271	100,152	100,153
Utilisation (%)	0.71	0.73	0.78	0.78	0.71	0.75	0.77	0.77
Trade position								
LPG import requirement	126,081	33,888	32,592	33,217	34,228	133,925	139,156	145,731
LPG export availability	133,738	35,024	33,146	32,468	37,436	138,074	142,385	145,869
LPG demand	318,138	86,380	79,894	81,188	86,114	333,577	345,680	355,695

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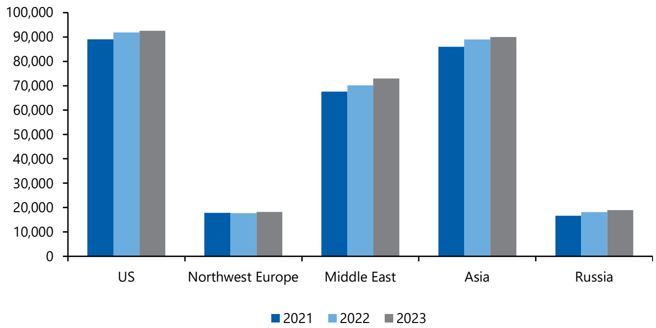
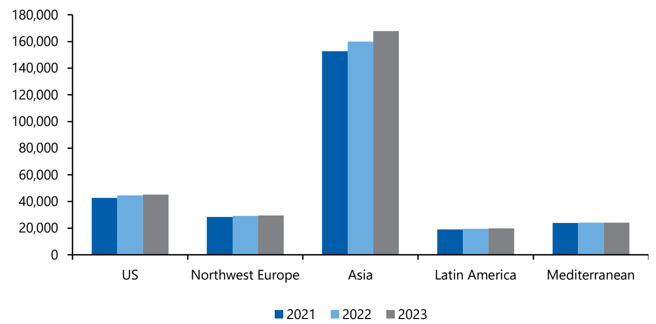
LPG major producing regions 2020-2022 *'000t*



LPG major consuming regions 2020-2022 *'000t*



Regional fundamentals - LPG								'000t
	2020	1Q21	2Q21	3Q21	4Q21	2021	2022	2023
US								
Production	87,442	19,552	24,544	24,866	20,025	88,988	91,820	92,495
Import requirement	4,304	1,297	848	935	1,224	4,304	4,304	4,304
Export availability	49,349	11,408	12,482	12,897	13,746	50,534	51,611	51,590
Consumption	42,398	12,593	8,837	9,040	12,287	42,758	44,513	45,210
Canada								
Production	14,352	4,127	3,389	3,675	3,318	14,510	14,549	14,698
Import requirement	396	104	107	88	97	396	396	396
Export availability	6,674	1,191	2,057	2,707	1,092	7,048	6,557	6,645
Consumption	8,074	2,209	1,765	2,057	1,828	7,859	8,388	8,450
Mexico								
Production	3,209	837	824	800	748	3,209	3,347	3,479
Import requirement	5,576	1,503	1,255	1,198	1,822	5,778	5,642	5,359
Export availability	21	0	6	2	12	21	21	21
Consumption	8,765	2,403	1,968	2,092	2,504	8,966	8,968	8,817
Latin America								
Production	13,400	3,568	3,193	3,331	3,189	13,281	13,721	13,839
Import requirement	7,443	1,876	2,079	2,113	1,980	8,049	7,947	8,029
Export availability	2,338	816	440	323	628	2,208	2,164	2,081
Consumption	18,505	4,438	4,993	5,057	4,635	19,123	19,504	19,786
Northwest Europe								
Production	17,453	4,562	4,694	4,569	4,078	17,903	17,719	18,257
Import requirement	18,759	5,832	4,986	5,349	5,505	21,672	22,624	22,535
Export availability	11,078	2,969	2,718	2,593	2,813	11,093	11,223	11,315
Consumption	25,160	7,457	6,886	7,293	6,846	28,483	29,120	29,477
Mediterranean	-26							
Production	16,571	4,348	4,001	4,226	4,027	16,602	16,698	16,899
Import requirement	14,601	4,293	3,471	3,493	3,916	15,172	15,185	14,979
Export availability	8,177	1,892	2,144	2,132	1,751	7,918	7,752	7,743
Consumption	23,252	6,581	5,565	5,645	6,065	23,856	24,132	24,135
Middle East								
Production	65,792	16,170	19,299	17,212	14,874	67,555	70,155	72,954
Import requirement	0	0	0	0	0	0	20	37
Export availability	38,211	11,439	8,468	7,370	12,318	39,595	41,788	44,482
Consumption	27,582	7,464	6,954	6,433	7,109	27,960	28,387	28,508
Africa								
Production	5,552	1,929	1,747	1,096	1,171	5,944	6,605	7,114
Import requirement	2,835	711	1,064	796	620	3,191	3,274	3,428
Export availability	3,245	1,548	547	375	1,060	3,530	3,964	4,291
Consumption	5,129	1,433	1,531	1,312	1,329	5,605	5,903	6,186
Russia								
Production	16,252	4,381	3,932	4,096	4,271	16,681	18,119	18,954
Import requirement	0	0	0	0	0	0	0	0
Export availability	4,044	982	1,171	1,077	1,041	4,271	5,535	6,094
Consumption	12,209	3,308	2,835	3,064	3,203	12,410	12,585	12,861
Other FSU								
Production	5,689	1,842	1,745	1,650	1,861	7,098	7,242	7,258
Import requirement	1,882	456	445	571	495	1,967	2,051	2,165
Export availability	4,055	1,318	1,482	1,318	1,177	5,295	5,062	4,893
Consumption	3,516	996	933	925	917	3,770	4,268	4,530
Asia-Pacific								
Production	80,157	20,939	21,249	21,660	22,108	85,955	88,909	89,951
Import requirement	70,284	17,815	18,335	18,675	18,570	73,395	77,712	84,498
Export availability	6,547	1,461	1,630	1,675	1,798	6,564	6,709	6,714
Consumption	143,548	37,500	37,625	38,269	39,392	152,786	159,912	167,735

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Regional analysis

Northwest Europe and Mediterranean

Propane values rose to a premium to naphtha from the second half of August, averaging slightly above parity at 101pc of the competing feedstock. Naphtha weakened owing to lower crude prices.

