

Overview

Australia's mining sector



Around 10% of GDP

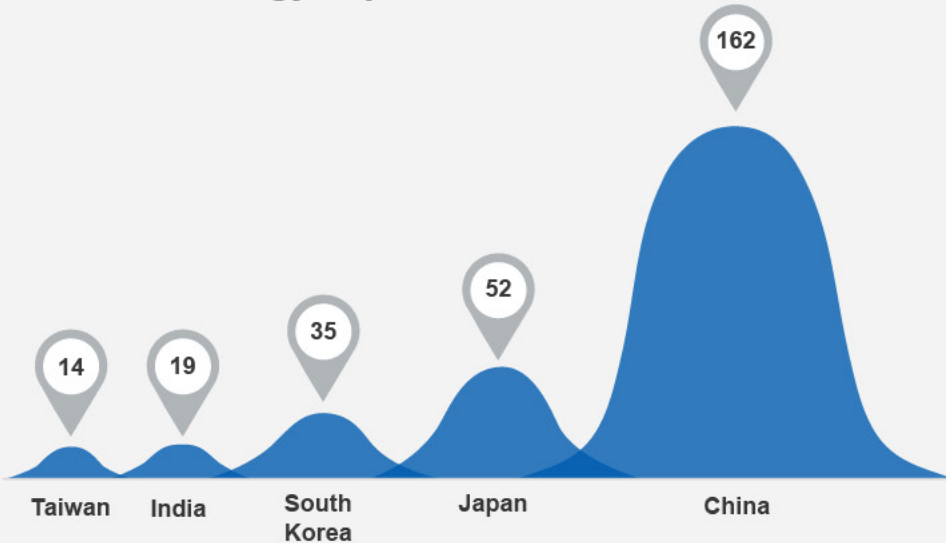


More than two-thirds of Australia's total merchandise exports

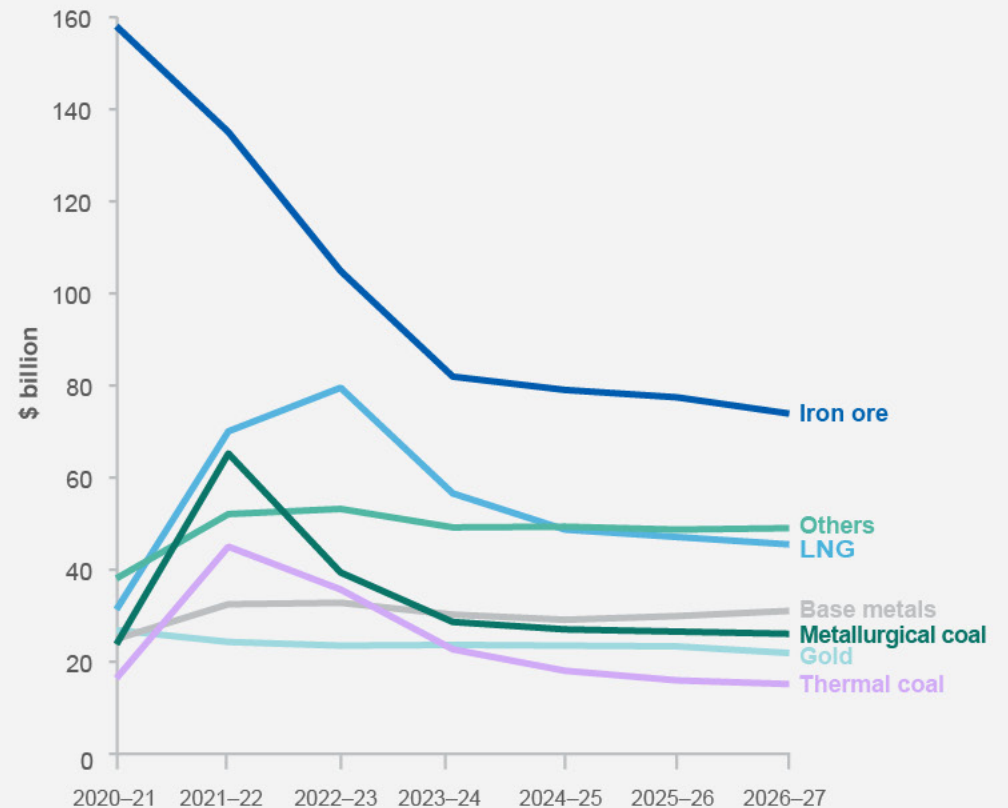


Directly employs more than a quarter of a million people

Major markets for Australia's resources and energy exports in 2021, A\$ billion



Australia's resources and energy exports



1.1 Summary

- The outlook for Australia's mineral exports remains strong, as the world economy rebounds from the impact of the COVID-19 pandemic and energy shortages persist. High prices, good volume growth and a weak Australian dollar are driving a surge in export earnings. Some decline in prices is likely in 2023, as supply rises and demand growth moderates.
- Export earnings are forecast to lift by 33% to a record \$425 billion in 2021–22, then fall to \$370 billion (in real terms) in 2022–23. Earnings should steady out at \$263–293 billion over the rest of the outlook.
