Oil



Trade map | June 2022





8.1 Summary

- Significant uncertainty surrounds global oil markets, with the fallout of Russia's invasion of Ukraine dominating global supply concerns, and COVID-19 outbreaks in China weakening global demand prospects. Brent crude oil is forecast to average US\$105 a barrel in 2022, before declining over the rest of the forecast period.
- Australian crude oil and feedstock exports in 2021–22 are estimated to average 282,000 barrels a day, holding steady out to 2023–24.
- Elevated oil prices are expected to lift Australian oil export earnings by 81% to \$13.5 billion in 2021–22. Earnings are forecast to reach \$14.3 billion in 2022–23 before returning to \$12.6 billion in 2023–24, as oil prices fall from current highs.

8.2 World consumption

Demand growth to slow with geopolitical developments and lockdowns

In 2022, global oil consumption is predicted to rise, but growth could easily disappoint. In the March quarter 2022, world oil consumption grew steadily — with the easing of containment measures, re-opening of major international borders, and strong economic activity boosting demand. However, the pandemic, geopolitical developments and less rapid global economic growth, have all cast a shadow over the pace of oil demand. Severe COVID-19 lockdown measures in China, alongside the fallout from the Russian invasion of Ukraine, are estimated to have impacted global demand growth in the June quarter 2022, with impacts lasting potentially into the second half of the year. Global oil consumption is estimated to increase by 1.9% to 99 million barrels a day in 2022. Formal and 'self-sanctions' (independent corporate actions) imposed on imports of Russian oil are resulting in a rearrangement of global trade, and could shift demand patterns over time.

Demand for diesel and gasoline is expected to lead overall oil consumption gains this year, due to increasing global mobility and solid levels of industrial activity. Traffic volumes in major Western cities are approaching pre-COVID-19 levels. At the start of June, road traffic in major European cities measured 95% of pre-pandemic levels. The increased mobility should propel high growth in transport fuel demand over the Northern Hemisphere summer vacation season (through to the end of the September quarter). Consumption of LPG/ethane and naphtha is also expected to build on 2021 levels — when they surpassed pre-COVID levels — with global petrochemical manufacturing remaining strong this year.

Total global air traffic for April 2022, was up 79% compared to April 2021 — but was still around 40% below pre-pandemic levels. The recovery in aviation in 2022 is forecast to be slower than anticipated, owing to COVID-19 mobility restrictions in China and sanctions affecting the Russian aviation sector. In China, air traffic fell from almost 11,000 daily flights in February to around 3,300 daily flights in April. The International Air Transport Association expects global traveller numbers to reach pre-COVID-19 levels by 2024.

Oil consumption is forecast to reach 102 million barrels a day by 2024, largely driven by rising global aviation demand (Figure 8.1).

Figure 8.1: Oil consumption, OECD and non-OECD



Source: Department of Industry, Science and Resources (2022); International Energy Agency (2022).

OECD consumption to rise with recovery in aviation

The impact of COVID-19 is fading in OECD nations, with cases of the Omicron variant having peaked. However, geopolitical developments around Russia's invasion of Ukraine will likely impact economic and oil demand growth in the second half of 2022, with major OECD nations committing to outright bans or phasing out imports of Russian oil. In 2022, OECD oil demand is expected to rise by 2.6% to 46 million barrels a day — still below 2019 levels.

While improved mobility and an ongoing rebound in jet fuel use should support overall gains in oil demand in Europe in 2022, the weakening of economic and trade ties with Russia may act as a partial offset. As part of a sixth round of sanctions on Russia, at the end of May the European Union (EU) agreed to ban the purchase of crude oil and petroleum products from Russia delivered to member states — by sea in six months and refined petroleum products in eight months' time. This package covers more than two-thirds of EU oil imports from Russia. With Germany and Poland confirming they will also ban Russian oil delivered by pipeline, the total effect could see 90% of crude oil sales to the EU blocked by end 2022. In 2021, 25-30% of Europe's oil imports were supplied by Russia, so the partial ban will see the EU look to oil supply outside of Russia.

Slowing economic activity and high fuel prices are expected to restrict growth in US oil demand to 1.4% in 2022 (Figure 8.2). However, rising mobility and the upcoming summer holiday season will boost demand for transportation fuels in the near term. The US announced a ban on Russian oil, gas and other energy imports on 8 March 2022. In 2021, the US imported around 672,000 barrels a day of crude oil and oil products from Russia (8% of US oil imports).