Last month, we reported disruptions in the region's main petrochemical hubs as flood damage in western Europe caused operational and logistical issues. These have now eased and polypropylene production has resumed from two of the crackers in the Netherlands, supporting production.

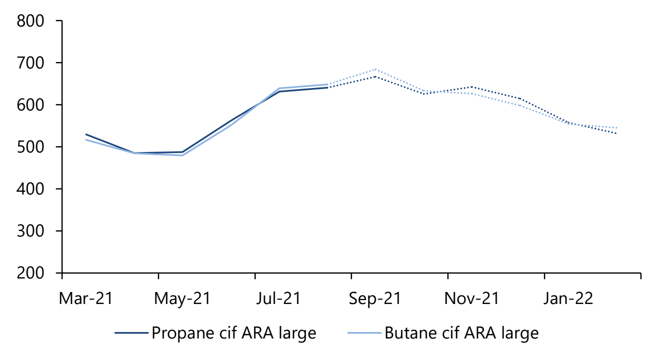
Naphtha margins have improved relative to LPG as a result of stronger LPG prices. Monthly modelled net contract cash margins for naphtha switched in August from deficits to providing premiums of €97/t to equivalent modelled propane margins and €58/t to butane.

The petrochemical sector is the main consumer of LPG at this time of year, in the absence of strong heating requirements, and the high relative price environment is keeping LPG off ethylene crackers' feedslates. Lower demand for cracking is likely to see the LPG market balance lengthen in the immediate term. Refinery utilisation in August averaged 82pc — similar to pre-pandemic levels.

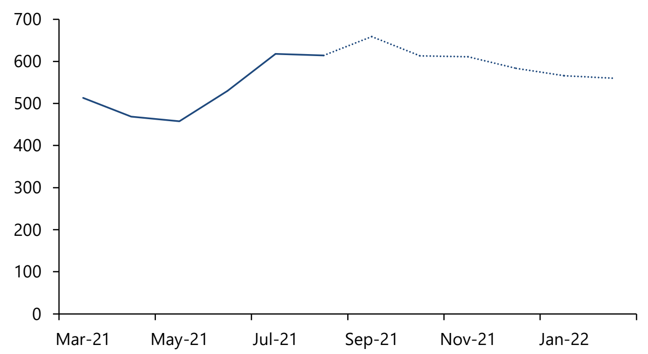
Northwest Europe LPG prices assessments have been tracking stronger prices in Asia-Pacific, where propane demand from PDH plants is at an all time high. A surge in natural gas prices to unusual premiums to LPG has encouraged refiners to use LPG as a fuel rather than selling incremental volumes to the market (*see natural gas vs propane prices chart*).

Cracking of the heavier feedstock is expected to support naphtha values through the winter. But some volumes of LPG

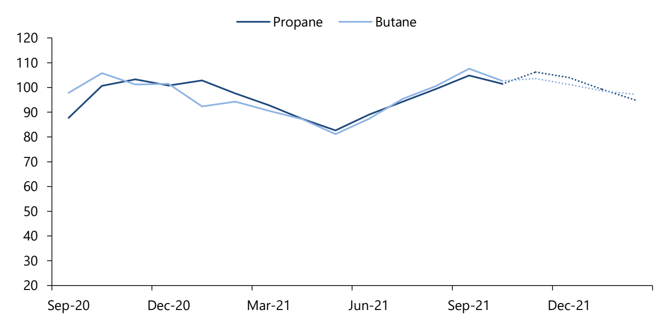
Propane and butane cif ARA large ***$/t***



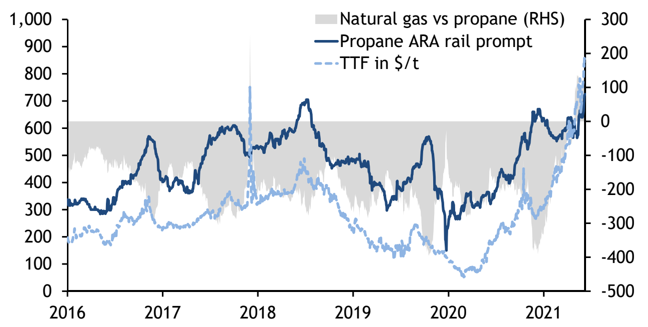
Butane cif Lavera large ***$/t***



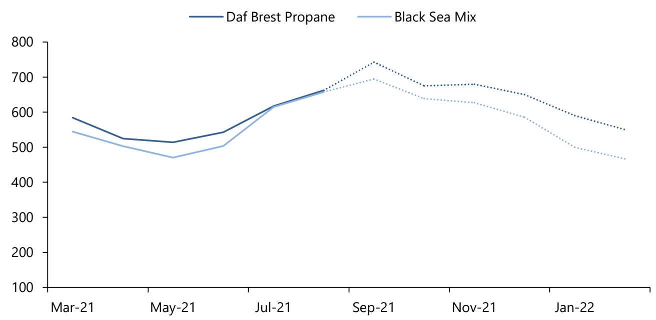
LPG ratio to naphtha northwest Europe ***%***



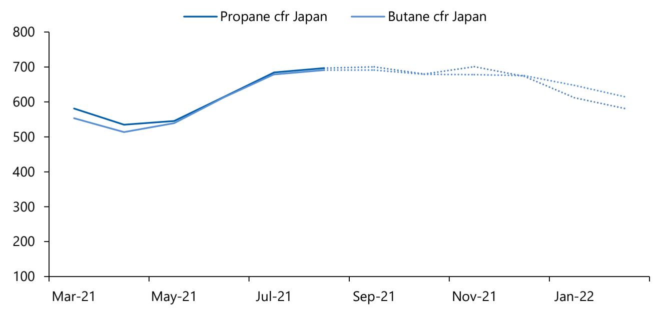
Natural gas vs propane prices ***$/t***



Daf Brest propane and Black Sea LPG mix **$/t**



Propane and butane cfr Japan **$/t**



can still be found in the feedslates of petrochemical operators with contractual LPG supply arrangements and overall product yield commitments.