- Energy prices have jumped, on the prospect that the fallout from Russian invasion of Ukraine will intensify energy shortages. Commodity prices will settle back, as inventories rebuild and as world trade reorganises.

1.2 Export values

Australia's export values are estimated at \$425 billion in 2021–22

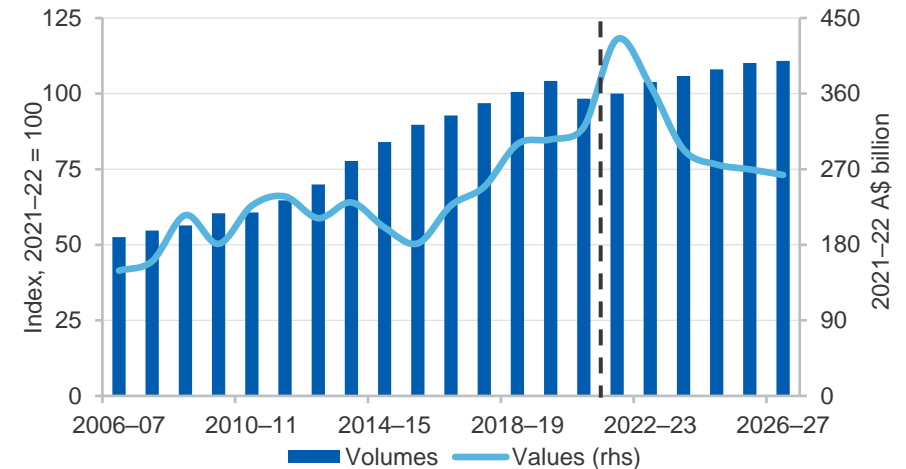
In the March quarter 2022, the Office of the Chief Economist's (OCE) Resources and Energy Export Values Index rose 49% from the March quarter 2021; a 6% rise in volumes added to a 42% gain in prices.

Exports are forecast at a record \$425 billion in 2021–22, up from \$320 billion in 2020–21 (Figure 1.1). Exports should fall to \$370 billion (real terms) in 2022–23. With volumes growing modestly, price changes are forecast to account for much of the move in future earnings (Figure 1.2). Commodity prices are set to fall as demand growth slows and supply rises.