OECD consumption is forecast to increase by 0.8% in 2023, and then hold steady in 2024. The recovery in international travel will provide a boost to consumption over the forecast period. However, consumption may never return to 2019 levels, due to the continuing higher uptake of electric vehicles (see the *lithium* chapter and Figure 8.1).

Figure 8.1: Oil consumption trends in major nations



Source: Department of Industry, Science and Resources (2022); International Energy Agency (2022). China's zero-COVID strategy to slow non-OECD consumption growth

COVID-19 outbreaks in China (the world's second largest and fastest growing consumer of oil), as well as the impact of sanctions on Russia, are expected to have a significant impact on non-OECD consumption this year. While still estimated to grow 1.2% in 2022, and surpass 2019 levels, demand expectations have been significantly curtailed. Consumption is forecast to recover in 2023, rising 3.4% to 55 million barrels a day, and to continue rising to 56 million barrels a day by 2024.

China's dynamic zero-COVID policy has led to the introduction of severe containment restrictions over recent months, affecting hundreds of millions of people. The policies have visibly disrupted various forms of oil consumption — flights, freight and personal mobility. Heavy declines are estimated in the June quarter, however recovery is forecast later in the year, as major cities emerge from lockdowns.

While Chinese demand growth for 2022 is forecast at 0.13 million barrels a day (up 0.8% year-on-year), forecasts are subject to high uncertainty, due to the unpredictable path of the virus and the Chinese Government response (Figure 8.2).

Oil consumption forecasts for Russia also remain uncertain. Aviation consumption is expected to decline significantly, due to the banning of Russian airlines from many international routes and prohibition of Western airlines using Russian airports. As a result of the Russian invasion of Ukraine, oil demand is likely to be 'redistributed' throughout the year. Data for March 2022 suggests commercial flights from major Russian airports declined by 31%, while consumption of fuel by Russian military forces tripled from January 2022 levels.

A positive economic outlook, continuing demand by the manufacturing sector, and effective COVID-19 management are all supporting Indian oil consumption growth in 2022. Gasoline and diesel usage are expected to see major gains this year, due to increased mobility and flourishing industrial activity. After China, India is the second largest net oil importer, and typically imports around 85% of its oil. In 2021, less than 3% of India's crude imports came from Russia. However, in 2022, sanctions from other nations, emerging market gaps, and reports of significant discounts, have led to a strong increase in Russian oil exports to India — with the trend anticipated to continue. In 2022, Indian consumption is expected to grow a solid 6.3% year-on-year to 5 million barrels a day, reaching pre-pandemic levels (Figure 8.2).

8.3 World production

Global production set to rise overall, but Russia to see significant declines As noted in the March 2022 *Resources and Energy Quarterly*,

considerable uncertainty surrounds global oil production forecasts this year, with developments surrounding Russia's invasion of Ukraine having a significant impact. The trajectory of production in Russia — the world's third largest oil producer and largest exporter of oil to global markets — remains unknown amidst changing trade relationships and slowing

domestic consumption. In April 2022, total Russian oil output fell by 960,000 barrels a day month-on-month, largely due to weaker domestic demand from the refining sector. Russian seaborne exports of oil and oil products fell by around 330,000 barrels a day to 5.7 mb/d. With the EU's ban on Russian seaborne oil imports to take effect within coming months, alongside sanctions from other nations, further falls are expected. It is anticipated that Asian buyers will help to absorb some of the market gaps left by major buyers who have turned away from Russian oil. However, the extent of a full re-orientation of trade flows is uncertain, with flow-on effects to Russian production forecasts. The supply responses of OPEC+ and other major producers (including the US) remains similarly uncertain.

The disrupted supply environment prompted the US Government to announce the release of 1 mb/d of oil from the Strategic Petroleum Reserve (SPR) over six months, starting in early April. The International Energy Agency (IEA) also announced plans to move ahead with the largest stock release in IEA history — a collective oil stock release of 120 million barrels (which includes 60 million barrels contributed by the US). Combined releases will add around 240 million barrels to the global market over the next six months, but the overall impact of these coordinated releases remains uncertain.

It is anticipated that overall global production will lift this year if OPEC+ continues with its announced policy. The US, Canada and Brazil are all expected to drive growth for non-OPEC+ producers. Global production is estimated to increase by 4.1% to average 99 million barrels a day in 2022, and 102 million barrels a day in 2023 (Figure 8.3).