In the Mediterranean region, Algerian state-owned Sonatrach's LPG production is down by about 80,000 t/month. This, combined with a recently unworkable US arbitrage and restricted refinery supply, has left the region tight.

Maintenance affecting 80,000t of the 200,000t of LPG storage capacity at Morocco's Mohammedia port may last until the end of this year. This, and reports of congestion at Moroccan ports, will cause small delays owing to ullage issues. But reductions like this are not infrequent, suggesting that the market should be well prepared.

Former Soviet Union

Constrained seasonal supply is the key feature of this regional market. Availability is low, owing to maintenance being carried out on Russian refineries and gas processing plants in September that is expected to last until October. The affected facilities include Gazprom's Orenburg and Astrakhan gas processing plants, Rosneft's Angarsk refinery, Tatneft's Minnibaevsky gas processing plant, the Berezkagaz plants and capacity operated by Irkutsk Oil.

Daf Brest propane price rose to $735/t in the first week of September — a premium of around $70/t to northwest European values — owing to tight supply and stable demand from Polish buyers. Ukrainian traders increased seaborne buying to compensate for a decline in land LPG deliveries, but capacity to transport product through Black Sea terminals is limited.

We forecast daf Brest propane to maintain a premium to northwest European values throughout the fourth quarter.

Asia-Pacific and Middle East

Strong LPG values continue to be driven by fears of a possible shortfall in US exports this winter. This has resulted in continued pressure on PDH margins — cash margins based on spot propane cfr Japan prices have been weak since the middle of June, dropping to negative values in some weeks.

The strength in naphtha during the summer is expected to fall gradually as the seasonal driving season in Europe and North America typically ends in September. A recovery can be expected during the fourth quarter as new ethylene steam crackers come on line, but weak cracker margins could dampen utilisation rates.

The average PDH operating rate in China is hovering around 74pc — down from 90pc recorded in July to mid-August. The shutdown of two plants — Ningbo Fuji and Ningbo Fuji 2 — has led to this decline. PDH plants that are operating are running at maximum rates.

Planned petrochemical shutdowns in the region are likely to weigh on demand in September. Turnarounds will include those at Wanhua and Huahong's PDH units in China, LG Chem in South Korea and CPC in Taiwan, but China will account for most of September's shutdowns.

Arbitrage economics between the US and Asia-Pacific remain under pressure following recent gains in the Mont Belvieu price. Any upside potential in the Asia-Pacific market is unlikely to be significant in September, but support for the Japan cfr price will strengthen as Chinese PDH plants return from maintenance in October.

This quarter saw the Anquing Taiheng and Ningxia Runfeng PDH plants, each with a capacity of 300,000 t/yr, come on line. The 250,000 t/yr Shandong Huifeng Haiyi Petrochemical and the 166,000 t/yr Henan Nanpu Technology plants are expected to start up before the end of this year.

By the end of 2021, 3.3mn t/yr of PDH capacity will have been added to the petrochemical sector in China. This additional capacity amid high propane prices and eroding margins could put pressure on PDH operating rates in the medium term.

US

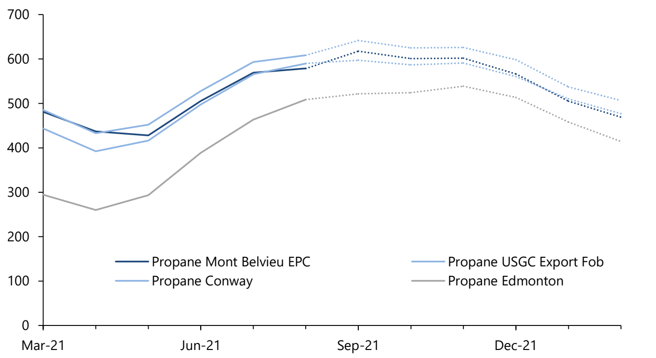
Strength in Mont Belvieu propane prices persists as the latest inventory data released by the EIA showed a lacklustre build in US stocks in the week ending 27 August, at just over 530,000 bl, bringing the total to 69.3mn bl, down by 27pc compared with a year earlier. The Gulf coast region reported a 500,000 bl draw, as exports by term customers remained fairly steady.

US exports of around 1mn b/d continue to flow. Japan, South Korea, Singapore and Indonesia have received more than half of the LPG exported by the US so far this year. Mexico is another key importer of US LPG, receiving around 10pc of US shipments in January to June.

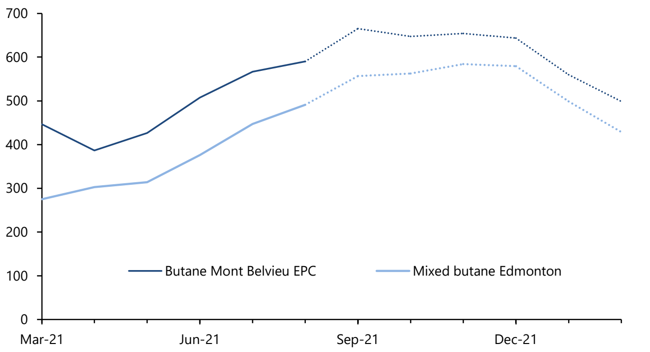
Exports continue to grow and have reached historical highs in 2021 — the first and second quarters of this year saw exports rise by 26pc and 31pc, respectively, compared with the average for those periods in 2016-20.

