argus consulting services

argusmedia.com

Issue 21-7
Thursday
8 July 2021

# Argus LPG Outlook

## The quarter ahead

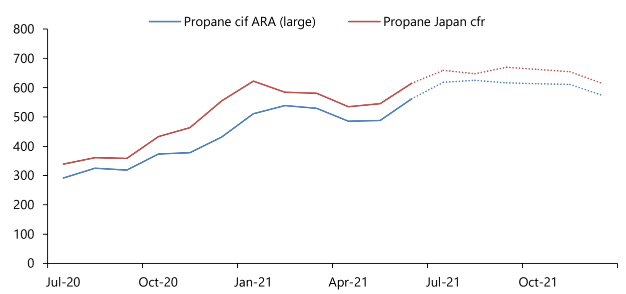
An upbeat market is being underpinned by sustained crude price gains, pushing LPG values to multi-year highs. Atlantic basin crude benchmark North Sea Dated is forecast to average $74.70/bl in the third quarter, and market volatility is expected in the near term amid challenging Opec+ negotiations.

Robust demand for propane from China's propane dehydrogenation (PDH) facilities is supporting values in Asia-Pacific and plants are running at full capacity in response to strong demand for olefins and derivatives. But operators are tracking propane feedstock prices closely as PDH margins have recently turned negative. A spell of unfavourable economics is likely to result in lower production levels and lower propane consumption.

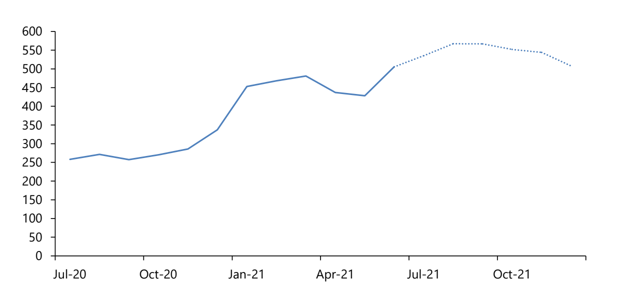
Workable arbitrages along the main trading routes have started to emerge, raising the possibility of increased exports from the US. A rise in US exports would be likely to undermine builds in US propane inventories, and this prospect continues to concern market participants.

Europe's tight supply situation in July has been brought about by the weak arbitrage economics that have limited US imports. Over the longer term, Europe is expected to increasingly rely on imports, mainly from the US, as regional supply from refining and gas processing in the North Sea is forecast to decline.

Propane cif ARA, cfr Japan $/t




Propane Mont Belvieu (EPC) $/t




LPG
illuminating the markets

Available on the Argus Publications App

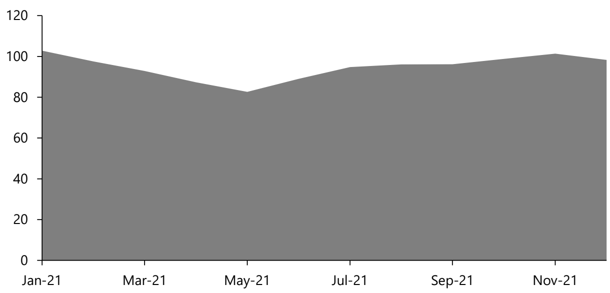
| Forecast prices | | | | | | | | | $/t |
|---|---|---|---|---|---|---|---|---|---|
| | Jul 21 | Aug 21 | Sep 21 | 3Q21 | 4Q21 | 1Q22 | 2021 | 2022 | 2023 |
| Propane cif ARA (large) | 618 | 625 | 617 | 620 | 600 | 536 | 564 | 456 | 429 |
| Butane cif ARA (large) | 604 | 638 | 654 | 632 | 615 | 546 | 563 | 461 | 433 |
| Propane Mt Belvieu EPC | 535 | 567 | 567 | 556 | 535 | 462 | 504 | 383 | 354 |
| Butane Mt Belvieu EPC | 538 | 611 | 594 | 581 | 576 | 489 | 505 | 408 | 380 |
| USGC propane export | 562 | 589 | 599 | 583 | 572 | 500 | 524 | 420 | 392 |
| Propane Conway | 525 | 544 | 546 | 538 | 524 | 465 | 494 | 375 | 340 |
| Propane Edmonton | 420 | 461 | 471 | 451 | 470 | 407 | 389 | 328 | 293 |
| Mixed butane Edmonton | 425 | 498 | 503 | 476 | 503 | 421 | 389 | 334 | 323 |
| Propane Japan cfr | 659 | 648 | 670 | 659 | 644 | 570 | 616 | 490 | 462 |
| Butane Japan cfr | 692 | 669 | 688 | 683 | 670 | 604 | 619 | 515 | 485 |
| Daf Brest Propane | 637 | 664 | 642 | 648 | 631 | 558 | 600 | 479 | 450 |
| Propane Saudi CP | 620 | 600 | 585 | 602 | 602 | 583 | 581 | 485 | 427 |
| Butane Saudi CP | 620 | 615 | 610 | 615 | 637 | 600 | 583 | 505 | 445 |
| North Sea Dated (*$/bl*) | 75.0 | 75.0 | 74.0 | 74.7 | 70.0 | 65.0 | 68.6 | 57.9 | 55.0 |
| LLS (*$/bl*) | 73.7 | 74.1 | 72.9 | 73.5 | 69.1 | 64.4 | 67.6 | 57.1 | 54.3 |
| Naphtha cif NWE | 652 | 650 | 641 | 648 | 603 | 560 | 596 | 493 | 466 |
| Naphtha Japan C and F | 659 | 663 | 651 | 658 | 613 | 577 | 605 | 511 | 483 |

*Argus Direct subscribers can download this table and the full monthly price forecast here*

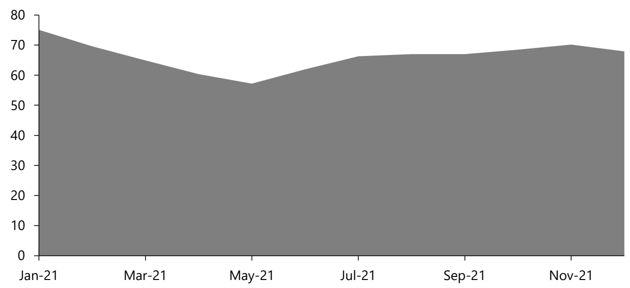
| Petrochemical feedstock prices - Jun | | $/t |
|---|---|---|
| | Price | ± |
| Ethane fob Mt Belvieu (¢/USG) | 27.77 | +1.70 |
| Naphtha cif NWE | 631 | +41 |
| Naphtha c+f Japan | 637 | +42 |
| Ice gasoil | 591.98 | +36 |

| Crude prices - Jun | | $/bl |
|---|---|---|
| | Price | ± |
| North Sea Dated | 72.96 | +4.4 |
| Ice Brent | 73.41 | +5.1 |
| Louisiana Light Sweet | 72.89 | +5.7 |
| Nymex WTI | 71.35 | +6.2 |
| Dubai | 71.52 | +4.9 |

### Propane cif ARA large as percentage of naphtha cif




### Propane cif ARA large as percentage of North Sea Dated



# Outlook summary

- Strong LPG fundamentals push prices to multi-year highs
- Europe's local supply diminished and demand will be covered by imports from the US
- US inventories continue to cause concern amid strong demand for exports during what is usually a period of stockbuilding

LPG prices are at multi-year highs, propelled by strong fundamentals in the LPG market and the wider oil complex. Propane Japan large cargoes reached $714/t and northwest Europe propane $680/t this week.