Energy shortages and supply deficit concerns to help boost earnings

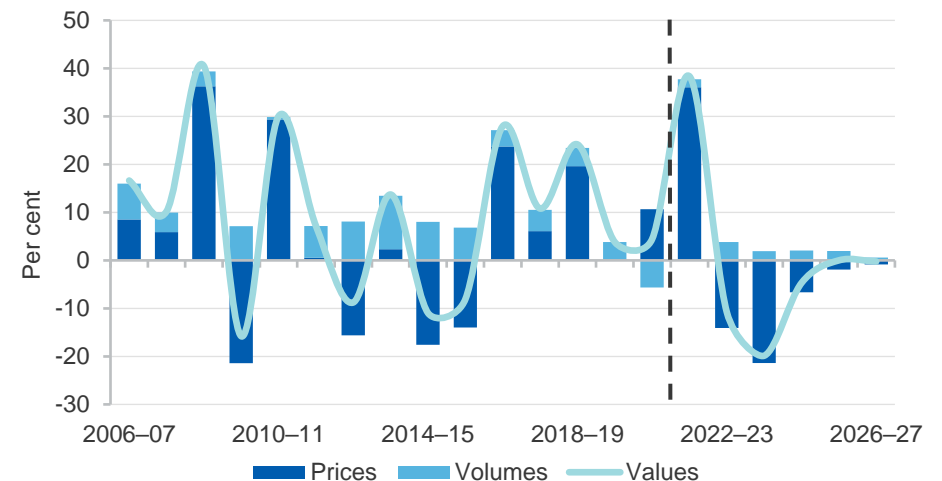
In Australian dollar terms, the OCE's Resources and Energy Commodity Price Index rose by 24% (preliminary estimate) in the March quarter 2022, and was up 49% on a year ago. In US dollar terms, the index rose by 22% in the quarter, and was 32% higher than a year ago. The index of prices for resource (mainly metals) commodity exports (Australian dollar terms) fell by 9% in the year to the March quarter 2022. Energy commodity prices rose by 171% (Figure 1.3) from March quarter 2021, as market deficit concerns (primarily due to supply problems) added to existing shortages.

Figure 1.1: Australia's resource and energy export values/volumes



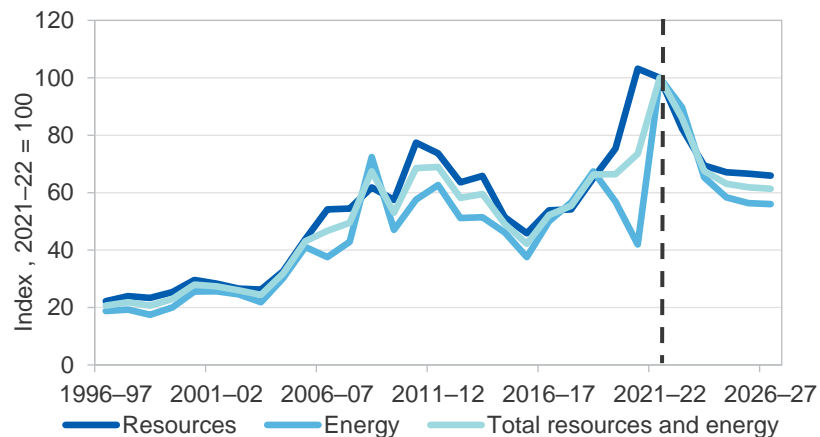
Source: ABS (2022) International Trade in Goods and Services, 5368.0; Department of Industry, Science, Energy and Resources (2022)

Figure 1.2: Annual growth in Australia's resources and energy export values, contributions from prices and volumes



Source: ABS (2022) International Trade in Goods and Services, 5368.0; Department of Industry, Science, Energy and Resources (2022)

Figure 1.3: Resource and energy export prices, AUD terms



Notes: The export price index is based on Australian dollar export unit values (EUVs, export values divided by volumes); the export price index is a Fisher price Index, which weights each commodity's EUV by its share of total export values.

Source: ABS (2022) International Trade in Goods and Services, 5368.0; Department of Industry, Science, Energy and Resources (2022)

1.3 Macroeconomic, policy, trade and other factors

The recovery in world economic activity continues to be hampered by COVID-19 outbreaks and an energy shortfall in the Northern Hemisphere. The fallout from the Russian invasion of Ukraine poses a further risk to world growth in the short term: any disruption to Russian energy exports to the rest of the world is likely to keep energy prices high.