Hurricane Ida was well to the east of Gulf coast export terminals — except for a small facility near Baton Rouge, Louisiana — resulting in no delays to VLGC shipments because of the storm. It is likely that the small Norco fractionator in Louisiana came off line owing to power outages, but at 75,000 b/d, this is unlikely to have a significant impact on the market.

Propane fob Mt Belvieu and USGC export fob *$/t*



Butane Mt Belvieu EPC *$/t*

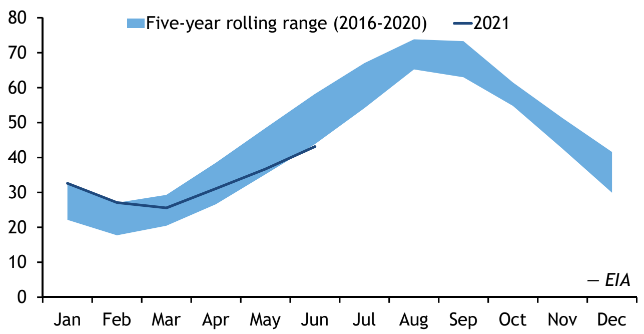


Significant upside potential for spot prices is unlikely in the immediate term. Although low stocks on the US Gulf coast provide little incentive for terminal operators to reduce their offers, higher prices in the next few months could offer stronger returns. And potential delays for unbooked vessels on the Panama Canal owing to early September maintenance means buyers are sitting on the sidelines.

US butane prices rose sharply on 1 September, to 86.7pc of Nymex WTI. Butane inventories are lower than five-year rolling averages owing to strong exports earlier in the year (*see chart*). The recent bullishness is being driven by early demand for butane blending to produce winter-grade gasoline.

The US Environmental Protection Agency has issued a waiver to bring forward the switch to winter-grade gasoline by two weeks in Louisiana and Mississippi. The waiver aims to increase supply, which has tightened as a result of refinery outages and flooding caused by Hurricane Ida, which are hindering the distribution of summer-grade gasoline from the region. This earlier uptick in butane demand is reflected in stronger butane prices.

US stocks of normal butane *mn bl*



Freight and arbitrage

We have seen a flattening and slight fall in spot freight rates during August, as high propane prices and weakening demand fundamentals have begun to filter through to global freight markets.

Rates for the Houston-Chiba route fell from August highs of $88.50/t to $82.50/t at the beginning of September. This has been driven partly by the easing of delays on the Panama Canal, with waiting times for unbooked Neopanamax vessels heading south now at five days after a sustained fall.

We also see significant planned shutdowns affecting Chinese PDH plants across September and October. As a result, we expect rates for the Houston-Chiba route to continue falling in the short term, with reduced demand impacting freight activity. We continue to monitor PDH margins, as further narrowing could lead to larger reductions in operating rates and Asia-Pacific LPG imports.

The rate on the Houston-Flushing route has also fallen slightly, now standing at $43.75/t. European LPG prices remain at a premium to naphtha values, as rising Asia-Pacific LPG prices have filtered through to the region. With European petrochemical demand for LPG expected to fall as it becomes less competitive against naphtha, we expect freight rates to continue a steady decline in the immediate term.

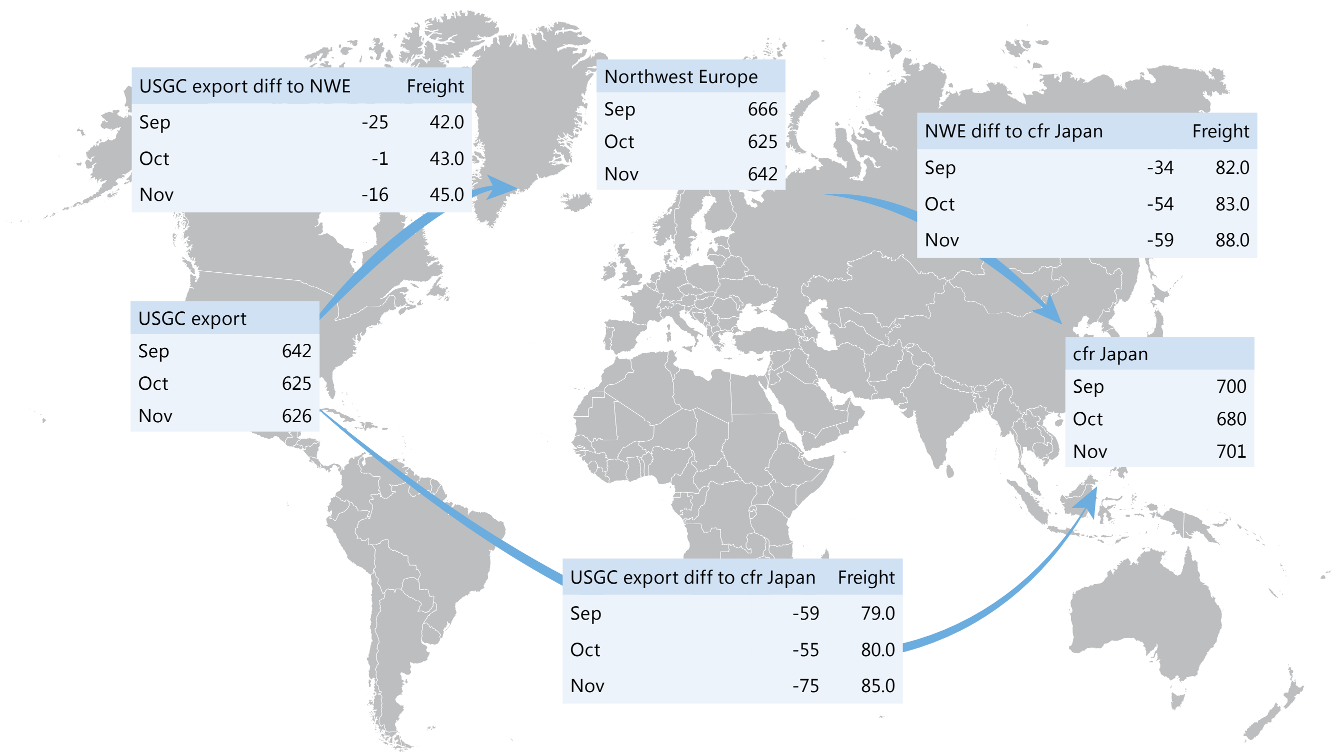
Continued increases to crude production across the Middle East have supported the Mideast Gulf to Asia-Pacific route, with rates flat at $42/t.