In Asia-Pacific, robust demand for propane as a feedstock in China's propane dehydrogenation (PDH) plants is driving the strength in prices. LPG also continued to be run in European crackers in the second quarter.

With very large gas carrier (VLGC) spot freight levels retreating from the highs seen last quarter, the arbitrage between the US and Europe is widening and this could limit supply tightness from August. But there is concern over supply in the region moving forward.

We have revised our longer-term price forecast for propane and butane in northwest Europe to reflect this more cautious outlook.

Production will drop as refinery rationalisation gathers pace in Europe — something that has been accelerated by the Covid-19 pandemic (*see chart*).

The UK and Norway remain Europe's largest producers of LPG from gas processing, fed by mature assets in the North Sea. In both countries, we see this depletion outweighing development of new gas projects in the period to 2025, resulting in a net decline in production.

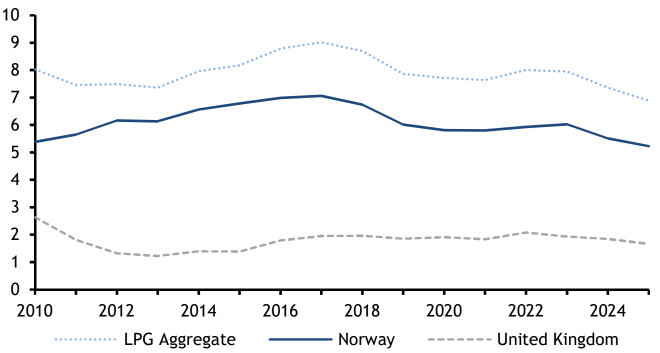
With the growing demand for LPG as a petrochemical feedstock, there will be an increasing reliance on imports.

Chinese PDH operations are running at full tilt in the face of robust demand for olefins. But current LPG price levels could undermine PDH margins. *Argus* models show that PDH economics recently turned negative. Sustained high feedstock prices could see operators reducing production, but we do not see this happening within the next month.

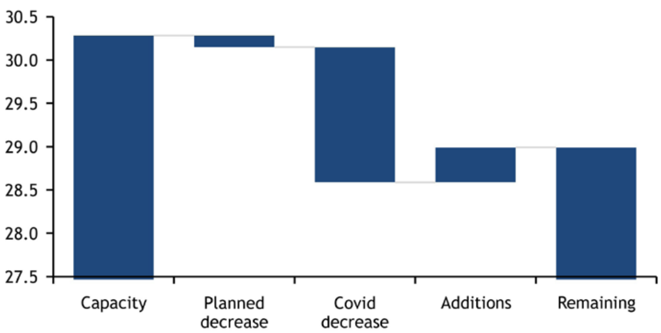
US propane inventories remain below historical norms and this is concerning market participants going into the fourth quarter. The opening of arbitrages along key trading routes could stimulate exports, slowing the stockbuild — a situation that is being watched closely by the market.

A strong crude price environment is also supporting outright LPG prices. Market volatility is expected in the crude market amid uncertainties over a new Opec+ agreement (see Crude Overview section).

**UK, Norway LPG production from gas processing** ***mn t***



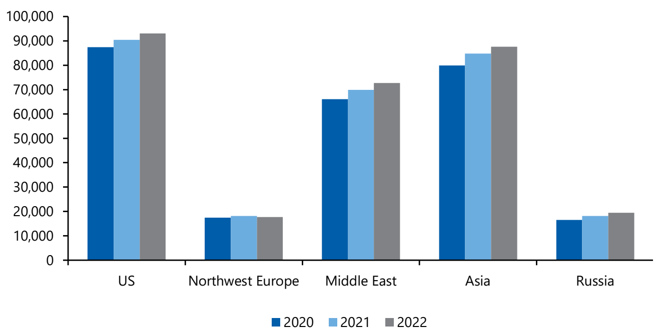

**Changes in refinery capacity 2021-25** ***mn b/d***



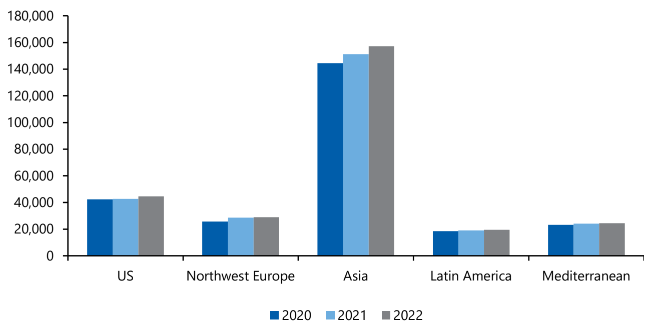
| Global fundamentals | | | | | | | | '000t |
|---|---|---|---|---|---|---|---|---|
| | 2019 | 2020 | 1Q21 | 2Q21 | 3Q21 | 4Q21 | 2021 | 2022 |
| LPG supply | | | | | | | | |
| Gas processing | 209,744 | 213,408 | 53,296 | 57,637 | 56,550 | 51,677 | 219,160 | 223,557 |
| Refining | 118,781 | 114,217 | 30,378 | 32,487 | 32,115 | 29,296 | 124,275 | 129,605 |
| Total LPG supply | 328,525 | 327,624 | 83,674 | 90,124 | 88,665 | 80,973 | 343,435 | 353,161 |
| | | | | | | | | |
| Capacity ('000 b/d) | 99,465 | 98,102 | 99,271 | 99,271 | 99,271 | 99,271 | 99,271 | 100,152 |
| Utilisation (%) | 0.78 | 0.71 | 0.73 | 0.78 | 0.78 | 0.71 | 0.75 | 0.77 |
| | | | | | | | | |
| Trade position | | | | | | | | |
| LPG import requirement | 126,579 | 128,940 | 34,583 | 33,113 | 33,775 | 34,889 | 136,360 | 140,502 |
| LPG export availability | 129,654 | 135,021 | 37,221 | 35,228 | 34,555 | 39,737 | 146,742 | 150,683 |
| | | | | | | | | |
| LPG demand | 321,488 | 319,751 | 86,284 | 79,721 | 81,060 | 85,988 | 333,053 | 343,018 |

*Argus Direct subscribers can download this table and the full monthly price forecast here*