OPEC+ supply progressively rising, but underperforming stated targets

So far, OPEC+ producers have stuck to their July 2021 decision to steadily wind back the (COVID-19 induced) production cuts of early 2020. The group agreed to increase production every month, commencing in August 2021, and meet monthly to reaffirm members' commitments and ensure market stability.

At their meeting on June 2, the alliance agreed to accelerate its production hikes through the Northern Hemisphere summer, amid signs of strong demand for transport fuels and as the EU embargo on Russian oil is scheduled to be phased in. The group agreed to increase its production target by 648,000 barrels a day in July and August, up from the 432,000 barrel a day rise in June.

6 Annual change, million barrels a day 4 2 0 -2 -4 -6 -8 2020 2021 2022 Other OPEC+ Russia Saudi Arabia US World United Arab Emirates

Figure 8.3: Change in oil production by major producers

Source: Department of Industry, Science and Resources (2022); International Energy Agency (2022).

While sticking to its agreement, the group has struggled to hit production targets due to capacity constraints and technical issues. In April 2022, output fell by 840,000 barrels a day among the 19 members involved in the supply deal, compared to a planned 400,000 barrel a day increase. This was attributed in large part to declines from Russia. However, other countries including Nigeria and Angola, are also struggling to meet quotas due to lack of spare capacity and operational issues. Middle Eastern producers like Saudi Arabia, the UAE, Iraq and Kuwait, are tapping into

spare capacity to boost production; they added a combined 2.8 mb/d of crude oil production between January 2021 and April 2022. The group last met on June 30 (after this publication went to print). Production plans for September and beyond are likely to determine how tight the global oil market will be heading into 2023.

Adding to difficulties in the global supply situation, production in Libya has been impacted by shut-ins at several fields due to the ongoing political crisis. In the month of April, production fell by 200,000 barrels a day to 0.9 mb/d. Meanwhile, momentum to revive the Joint Comprehensive Agreement Plan of Action, which would potentially enable a full re-entry of Iranian oil into the global market, has slowed, with negotiations on hold since March. Early estimates had suggested an easing of sanctions on Iran could add up to 1.3 million barrels a day to global supply.

In 2022, OPEC+ output is expected to rise 4.3% to 51 million barrels a day. OPEC+ output is forecast at 48.5 million barrels a day in 2023 and 49.1 million barrels a day in 2024.

Non-OPEC+ production to rise and react to change in global trade flows

After a slow start to this year — which included freezing temperatures in major producing regions — US production is expected to rise steadily for the rest of 2022. Various sanctions on Russian crude, and elevated prices, have provided an opportunity for US producers to bring further supply online. According to Kpler shipping data from April, exports of US crude and products to Europe surged to their highest levels since 2016. The trend is set to continue as the EU partial ban on Russian oil imports takes effect. US production is expected to rise 6.9% to 18 million barrels a day in 2022 — a potential annual average record. However, investor support remains a key risk to US production and rate of ramp up.

Brazil, Canada and Norway are also expected to drive higher non-OPEC+ supply in 2022. In 2022, non-OPEC+ production is expected to surpass pre-COVID-19 levels, averaging 48 million barrels a day.



8.4 Prices

Fallout from Russia's invasion of Ukraine driving price surge this year

Oil prices have travelled a turbulent path so far in 2022. Prices rallied throughout January and February, on the back of low oil inventories and healthy consumption. Following Russia's invasion of Ukraine, prices broke the \$US100 a barrel mark in the first days of March and continued to soar. Brent prices peaked at \$US134 a barrel on 8 March 2022 — the highest levels since July 2008 — with the risk of sustained energy supply shocks, and sanctions on Russian oil, creating significant market uncertainties.

The US Government announcement of plans for a release of crude from the US Strategic Petroleum Reserve (SPR), and an IEA release from global crude stockpiles, saw WTI prices record their highest weekly drop since 2011 — falling \$US14 a barrel. The SPR release announcement came among surging fuel prices in the US, and aimed to bring some relief to consumers. Weakening demand prospects, with COVID-19 outbreaks in China, contributed to further falls in April. As a result, the April average dropped, after three consecutive months of rises.