Arbitrage economics remain muted and are yet to see improvements from seasonally stronger demand. High propane prices mean that the arbitrage from the US to Asia-Pacific has stayed open at only a narrow margin.

Short-term forecast freight rates		$/t
	Sep	Oct
VLGC Mideast Gulf-Japan	41.0	42.0
VLGC Houston-Chiba	79.0	80.0
VLGC Houston-Flushing	42.0	43.0

PROPANE ARBITRAGE MAP

$/t



Crude overview

Since the July Opec+ meeting, crude prices have followed a volatile but downward path. North Sea Dated fell from $78/bl at the start of July to around $70/bl at the end of August (*see graph*). More recently, prices have pushed up to $75/bl in response to the impact of Hurricane Ida on US Gulf crude production and refining infrastructure.

At peak, 1.8mn b/d of offshore output was shut in — 96pc of US Gulf output, with at least 2mn b/d of refining capacity shut down. In terms of the impact on crude production, this makes Ida at least as disruptive as Katrina and Rita in 2005 and Gustav and Ike in 2008. It was initially thought that production would resume relatively swiftly, but it is becoming clear that this might not be the case. Damage to onshore logistical infrastructure means that personnel and equipment cannot easily be transported to offshore platforms. And the West Delta-143 platform — a key pumping station for a number of pipelines delivering crude to shore — has been damaged. The market seems to be pricing in the possibility that production in the US Gulf could be slower to return than originally expected.

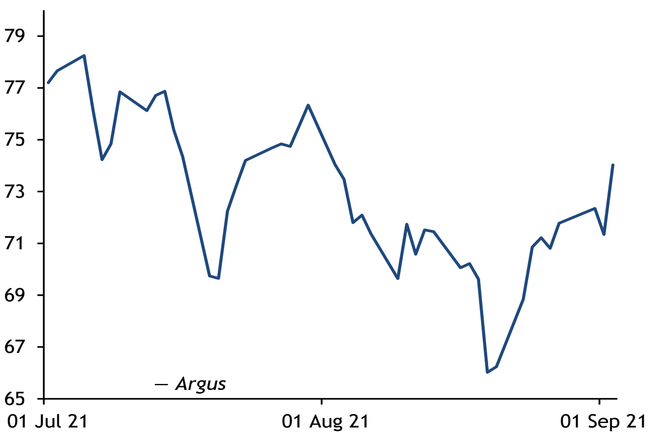
While the market often reacts aggressively to hurricane activity, the impact rarely lasts long. In 2005, prices returned to pre-Katrina levels within weeks, even though US Gulf production as late as November was still 35pc down. The same happened in 2008, even though October output was still 40pc down. So the current price strength is likely to be temporary and attention will soon return to market fundamentals.

These are tight, but about to change. As we have pointed out before, the key metric used to measure market balance — OECD commercial inventory — had already moved below the five-year 2015-19 average in May. Latest data for US, EU-16 and Japan stocks suggest that this deficit will have increased further in June and July, and almost certainly in August too (*see graph*). Latest EIA data show US crude stocks falling and combined gasoline and distillate stocks broadly flat — crude, gasoline and distillates are all well below the normal five-year range for this time of year. In Europe, independent stocks in ARA continue to decline. Gasoline stocks are now close to half their level at the start of the year — and at their lowest for five years — while diesel stocks are down by over 20pc.

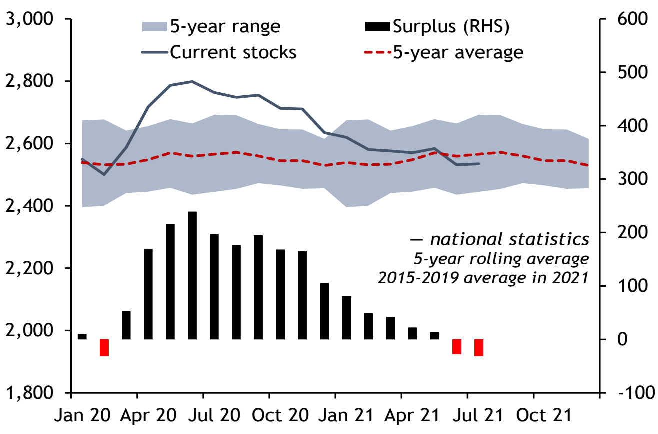
Ahead of the September ministerial meeting, there had been suggestions that Opec+ might postpone the 400,000 b/d increase in output planned for October in view of the fall in crude prices in August — for a brief period, North Sea Dated traded at close to $65/bl. But with prices rallying again and fundamentals as tight as they are, this was unlikely to happen. Opec+ is sticking with its strategy to release crude back to the market in monthly increments of 400,000 b/d.