## LPG major producing regions 2020-22 *'000t*




## LPG major consuming regions 2020-22 *'000t*



| Regional fundamentals - LPG | | | | | | | | '000t |
|---|---|---|---|---|---|---|---|---|
| | 2019 | 2020 | 1Q21 | 2Q21 | 3Q21 | 4Q21 | 2021 | 2022 |
| US | | | | | | | | |
| Production | 84,929 | 87,442 | 19,865 | 24,936 | 25,264 | 20,345 | 90,410 | 93,059 |
| Import requirement | 5,658 | 4,304 | 1,705 | 1,115 | 1,229 | 1,609 | 5,658 | 5,658 |
| Export availability | 41,842 | 49,349 | 12,035 | 13,168 | 13,606 | 14,501 | 53,310 | 54,204 |
| Consumption | 43,900 | 42,398 | 12,593 | 8,837 | 9,040 | 12,287 | 42,758 | 44,513 |
| Canada | | 0 | | | | | | |
| Production | 15,222 | 14,762 | 4,371 | 3,589 | 3,892 | 3,514 | 15,366 | 15,435 |
| Import requirement | 396 | 396 | 104 | 107 | 88 | 97 | 396 | 396 |
| Export availability | 7,182 | 7,084 | 1,336 | 2,307 | 3,036 | 1,224 | 7,904 | 7,783 |
| Consumption | 8,563 | 8,074 | 2,209 | 1,765 | 2,057 | 1,828 | 7,859 | 8,049 |
| Mexico | | | | | | | | |
| Production | 3,372 | 3,226 | 821 | 809 | 785 | 734 | 3,148 | 3,131 |
| Import requirement | 5,659 | 5,560 | 1,519 | 1,268 | 1,210 | 1,841 | 5,839 | 5,858 |
| Export availability | 21 | 21 | 0 | 6 | 2 | 12 | 21 | 21 |
| Consumption | 9,010 | 8,765 | 2,403 | 1,968 | 2,092 | 2,504 | 8,966 | 8,968 |
| Latin America | | | | | | | | |
| Production | 14,206 | 13,265 | 3,503 | 3,135 | 3,270 | 3,130 | 13,038 | 13,146 |
| Import requirement | 7,571 | 7,735 | 1,915 | 2,121 | 2,156 | 2,021 | 8,213 | 8,314 |
| Export availability | 2,602 | 2,516 | 803 | 433 | 317 | 618 | 2,170 | 2,005 |
| Consumption | 19,418 | 18,484 | 4,428 | 4,982 | 5,046 | 4,624 | 19,080 | 19,454 |
| Northwest Europe | | | | | | | | |
| Production | 19,324 | 17,480 | 4,631 | 4,764 | 4,637 | 4,140 | 18,172 | 17,730 |
| Import requirement | 19,035 | 19,583 | 5,993 | 5,123 | 5,496 | 5,656 | 22,267 | 22,998 |
| Export availability | 11,484 | 11,414 | 3,184 | 2,916 | 2,781 | 3,017 | 11,898 | 11,882 |
| Consumption | 27,146 | 25,609 | 7,472 | 6,900 | 7,308 | 6,860 | 28,541 | 28,846 |
| Mediterranean | | | | | | | | |
| Production | 19,128 | 17,548 | 4,587 | 4,220 | 4,458 | 4,248 | 17,514 | 17,488 |
| Import requirement | 14,653 | 14,711 | 4,371 | 3,535 | 3,557 | 3,988 | 15,451 | 15,452 |
| Export availability | 9,072 | 9,092 | 2,115 | 2,398 | 2,384 | 1,958 | 8,855 | 8,556 |
| Consumption | 24,742 | 23,202 | 6,651 | 5,625 | 5,705 | 6,129 | 24,110 | 24,385 |
| Middle East | | | | | | | | |
| Production | 66,068 | 66,084 | 16,716 | 19,951 | 17,793 | 15,376 | 69,836 | 72,709 |
| Import requirement | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| Export availability | 38,255 | 37,655 | 12,155 | 8,998 | 7,832 | 13,089 | 42,074 | 44,476 |
| Consumption | 28,028 | 27,407 | 7,411 | 6,905 | 6,388 | 7,058 | 27,762 | 28,253 |
| Africa | | | | | | | | |
| Production | 5,103 | 5,539 | 1,904 | 1,725 | 1,082 | 1,156 | 5,867 | 6,007 |
| Import requirement | 2,614 | 2,859 | 721 | 1,079 | 807 | 629 | 3,235 | 3,329 |
| Export availability | 3,268 | 3,756 | 1,736 | 613 | 421 | 1,189 | 3,959 | 3,920 |
| Consumption | 4,449 | 4,628 | 1,315 | 1,405 | 1,204 | 1,219 | 5,143 | 5,415 |
| Russia | | | | | | | | |
| Production | 17,030 | 16,521 | 4,771 | 4,282 | 4,461 | 4,651 | 18,165 | 19,538 |
| Import requirement | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Export availability | 6,115 | 3,301 | 980 | 1,169 | 1,075 | 1,040 | 4,264 | 5,505 |
| Consumption | 11,016 | 13,220 | 3,705 | 3,176 | 3,432 | 3,588 | 13,901 | 14,032 |
| Other FSU | | | | | | | | |
| Production | 5,185 | 5,839 | 1,856 | 1,758 | 1,663 | 1,876 | 7,153 | 7,307 |
| Import requirement | 1,656 | 1,975 | 466 | 456 | 584 | 506 | 2,012 | 2,049 |
| Export availability | 3,516 | 4,222 | 1,333 | 1,499 | 1,333 | 1,191 | 5,357 | 5,407 |
| Consumption | 3,434 | 3,591 | 1,006 | 942 | 934 | 926 | 3,808 | 3,986 |
| Asia-Pacific | | | | | | | | |
| Production | 78,960 | 79,919 | 20,649 | 20,955 | 21,360 | 21,802 | 84,766 | 87,611 |
| Import requirement | 69,336 | 71,817 | 17,790 | 18,309 | 18,648 | 18,543 | 73,289 | 76,428 |
| Export availability | 6,297 | 6,612 | 1,543 | 1,721 | 1,768 | 1,898 | 6,929 | 6,923 |
| Consumption | 141,781 | 144,373 | 37,092 | 37,216 | 37,854 | 38,964 | 151,126 | 157,116 |

*Argus Direct subscribers can download this table and the full monthly price forecast here*

# Regional analysis

## Northwest Europe and Mediterranean

LPG supply is tight in the region. With high US prices and strong demand from Asia, spot arbitrage between the US and Europe remains closed, leaving the region largely reliant on domestic supply.

But regional supply is also diminished. Norway's Karsto terminal is yet to reach full capacity after coming back from maintenance. Production from the UK's Barefoot Bay is still sluggish. Refineries in Europe are slowly coming back from maintenance and run rates are expected to recover over the summer months.

Poor arbitrage economics between the US and Europe in recent weeks have limited the number of cargo arrivals in the region. Around 158,500t of LPG is scheduled to arrive in northwest Europe this month, down from 626,300t in May and 389,900t in June.

The result is high LPG prices. Large cargo propane prices rose by $148/t between 1 June and 6 July to $668/t taking prices to multi-year highs. Cracking demand remains strong despite the narrow gap between propane and naphtha.

We see propane averaging 96pc of naphtha in July. Any potential for a significant narrowing of the propane-naphtha ratio could see flexible crackers switch to naphtha as a feed-stock. But our expectation is that this will not happen until the beginning of the fourth quarter.

We noted in past editions of this report that restocking is a possibility during the third quarter as prices typically fall during the seasonal demand lull. But steadily rising prices will probably undermine  interest in summer restocking and we do not see significant buying in the near term.

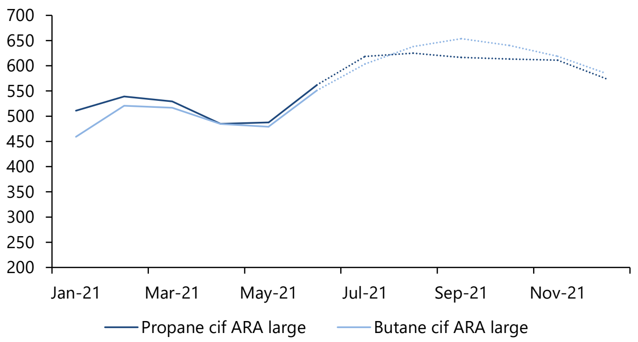
In the Mediterranean, demand is muted and high prices are expected to keep spot buying subdued.