Figure 8.4: Brent oil price, daily - 2020 to 2022





Volatility persisted into May, as negotiations to impose EU sanctions on Russian oil proceeded. In early June, prices returned to early March levels as the market reacted to the EU's partial ban on Russian oil imports, and the supply decisions of OPEC+. Brent averaged \$US106 a barrel in April, \$US112 a barrel in May and \$120 a barrel in June (estimate) — with the June quarter average up 64% year-on-year (Figure 8.4).

Prices to remain elevated, but see gradual decline

Price volatility is expected to continue in the near term, with fallout from the Russian invasion of Ukraine weighing against a shifting demand landscape. Prices are expected to remain elevated, but the forecasts are attached with more than usual uncertainty. Brent crude is forecast to average \$US108 a barrel in the September quarter 2022, and \$US101 in the December quarter — bringing the 2022 average to \$US105 a barrel. It is anticipated that scheduled hikes in OPEC+ output and rising output from other producers, and a softening in demand growth (with less rapid global economic growth), should put downward pressure on prices as 2022 ends and 2023 begins. The gradual decline is expected to continue during 2023 and 2024, as global trade flows re-shape. Brent crude is forecast to average \$US95 a barrel in 2023 and \$US80 a barrel in 2024 (Figure 8.5).

The ramifications of Russia's invasion of Ukraine will dominate the supply side uncertainty over the forecast period. As various bans on Russian oil and oil products take effect over the remainder of 2022, buyers who have imposed bans will be looking to ramp up imports from other sources — likely the US, Canada, and the Middle East. Meanwhile, it is anticipated that some Asian buyers will continue to ramp up Russian oil imports. The extent and pace of a re-orientation of global oil trade will significantly influence global prices. The decisions and actions of OPEC+ could add to supply uncertainty; with the group currently failing to meet its output target.

On the demand side, the COVID-19 situation in China, and any further lockdowns, is likely the biggest threat in near term. While it is anticipated that global demand will rise in 2022, the extent and longevity of containment restrictions in China — or other global responses to future virus strains — have strong potential to impact global demand growth.

Figure 8.5: Price outlook



Source: Bloomberg (2022); Department of Industry, Science and Resources (2022)

8.5 Australia

Anticipated final investment decisions to influence future oil production

Australian crude and condensate production is estimated to have fallen slightly in 2021–22, to 329,000 barrels a day, as crude production rates declined. Since the majority of condensate is a by-product of gas, Australian condensate production is estimated to have lifted in tandem with record LNG production in 2021–22 (see *Gas* chapter). High levels of output at lchthys, the NWS and Gorgon are estimated to have contributed to the production gains. Condensate production from Prelude tracked at record rates in the second half of 2021, but the site was shut in for Q1 2022 because of critical safety issues. Production resumed by the beginning of April, but the suspension impacted national condensate production for 2021–22.

Production is forecast to fall slightly in 2022–23, to 322,000 barrels a day, before returning to 336,000 barrels a day in 2023–24. Beyond the outlook, several potential and progressing projects will help to boost crude and condensate production, but will be met with the natural decline at existing fields. Santos and Carnarvon Energy are targeting their Dorado project to

be FID ready in the second half of 2022. According to their latest report, the Front-End Engineering and Design is progressing well.

In late March, Santos announced the Pavo-1 exploration well confirmed a significant oil discovery in the Bedout sub Basin, less than 50 km east of the Dorado field. The 2C continent resource at the Pavo site, assessed at 43 million barrels of oil, could thus add significant value to the Dorado project. Dorado has an estimated initial capacity of 75-100k barrels a day — nearly 25% of 2020–21 Australian crude oil and condensate output. In 2020–21, condensate accounted for 49% of Australian crude, condensate and LPG production. Crude oil accounted for 29% (Figure 8.6).

Figure 8.6: Composition of Australian oil production



Source: Australian Petroleum Statistics (2022); Department of Industry, Science and Resources (2022)

Australian export earnings to lift with high oil prices

This year's jump in oil prices is expected to see revenue from Australian crude and condensate exports climb to record levels. In 2021–22, Australian export earnings are estimated to have reached \$13.5 billion — up 81% year-on-year. Export earnings are forecast to rise slightly in 2022–23, due to the higher oil prices forecast for 2022 and 2023, before dropping in 2023–24, as prices decline (Figure 8.7).



Figure 8.7: Australian oil and feedstock exports

Domestic refinery production falling with refinery closures

Resources (2022).

The closure of the Kwinana (WA) and Altona (VIC) refineries in 2021 contributed to an estimated fall of one third in refinery output of petrol, diesel and jet fuel in 2021–22 from 2020–21 levels.