As we have noted previously, this is essential if the market is not to overheat, a view endorsed by the latest analysis of the Opec+ Joint Technical Committee (JTC). This sees OECD stocks 56mn bl below the five-year range by year end, even with Opec+ increasing supply by 400,000 b/d each month. Our forecast shows OECD stocks only just below the five-year average. The main reason for this difference is sharply different expectations for demand growth over the reminder of 2021. The JTC sees fourth-quarter demand 4.3mn b/d above April-June, while Argus expects growth of just 2.8mn b/d.

North Sea Dated *$/bl*



US, EU-16, Japan stocks *mn bl*



Crude overview

Summary of global crude balance *mn b/d*

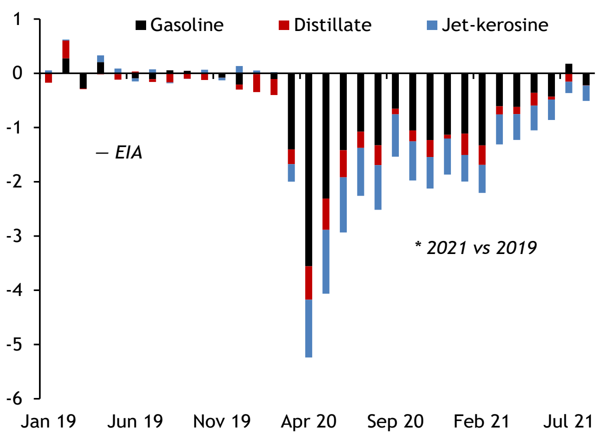
	1Q20	2Q20	3Q20	4Q20	2020	1Q21	2Q21	3Q21	4Q21	2021	2022	2023
Demand	93.98	83.51	92.86	93.38	**90.93**	94.14	95.26	97.69	98.10	**96.30**	**99.32**	**101.23**
Supply	99.85	91.63	90.57	92.03	**93.52**	91.68	94.06	97.21	98.58	**95.37**	**101.89**	**105.47**
Opec crude	28.28	25.55	23.78	24.85	**25.62**	24.96	25.45	27.01	27.81	**26.31**	**29.62**	**31.38**
Opec NGL and condensate	5.84	5.85	5.85	5.85	**5.85**	5.79	5.81	5.81	5.81	**5.80**	**5.76**	**6.16**
Non-Opec crude and NGL	60.73	55.24	55.27	56.10	**56.83**	56.15	57.18	58.54	59.38	**57.81**	**60.92**	**62.33**
Other supply	5.00	4.99	5.67	5.23	**5.22**	4.79	5.61	5.85	5.58	**5.46**	**5.60**	**5.60**
Global balance*	5.25	7.40	-2.18	-1.24	**2.31**	-2.51	-1.00	-0.47	0.49	**-0.88**	**2.57**	**4.24**

**equivalent to global stock change*

Time will tell which estimate proves to be the most accurate, and it is in any case debatable how much of any calculated global stock change should be assigned to the OECD. But the broad thrust of the two sets of analysis is the same — the steady return of Opec+ supply will ease market tightness. In this case, it is hard to see why crude prices should continue to strengthen and we are sticking with our long-held view that crude prices will fall steadily in the second half of this year.

A number of recent developments suggest that the outlook for global demand is unlikely to be as rosy as the one painted by the JTC. In the US and China, there are signs of slowing economic growth. In China, the latest PMI survey data show weaker expectations for both manufacturing and services activity. In the US, growth in consumer spending has ground to a halt and manufacturing growth is slowing. Global supply bottlenecks are raising costs, pushing inflation higher and increasing the probability of a policy response in terms of higher interest rates — something that could make servicing emerging-market debt a problem.

US demand (yr-on-yr change*) *mn b/d*



All this might suggest trouble further ahead, but for the moment the global economy continues to recover and grow. Yet Covid-19 is far from beaten, as recent lockdowns across Asia have shown. In the US, the Covid-19 mortality rate is back to 1,500 a day, which while far lower than the 3,500 a day recorded earlier this year is not far off the 2,000 a day toll in 2020's first wave. Global gasoline and diesel markets have largely returned to pre-pandemic levels, but recent data hint at a weakening demand picture in the US and Europe, while in other regions the stubbornly slow rollout of vaccination programmes remains a concern.

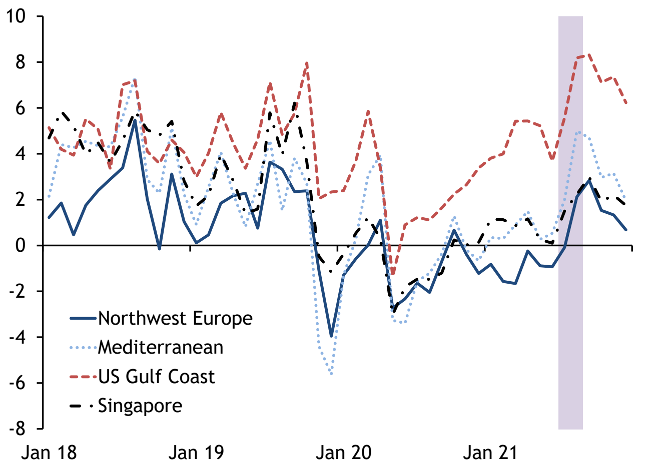
This makes the JTC's latest upward revision to its forecast for 2022 global demand growth puzzling. The committee now expects demand to grow by 4.2mn b/d, compared with Argus' forecast 3mn b/d. But despite this much more robust view of demand, the JTC analysis still echoes our own in that it shows OECD commercial stocks building steadily to a significant surplus to the five-year average in 2022 if Opec+ sticks with its current plan to steadily return to market all the cuts imposed last year. We have consistently said that the market does not need this amount of supply, and now Opec+ has said the same.