LPG prices are also expected to be buoyed by firm naphtha values in the third quarter, supported by summer driving and easing lockdown restrictions in many countries. Strength is expected to subside from the fourth quarter as the driving season eases.

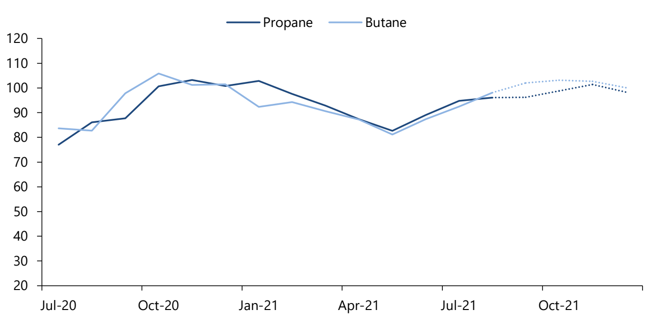
Europe's tightened regional supply is forecast to continue in the years ahead, with the net deficit increasing to 18mn t/yr by 2023 from 14mn t in 2019.

Refinery rationalisations in response to peak transport fuel demand are planned in the coming years, but demand destruction in 2020 wrought by the pandemic has brought forward several shutdowns and conversions. Output from gas from key fields in the North Sea is also forecast to drop.

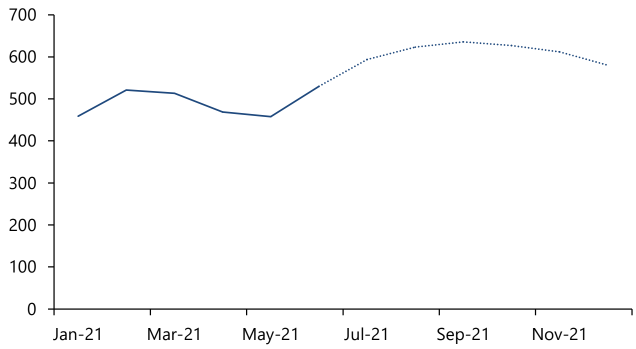
**Propane and butane cif ARA large** **$/t**



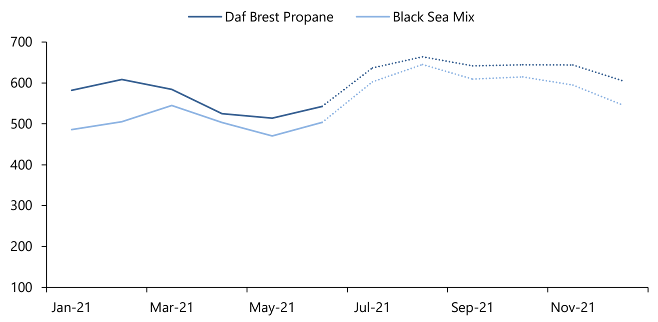

**LPG ratio to naphtha northwest Europe** **%**



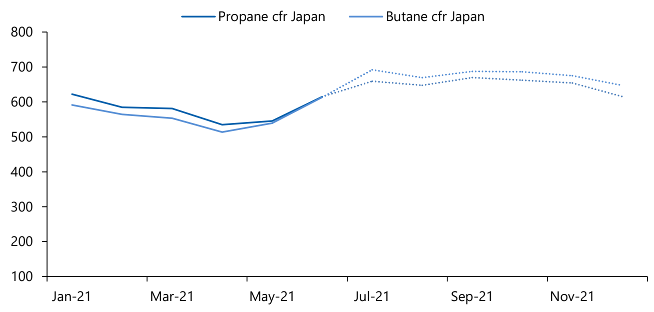

**Butane cif Lavera large** **$/t**



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




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




## Former Soviet Union

Work at Russian refineries will limit supply of fuels, including LPG. Seasonal maintenance typically lasts until October and we expect supply tightness to support values in the region.

Autogas consumption in Ukraine is seasonally high. LPG imports in June exceeded 138,000t, up from 124,000t in May. Summer driving and a relaxation of Covid travel restrictions will support demand in the near term.

The daf Brest assessment for propane had risen to $595/t by 6 July, up from $500/t on 1 June, reflecting less supply from Poland and price gains in northwest Europe.

Diminished supply is exacerbated by EU sanctions on Belarus. Sanctions that took effect from 25 June, among other measures, restrict trade in Belarusian refined products and LPG. Polish customs authorities have stopped imports from Belarus and transit shipments through Belarus. LPG is only allowed to enter from Belarus under long-term contracts concluded before 25 June. Poland imported about 60,000t of LPG from Belarus in 2020.

The situation could exacerbate supply tightness and is one that should be watched closely. We see daf Brest propane averaging $648/t in the third quarter.

## Asia-Pacific and Middle East

A bull run for crude and naphtha prices and strong LPG fundamentals drove propane prices in the region to multi-year highs — $714/t at the time of writing.

LPG values are supported by strong petrochemicals demand. PDH plants in China, which have a combined capacity of 9mn t/yr, are running at full tilt, supporting demand for propane. In the immediate term, robust demand expectations for olefins will support high PDH operating rates. But high propane prices are starting to weigh on PDH margins. A sustained high feedstock price environment could reduce run rates at PDH plants, curbing demand for propane.

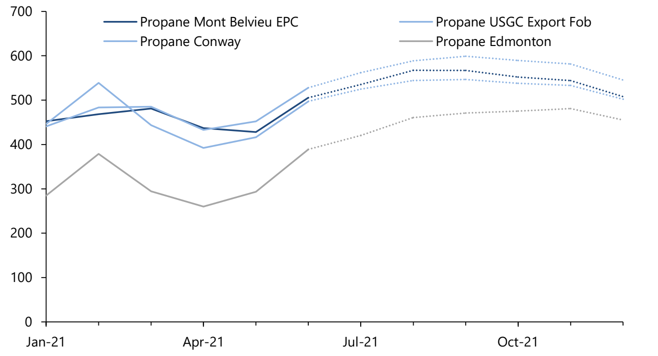
We forecast that Japan large cargo propane will average 99pc of naphtha values in the third quarter, reflecting strong demand from the petrochemicals sector. In the fourth quarter, we see propane gaining a premium to naphtha as heating demand increases.

Demand for butane is expected to be higher as more is blended into residential demand in the summer, and we see butane gradually re-establishing a premium to propane over the coming months. Demand in Asia-Pacific's butane-heavy markets is expected to rise over the longer term.

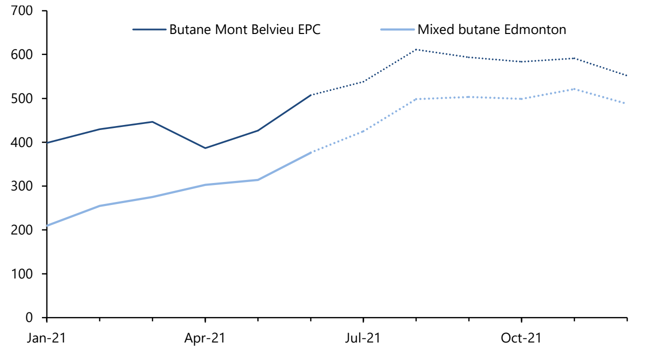
Naphtha values are well supported, which will add to outright gains for LPG. In South Korea, LG Chem's 800,000 t/yr naphtha cracker started up in June and GS Caltex's 700,000 t/yr naphtha cracker is scheduled to start up soon, following a delay in June caused by technical problems.