The two remaining refineries — Ampol's refinery in Lytton (Queensland) and Viva Energy's refinery in Geelong (Victoria) — have committed to continue to operate until at least mid-2027, with the offer of government support. In the 2021–22 Budget, as part of a new fuel security package, the Australian Government announced a suite of measures to help retain Australia's refining capacity.

Australian oil consumption for 2021–22 is estimated to have lifted slightly (by 1.2%) from 2020–21, driven by stronger demand for transport fuels — as restrictions were lifted and State borders reopened in H1 2022. Sales of jet fuel for the March quarter 2022 were up 22% quarter-on-quarter (up 37% year-on-year), and demand for petrol and diesel has remained strong in the last six months. With Australia's borders now open, a sustained surge in aviation fuel demand is expected to see consumption continue to lift in 2022–23 and 2023–24.

Refined product imports for 2021–22 are expected to increase by 13%, driven by our reduced refining capacity. Meanwhile, imports of crude oil and other refinery feedstocks are expected to decrease by 24%, reflecting refinery closures.

Exploration

Australia's petroleum exploration expenditure was \$340 million in the March quarter 2022 (seasonally adjusted basis), a quarterly increase of \$23.9 million or 7.6%. This is 26% higher year-on-year. Onshore exploration fell 9.7% to \$176 million, while offshore exploration spending increased by 35% to \$164 million (Figure 8.8).

Figure 8.8: Australian petroleum exploration



Source: Australian Bureau of Statistics (2022) Mineral and Petroleum Exploration, 8412.0.

Revisions to forecasts

Australian export earnings have been revised down by \$0.4 billion in 2021–22 and revised up by \$0.3 billion in 2022–23 from the March 2022 REQ. Changes to export revenue forecasts have come from revised oil price forecasts.

Table 8.1: Oil Outlook

						Annual percentage change		
World	Unit	2021	2022	2023 ^f	2024 ^f	2022 ^s	2023 ^f	2024 ^f
Production ^a	mb/d	95	99	102	103	4.1	2.4	1.8
Consumption ^a	mb/d	98	99	102	102	1.8	2.2	0.9
WTI crude oil price								
– nominal	US\$/bbl	68	101	91	76	48.4	-9.7	-16.3
- real ^b	US\$/bbl	73	101	88	72	37.7	-12.2	-18.1
Brent crude oil price								
– nominal	US\$/bbl	70	105	95	80	49.7	-10.2	-15.6
– real ^b	US\$/bbl	76	105	92	76	39.0	-12.7	-17.5
Australia	Unit	2020–21	2021–22 ^s	2022–23 ^f	2023–24 ^f	2021–22 ^s	2022–23 ^f	2023–24 ^f
Crude and condensate								
Production ^{ac}	kb/d	335	329	322	336	-1.5	-2.2	4.3
Export volume ^a	kb/d	276	282	265	280	2.0	-6.1	5.9
– Nominal value	A\$m	7,434	13,448	14,264	12,641	80.9	6.1	-11.4
– Real value ^h	A\$m	7,753	13,448	13,599	11,633	73.5	1.1	-14.5
Imports ^a	kb/d	247	187	190	189	-24.1	1.5	-0.5
LPG production ^{acd}	kb/d	94	109	112	114	16.6	2.5	1.8
Refined products								
 Refinery production^a 	kb/d	375	249	233	230	-33.4	-6.5	-1.2
– Export volume ^{ae}	kb/d	13	8	5	5	-42.2	-34.1	0.2
– Import volume ^a	kb/d	647	731	761	785	13.0	4.0	3.2
- Consumption ^{ag}	kb/d	913	924	956	977	1.2	3.5	2.2

Notes: **a** The number of days in a year is assumed to be 365, and a barrel of oil equals 158.987 litres; **b** In 2022 calendar year US dollars; **c** Historical production data was revised in the June quarter 2022 to align with the Australian Petroleum Statistics **d** Primary products sold as LPG; **e** Excludes LPG; **f** Forecast; **g** Domestic sales of marketable products, including imports; **h** In 2021-22 financial year Australian dollars; **s** estimate.

Source: ABS (2022) International Trade in Goods and Services, Australia, Cat. No. 5368.0; International Energy Agency (2022); EnergyQuest (2022); US Energy Information Administration (2022); Department of Industry, Science and Resources (2022).

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