To prevent that kind of stockbuild, producers will need to change course, stop raising output and potentially even decide to implement a new production management arrangement. This will not be easy, and the potential need to find room for the return of Iranian barrels is only likely to complicate matters further. The likelihood of weaker crude prices next year continues to grow.

Refining economics

Refiners enjoyed a strong month in August as margins surged to levels unseen since 2019. The summer holiday season has supported demand, particularly for transport fuels, which underpinned much of the strength. Margins in September will probably reflect the disruption on the US Gulf coast caused by Hurricane Ida.

Regional refining margins *$/bl*



The US Gulf coast fluid catalytic cracking (FCC) margin rose by $2.60/bl in August, supported by rising transport fuel cracks. Margins will receive further support into September from disruption wrought by Hurricane Ida, which made landfall in Louisiana on 29 August. At the time of publication, six refineries on the US Gulf coast are shut, removing 1.6mn b/d of capacity. Damage assessment is under way, but several plants have declined to disclose their operational status, creating an uncertain picture. The largest refinery affected is Marathon's 565,000 b/d Garyville plant. Not included in the 1.6mn b/d figure is ExxonMobil's 500,000 b/d Baton Rouge refinery, which is restarting, having avoided serious damage — although there is uncertainty regarding the refinery's access to crude as several ports in the area remain closed, along with around 1.7mn b/d of offshore crude production. Power lines are also damaged and utility officials say it could take weeks to restore electricity. With this in mind, we have revised up our forecast for cracks in September and the FCC margin is still above $8/bl, when typically it would be expected to fall as the summer holiday season winds down.

Refinery closures in the US will probably boost cracks and margins in Europe. The northwest Europe margin rose by $2.20/bl on the month in August, and the Mediterranean margin increased by $3/bl. The US imported diesel from Europe and Russia in August — an unusual trade pattern, but one that could persist this month, given that refinery output is expected to be curtailed. European refining margins are also gaining from recovering domestic demand. In Germany, refinery utilisation climbed to an average of 79pc in July, a rise of nearly 6 percentage points from June, as road fuel demand returned to pre-pandemic levels. Rates are unlikely to have risen any further in August, however, with Shell's 140,000 b/d Wesseling refinery taken off line for maintenance. The facility is not scheduled to return until October, which could tighten supply in September.

Singapore FCC margins also rose in August, but by just 70¢/bl. Singapore was the only one of our refining regions where gasoline and gasoil cracks fell, reflecting the reimposition of lockdowns in several countries. But the weakness in gasoline and gasoil was outweighed by strengthening LPG and fuel oil cracks. Margins in Asia-Pacific could be supported in the remainder of 2021 by the Chinese government's decision to greatly reduce export quotas in its second tranche — these are down by nearly 75pc on the first tranche issued earlier this year, and 73pc down on the second tranche issued last year. The move comes as Beijing seeks ways to curb China's CO_2 emissions, in line with President Xi Jinping's pledge that carbon emissions will peak by 2030.

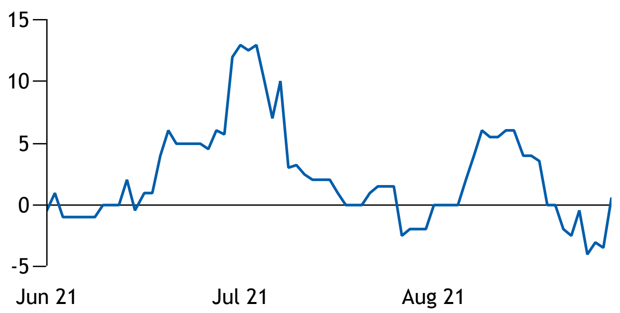
Refining margins *$/bl*

	Jul	Aug	Sep	Oct	Nov
Northwest Europe					
vs North Sea Dated	-0.09	2.12	2.10	1.20	1.40
vs Urals	2.56	4.33	4.40	3.50	4.00
Mediterranean					
vs Urals	2.00	4.99	4.20	2.70	3.30
vs CPC Blend	-0.17	1.65	1.90	1.60	1.70
US Gulf coast					
vs LLS	5.57	8.18	6.80	6.80	6.90
vs WTI (Houston)	8.44	10.78	10.30	9.30	9.70
vs Mars	3.09	6.68	2.70	2.40	2.90
Singapore					
vs Dubai	1.50	2.23	1.30	1.60	2.30
vs ESPO Blend	4.27	5.49	4.90	4.80	5.20

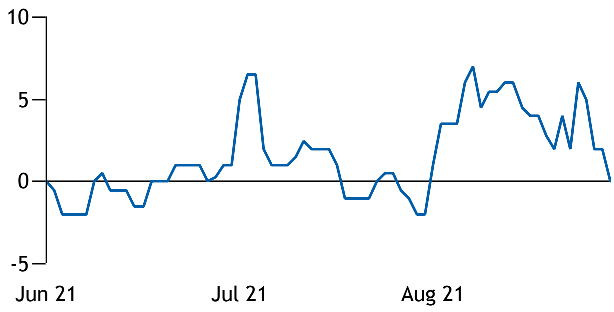
Margins calculated based on FCC unit yields

LPG swaps

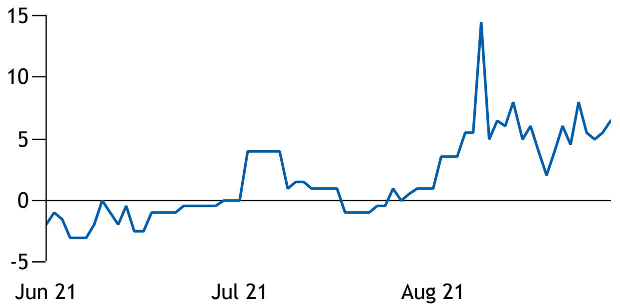
Propane NW Europe month 1 vs month 2 *$/t*