Demand for naphtha as a blending component will be under pressure as several countries in the region, including Malaysia and Indonesia, continue to grapple with coronavirus infections, reducing demand for gasoline. But announcements of refinery shutdowns in Asia should balance the market, lending some support to naphtha prices.

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




**Butane Mt Belvieu EPC** *$/t*




## US

Stockbuilding season is not yet over. Historical data show that weekly propane inventories tend to build from April to October. The stockbuild so far in 2021 is true to form and we expect another three months of builds (*see graph*).

But the strength of the stockbuild will depend on the flow of exports. EIA data show that exports in the second quarter rose by 2pc from January-March, deviating from the usual pattern — a seasonal lull in demand usually means lower exports in April-June.

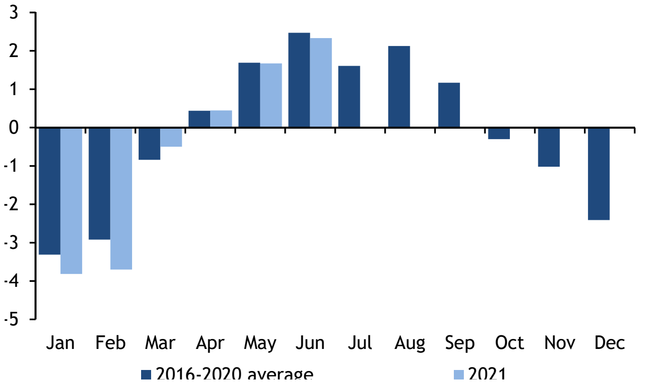
Amid strong demand for propane from China's PDH capacity expansions, import requirements are rising and US LPG is expected to meet this demand.

Butane inventories remain below seasonal norms and global demand is strong. The EIA sees US butane production increasing by 40,000 b/d to 930,000 b/d in the third quarter. Butane blending into gasoline for autumn specifications will not begin until the second half of August.

We noted in last month's report that poor arbitrage economics between the US and Asia would play a key factor in slowing exports, and it probably did contribute to lower exports, given spot VLGC freight rates.

At the time of publication, spot freight rates are down from the highs of the second quarter, and strong values in Asia-Pacific have once again opened up the arbitrage window, raising the prospect of more exports. But given the current market volatility, traders are reported to be erring on the side of caution, and Enterprise's cancellation of two propane cargoes for August loading could suggest that exports might not increase significantly.

**US propane inventories avg week-on-week change** *mn bl*



# Freight and arbitrage

Spot VLGC freight rates have retreated from the highs of the second quarter. Supporting factors such as Panama Canal delays and a busy drydocking schedule have now dissipated — in line with our expectations.

Spot freight rates on the Houston-Chiba route have averaged $73/t in July, down from $92/t in May and $85/t in June. The Houston-Flushing route has seen the most significant fall in rates, with July averaging $37/t, compared with $49/t in June.

Amid unfavourable arbitrage conditions in recent weeks, trade between the key seaborne markets has been muted. Cargo arrivals in northwest Europe in July are significantly down on the second quarter. The region is reliant on local supply amid high competing prices in Asia-Pacific.

Strong LPG demand fundamentals in Asia-Pacific and falling spot freight rates have opened up the arbitrage from the US. But as we noted in the US section, although traders are reportedly cautious, an increase in exports could offer upside potential to spot freight rates on the Houston-Chiba route.

| Short-term forecast freight rates | | $/t |
|---|---|---|
| | Jul | Aug |
| VLGC Mideast Gulf-Japan | 40.0 | 42.0 |
| VLGC Houston-Chiba | 72.0 | 70.0 |
| VLGC Houston-Flushing | 37.0 | 40.0 |

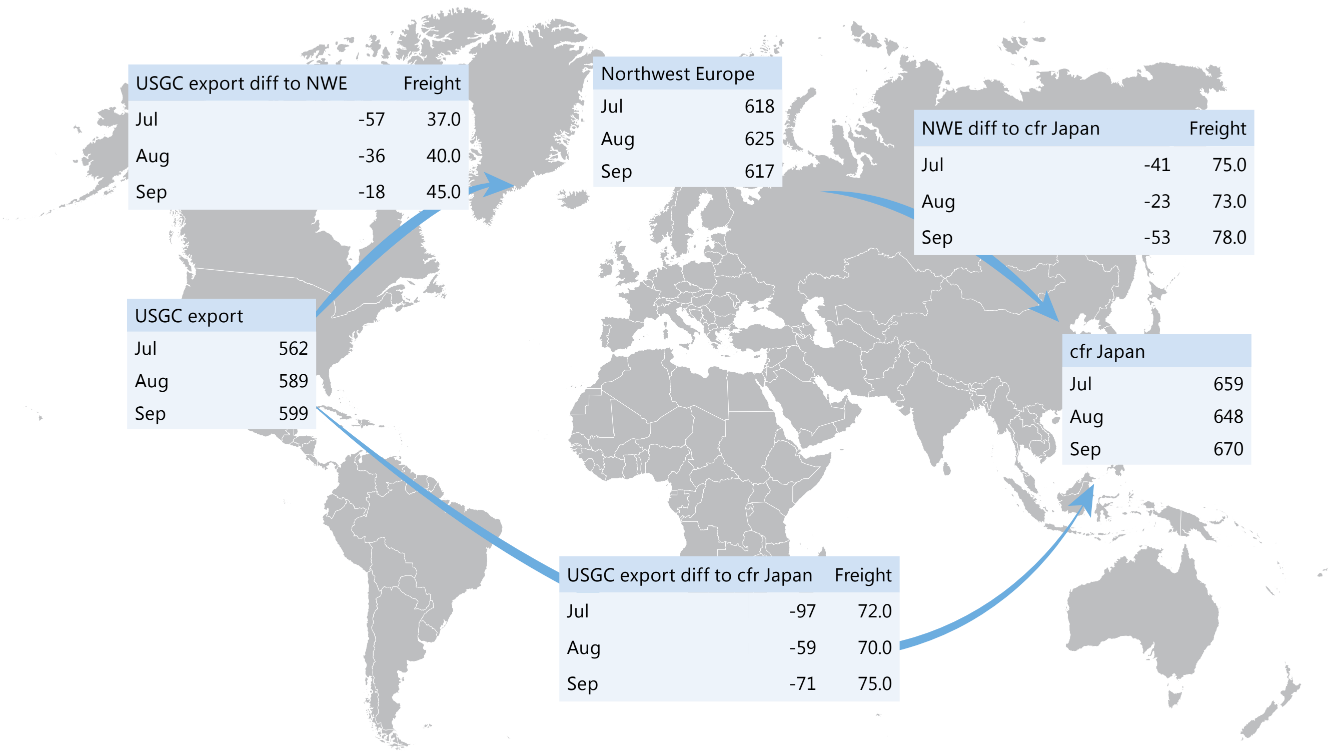
High LPG prices are likely to discourage buyers from restocking during this seasonal demand lull, and in the near term we do not see any increased trade from restocking.

We expect the VLGC spot rate on the Mideast Gulf-Asia route to gain some support as we move through the third quarter as Saudi Arabian crude production increases under the current Opec+ agreement.

From the fourth quarter, we forecast bullish sentiment in the freight market as strong demand in Asia-Pacific from the petrochemicals and residential sector buoys freight rates. Europe's increasing reliance on imports from the US will also support spot rates on the Houston-Flushing route.