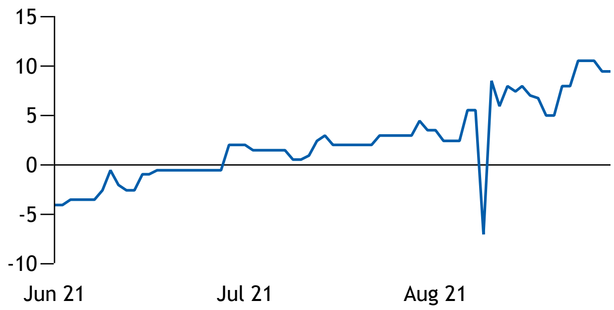
Propane NW Europe month 2 vs month 3 *$/t*



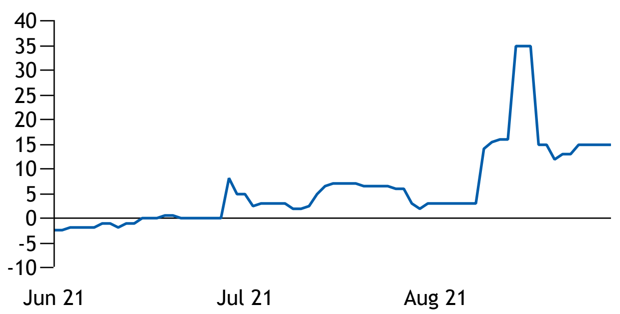
Propane NW Europe month 3 vs month 4 *$/t*



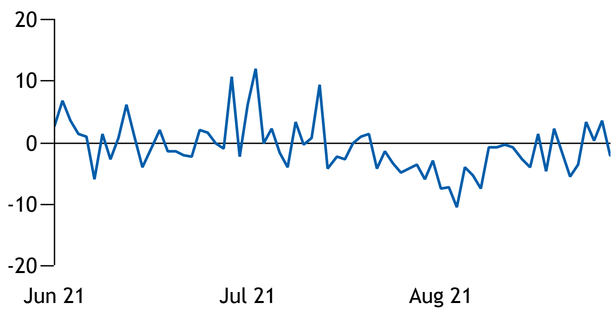
Propane NW Europe month 4 vs month 5 *$/t*



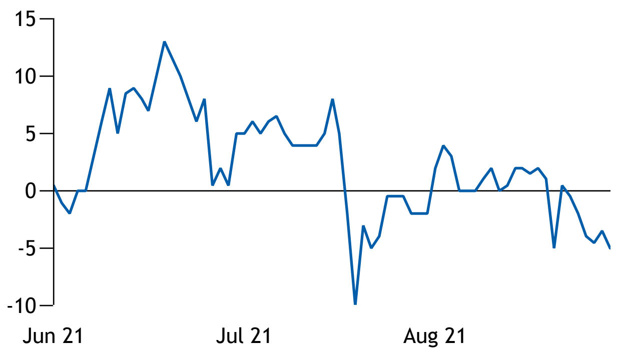
Propane NW Europe month 5 vs month 6 *$/t*



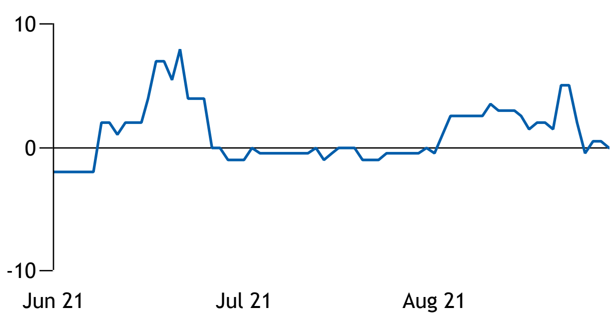
Mont Belvieu month 1 vs month 2 *$/t*



Saudi CP month 1 vs month 2 *$/t*



Saudi CP month 2 vs month 3 *$/t*



LPG developments to watch

Date	Development
China PDH start-ups	
2H 2021	Shandong Huifeng Haiyi Petrochemical
2H 2021	Anquing Taiheng
2H 2021	Henan Nanpu Technology
2H 2021	Ningxia Ruifeng PDH
1H 2022	Shandong Befar Chemical
1H 2022	Sinochem Ruiheng Xuyu
1H 2022	Qixiang Tengda (Integra)
2H 2022	Formosa Ningbo
2H 2022	Jiangsu Sailboat
2H 2022	Shandong Zibo Xintai
2H 2022	Juzhengyuan No 2
2H 2022	Yanchang Zhongran Taixing
Other	
2021	China - Gulei Refinery ethylene cracker start-up
2021	Russia - Vanino terminal completion
2021	Vietnam - Hyosung Vung Tau PDH start-up
2021	South Korea - Ulsan PDH capacity expansion
2021	South Korea - GS caltex ethylene steam cracker start-up
2021	S Korea - Hyundai-Lotte Chemical ethylene steam cracker start-up
2021	Canada - Pembina Prince Rupert terminal completion
2022	Malaysia - Port Klang terminal completion
2022	Canada - Inter Pipeline PDH start-up
2022	US - Dow Plaquemine PDH start-up

Argus LPG Outlook provisional publication schedule 2021	Publication date
Issue 1	14 January
Issue 2	11 February
Issue 3	11 March
Issue 4	15 April
Issue 5	13 May
Issue 6	10 June
Issue 7	8 July
Issue 8	12 August
Issue 9	9 September
Issue 10	7 October
Issue 11	11 November
Issue 12	9 December

Announcement

All data change announcements can be viewed online at www.argusmedia.com/announcements. Alternatively, to be added to the email distribution list for all announcements, please email: **datahelp@argusmedia.com.**

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