## PROPANE ARBITRAGE MAP

$/t



# Crude overview

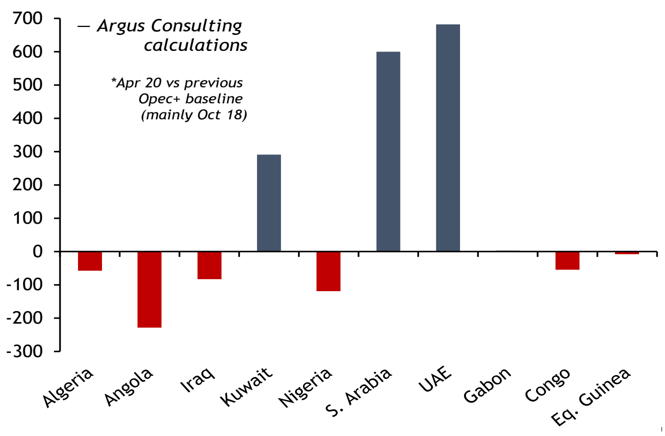
We said in the previous *Outlook* that conditions were ripe for a surge in prices, given Opec+'s decision last month to continue with its strategy of gradually raising production through July. Prices might not have surged, but they have certainly risen steadily, with North Sea Dated up by 8pc, adding $5.50/bl. In futures markets, successive resistance levels have been attacked and eventually closed over.

Producers are no doubt enjoying the stronger revenues being generated. But they have started to worry about the impact that high prices could have on demand growth and, eventually, also investment in US shale. Going into last week's Opec+ meeting, ministers were faced with clear signals that global inventories are close to — if not back at — the 2015-19 five-year average, that demand in a number of key markets is back to pre-Covid levels and that without some pre-emptive action, prices were almost certainly going to rise further.

But the more cautious among them also warned of the possibility of further increases in Covid-19 infections, with new variants of the virus at the forefront. They also pointed to the probably inevitable — if in timing and extent uncertain — return of Iranian exports.

Prior to the meeting, the market was anticipating an additional 500,000 b/d in August, perhaps even just as a temporary measure. In fact, the group's Joint Ministerial Monitoring Committee (JMMC) decided to recommend an additional 400,000 b/d increase each month between August and December 2021. This would return 2mn b/d to the market by the end of the year and would go a long way to unwinding

**Apr 20 crude output vs previoius baseline*** *'000 b/d*




the cuts agreed in April last year. In addition, it was proposed that the entire agreement should be extended until the end of 2022 — it is currently due to expire at the end of April.

Had it been left at that, this would have been another constructive and proactive decision by Opec+. Instead, the meeting again highlighted the tensions within the producer group, with the UAE breaking ranks to request that the baseline reference month for all countries' production cuts should be changed to April 2020 from October or November 2018. The significance of this for Opec signatories to the Opec+ deal is that their production in April 2020 was 1mn b/d higher than the baseline. Switching to April 2020 would mean that production could now be raised by an equivalent amount. But while the UAE would stand to gain the most, others would actually see their quota cut (*see graph*).

The UAE's position seems to reflect the fact that Abu Dhabi has invested significantly to expand capacity while at the same time trying to establish Murban as a benchmark crude. To succeed in this, it needs to assure the market that it can guarantee a decent level of liquidity, and securing a higher quota would go a long way to achieving this.

At another time, the UAE request might have received more consideration, but the rest of Opec+ — for which read Saudi Arabia — refused its request to open the Pandora's box around quotas at such a delicate point in the rebalancing process. With Saudi Arabia and the UAE at loggerheads, discussions have ended, there is no agreement and the assumption is that July production will roll over to August. The discussions are not expected to resume until the next scheduled ministerial meeting in August, leaving the market facing a period of heightened uncertainty and volatility.

The proposal to increase production by 2mn b/d in the second half of the year was the right one in terms of maintaining a stable market. Until now, we had thought it likely that given the continuing uncertainty surrounding Covid-19 and an imminent return of Iranian exports, the group would content itself with just continuing to monitor the situation. Had it done so, OECD commercial inventories — the key metric used to measure market balance — would have fallen steadily below the 2015-19 five-year average. By the year's end, stocks could have been more than 100mn bl below this level, which would have been a very tight situation.

# Crude overview

**Summary of global crude balance** *mn b/d*

| | 1Q20 | 2Q20 | 3Q20 | 4Q20 | 2020 | 1Q21 | 2Q21 | 3Q21 | 4Q21 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Demand | 94.10 | 83.29 | 93.28 | 93.79 | **91.12** | 94.12 | 95.46 | 98.43 | 98.39 | **96.60** | **99.63** | **101.53** |
| Supply | 99.79 | 91.77 | 90.62 | 92.09 | **93.57** | 91.71 | 94.31 | 97.11 | 97.63 | **95.19** | **102.08** | **105.23** |
| Opec crude | 28.28 | 25.55 | 23.78 | 24.85 | **25.62** | 24.96 | 25.51 | 26.96 | 27.43 | **26.22** | **30.36** | **31.45** |
| Opec NGL and condensate | 5.84 | 5.85 | 5.85 | 5.85 | **5.85** | 5.79 | 5.77 | 5.77 | 5.77 | **5.77** | **5.76** | **6.16** |
| Non-Opec crude and NGL | 60.67 | 55.38 | 55.31 | 56.16 | **56.88** | 56.18 | 57.49 | 58.52 | 58.85 | **57.76** | **60.36** | **62.02** |
| Other supply | 5.00 | 4.99 | 5.67 | 5.23 | **5.22** | 4.79 | 5.54 | 5.85 | 5.58 | **5.44** | **5.60** | **5.60** |
| Global balance* | 5.07 | 7.75 | -2.55 | -1.59 | **2.17** | -2.45 | -1.09 | -1.31 | -0.75 | **-1.40** | **2.45** | **3.69** |

**equivalent to global stock change*

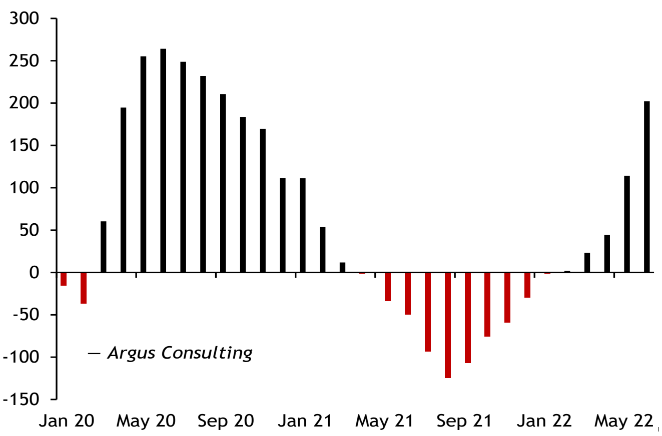
The proposed steady release of more crude after this month would go a long way to reversing this position (*see graph — note that the balance illustrated in the table does not include the additional 2mn b/d increase that was proposed*). The deficit to the five-year average is at its greatest in August, at 125mn bl, but it then shrinks steadily, returning to a balanced position by the year's end. On this profile, Opec+ could arguably have been more aggressive in returning crude to the market.

The graph also illustrates what happens if production is left unchanged going into 2022, and underlines the need for producers to start looking further ahead. Even after its proposed 2mn b/d is returned, Opec+ will still be producing at just over 3.5mn b/d below baseline. And even without this potential extra crude, OECD commercial stocks will be on an upward trend — potentially reaching as much as 200mn bl by mid-2022. From having to increase production to maintain a stable market, producers will quickly have to change tack and reduce output again.

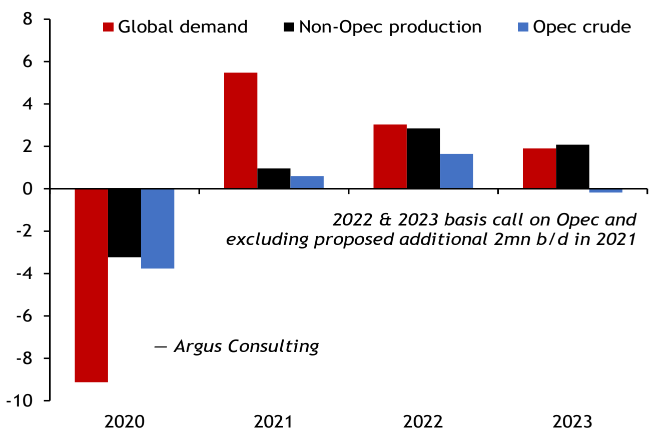
For Opec, another issue of critical importance is whether or not its non-Opec partners can be persuaded to keep the Opec+ alliance alive. In a market moving back into surplus and with Iran starting to increase its exports, the last thing that Opec needs is to have to deal with the return of even more barrels to the market. If we assume that after April next year Russia and others start to produce at full capacity, the result is that the call on Opec increases only slightly in 2022 and not at all in 2023, when we expect growth in non-Opec crude production to broadly match the growth in global demand (*see graph — note that the 2mn b/d increase that was proposed in 2021 is not included; if it were to be included, the increase in the call on Opec crude in 2022 would be reduced*).

The need to persuade non-Opec producers to not only reduce output again in early 2022, but to continue to restrain output for the foreseeable future will be challenging and critical. As will be the need to absorb incremental Iranian barrels at a time of limited growth in demand for Opec crude.

**OECD stocks surplus vs 2015-19 average** *mn bl*




**Demand/production: Year-on-year changes** *mn b/d*

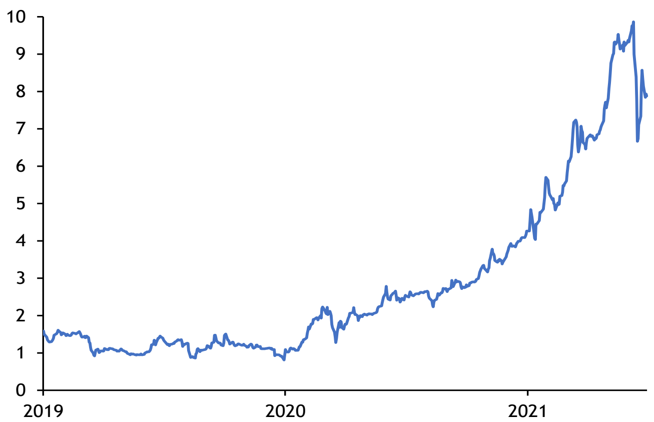


# Refining economics

June refining margins strengthened in the Mediterranean, weakened in the US Gulf coast, and were little changed in northwest Europe and Singapore. They remain $1/bl either side of breakeven in all regions other than the US Gulf coast.

The US Gulf coast fluid catalytic cracker (FCC) margin against LLS crude fell by $1.50/bl in June, but still averaged $3.70/bl — far stronger than elsewhere. However, this figure is somewhat misleading because our US Gulf coast gasoline and diesel prices include the cost of the renewable volume obligations (RVOs) — the cost of complying with the US Renewable Fuel Standard (RFS) — which has surged since the start of the year, averaging $8.50/bl in June, up from $4/bl in January this year, and just $1.50/bl in January 2020 (*see graph*). While this cost is included in the US gasoline and diesel prices, in reality it represents a cost to refiners when selling domestically, and so would actually erode refining margins.

**US RVO cost** *$/bl*




And it appears that refiners or blenders are the parties exposed to the rising cost, with pump prices not climbing by as much as wholesale prices. The fob gasoline crack on the US Gulf coast rose by 78pc between June and January — almost entirely in line with the 80pc rise in the RVO cost over the same period. But gasoline pump prices rose by just 30pc, according to EIA data. This would imply that the cost of complying with the RFS is being borne somewhere higher up the supply chain.

Northwest Europe's refiners continue to fail to break even, according to our indicative FCC margin. In June, the northwest Europe margin averaged minus $0.90/bl. Demand is beginning to rise in Europe, with Covid-19 cases having fallen to very low levels across many countries and restrictions being lifted. But returning supply means product stocks remain stubbornly high. Restarts to units at Repsol's Puertollano, TotalEnergies' Gonfreville and Eni's Milazzo refineries are likely to mean that Europe's utilisation rates rose in June, having averaged about 70pc in May. Indeed, gasoline, jet and diesel cracks fell by $1-3/bl between mid-June and the end of the month, possibly pressured by returning supply within the region. The outlook for margins in Europe is uncertain. The continuing vaccine rollout and expectations for a strong summer holiday season are likely to see demand rise over the coming months. But fresh concerns surrounding the Delta variant of the virus are an obstacle to demand. Nevertheless, we do see margins turning positive in August-October, on anticipation of rising middle distillate cracks.

The Singapore margin to Dubai fell by just $0.10/bl in June, but was at its lowest level of the year. Falling gasoline cracks have weighed on margins particularly heavily, with several countries in Asia tightening social restrictions in an attempt to manage a surge of the Delta variant. Margins have also been hampered by returning Indian supply, with refinery rates rebounding in late June. The country's biggest state-run refiner, IOC, is now operating at 88-90pc, a source familiar with plant operations said. This is at least three percentage points higher than earlier last month.

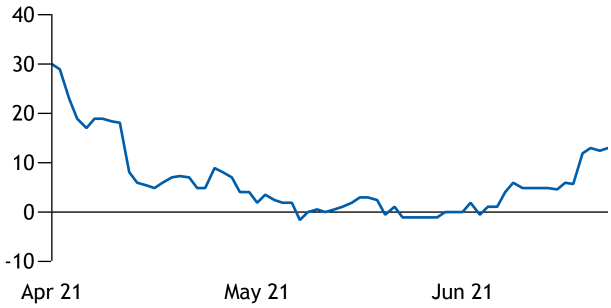
**Refining margins** *$/bl*

| | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|
| Northwest Europe | | | | | |
| vs North Sea Dated | -0.89 | -0.93 | -1.10 | 0.30 | 1.40 |
| vs Urals | 1.53 | 1.22 | 1.00 | 2.70 | 3.70 |
| Mediterranean | | | | | |
| vs Urals | 0.26 | 0.53 | 0.30 | 1.70 | 2.10 |
| vs CPC Blend | -0.76 | -1.50 | -2.40 | -0.70 | 0.80 |
| US Gulf coast | | | | | |
| vs LLS | 5.23 | 3.68 | 5.10 | 5.90 | 7.00 |
| vs WTI (Houston) | 8.79 | 6.89 | 7.40 | 8.60 | 10.20 |
| vs Mars | 2.19 | 1.10 | 1.70 | 1.80 | 1.30 |
| Singapore | | | | | |
| vs Dubai | 0.26 | 0.10 | -0.50 | 0.10 | 1.40 |
| vs ESPO Blend | 2.49 | 2.20 | 1.40 | 2.60 | 4.30 |

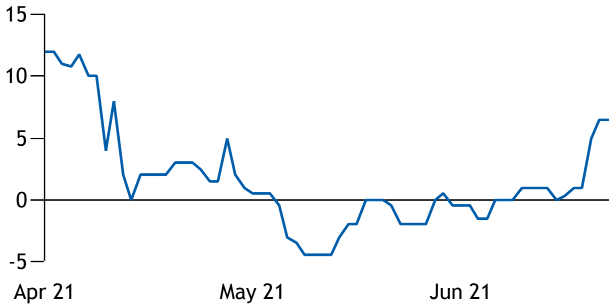
*Margins calculated based on FCC unit yields*

# LPG swaps

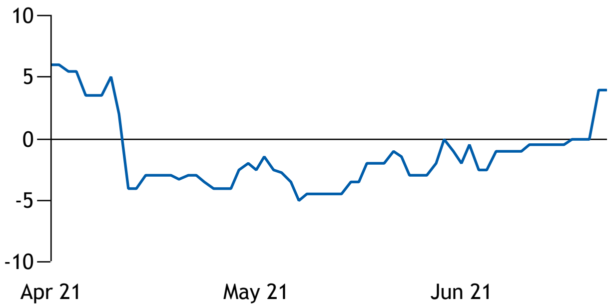
**Propane NW Europe month 1 vs month 2** *$/t*



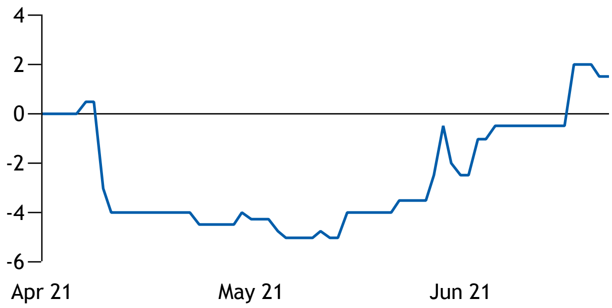

**Propane NW Europe month 2 vs month 3** *$/t*



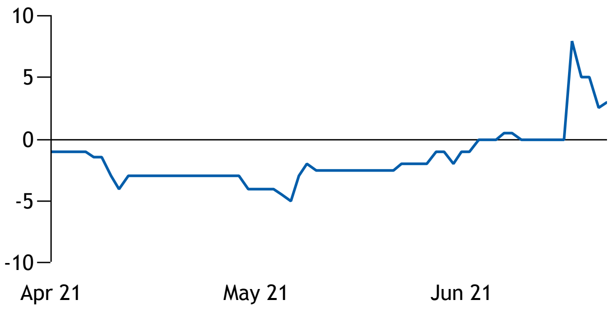

**Propane NW Europe month 3 vs month 4** *$/t*



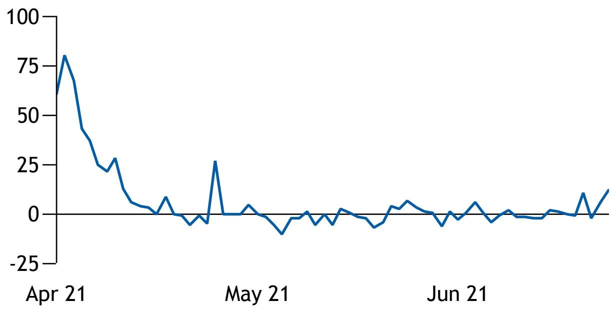

**Propane NW Europe month 4 vs month 5** *$/t*



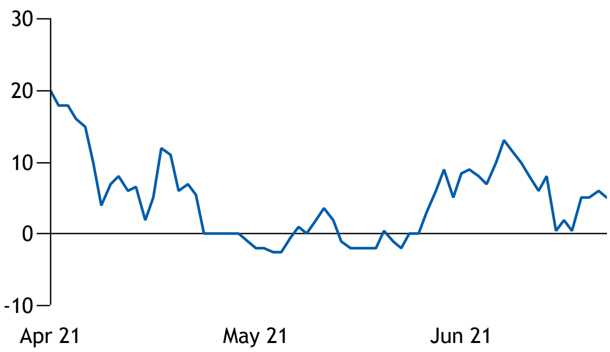

**Propane NW Europe month 5 vs month 6** *$/t*



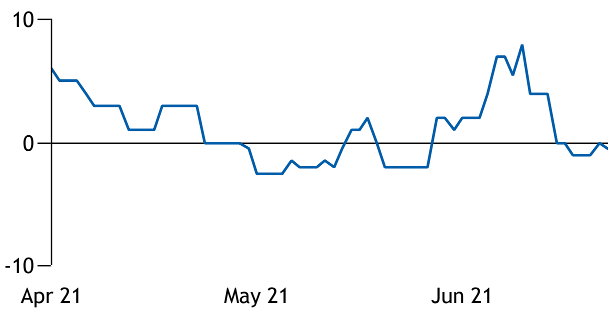

**Mont Belvieu month 1 vs month 2** *$/t*




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




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



# LPG developments to watch

| Date | Development |
|---|---|
| China | |
| 1H 2021 | Oriental PDH start-up (deferred from 2020) |
| 1H 2021 | Fujian Meide PDH start-up (deferred from 2020) |
| 1H 2021 | Shandong Huifeng Haiyi Petrochemical PDH start-up |
| 1H 2021 | Ningbo Huatai Shengfu ethylene cracker start-up |
| 2H 2021 | Jinneng Technology PDH start-up |
| 2H 2021 | Henan Nanpu Technology PDH start-up |
| 2H 2021 | Gulei Refinery ethylene cracker start-up |
| Other | |
| 2021 | Russia - Vanino terminal completion |
| 2021 | Vietnam - Hyosung Vung Tau PDH start-up |
| 2021 | South Korea - Ulsan PDH capacity expansion |
| 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.**

**Argus** *LPG Outlook* is published by Argus Media group

**Registered office**
Lacon House, 84 Theobald's Road,
London, WC1X 8NL
Tel: +44 20 7780 4200

**ISSN: 2398-0516**



**Publisher**
Adrian Binks

**Chief operating officer**
Matthew Burkley

**Global compliance officer**
Jeffrey Amos

**Chief commercial officer**
Jo Loudiadis

**President, Oil**
Euan Craik

**SVP Consulting services**
Lloyd Thomas

**Senior Analyst**
Michelle Gantert
Tel: +44 20 8158 8803
Michelle.Gantert@argusmedia.com

**Customer support and sales:**
support@argusmedia.com
sales@argusmedia.com

**London**, Tel: +44 20 7780 4200
**Beijing**, Tel: +86 10 6598 2000
**Dubai**, Tel: +971 4434 5112
**Hamburg**, Tel: +49 48 22 378 22-0
**Houston**, Tel: +1 713 968 0000
**Kyiv**, Tel: +38 (044) 298 18 08
**Moscow**, Tel: +7 495 933 7571
**Mumbai**, Tel: +91 22 4174 9900
**New York**, Tel: +1 646 376 6130
**Paris**, Tel: +33 1 53 05 57 58
**San Francisco**, Tel: +1 415 829 4591
**Sao Paulo**, Tel: +55 11 3235 2700
**Shanghai**, Tel: +86 21 6377 0159
**Singapore**, Tel: +65 6496 9966
**Tokyo**, Tel: +81 3 3561 1805
**Washington, DC**, Tel: +1 202 775 0240