The Russian invasion of Ukraine has driven some consumers to switch from Russia as a supply source. In the short term, this may mean that more, rather than less, thermal coal will be consumed in Western nations, as Russian energy supply (mainly gas/LNG) is shunned. Efforts to reduce emissions are likely to come back into focus once energy security can be assured, impacting further on coal demand in developed nations over time.

Commodity trade is re-organising rapidly: Russian commodities that would normally head to developed nations are being shunned by some customers, and may be diverted to China and India; China and India may

then have less need for non-Russian cargoes, and these could be diverted to developed nations. High prices will prompt a supply response if producers believe Russian supply will be locked out for some years. The supply of Iranian (and Venezuelan) oil could return to world markets, offsetting any loss of Russian supply. The strong rise in US LNG exports expected over the next few years is likely to displace Russian gas/LNG supply to the West, as these nations seek to avoid Russian supply.

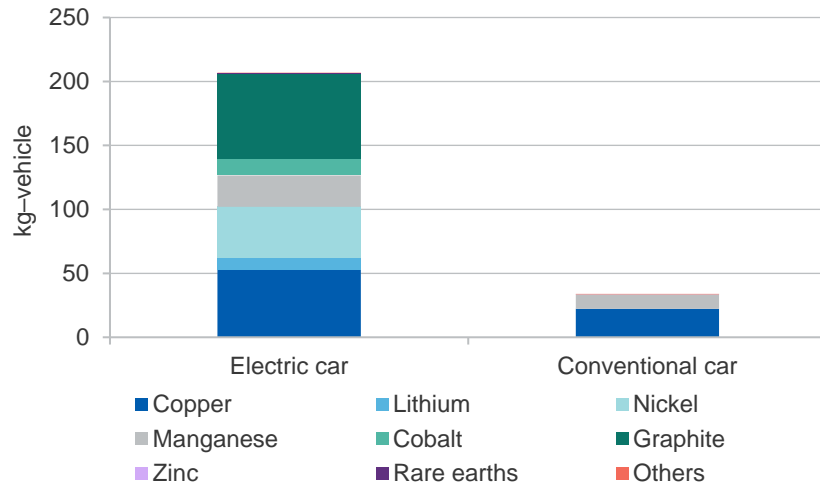
Late in 2021 and in early 2022, the Chinese Government took measures to improve Chinese economic growth. The measures came after a noticeable slowing in growth in 2021. Beijing's 'zero COVID-19' policy is likely to continue to impact on economic activity in 2022, causing supply chain disruptions and constraining commodity demand. Chinese industrial activity is likely to pick up with the Beijing Winter Olympics now completed. The pace of Chinese economic growth will remain an important driver of resource and energy commodity demand over the outlook period. However, the absolute size of China's economy (and thus its appetite for commodities) now means that the prospect of Chinese economic growth of 4–6% doesn't constitute the same concern to commodity markets as it would have done 7 or 8 years ago — when growth was consistently 7–9%.

The US Federal Reserve appears likely to move towards a more neutral monetary policy stance over 2022, as US inflation becomes a concern and the economic recovery continues. However, the pace at which the US Fed moves will depend on the extent of the fallout of the Russia invasion of Ukraine.

Prior to the Russian invasion of Ukraine, the outlook was for strong growth in the world economy in 2022 and 2023, as COVID-19 vaccination rates and infection medications improved and became more accessible. The latest IMF forecasts put world GDP growth at 4.4% in 2022 and 3.8% in 2023, after growth of 5.9% in 2021. World economic growth returns to 3.0–3.5% in the 2024–27 period. The prospects for 2022 are now more uncertain, with much depending on the length and depth of sanctions on Russia.

Surging electric vehicle (EV) sales in the major nations have implications for a range of critical minerals and metals in the outlook period. In addition to using about 9kg of lithium, the average light EV requires around 200kg of other key minerals and metals (Figure 1.4) — about 6 times the volume used in a car with an internal combustion engine.

Figure 1.4: Key minerals used in electric vehicles



Source: IEA (2021)

Resource commodity demand should thus show significant growth over the outlook period. Australian coal and LNG exporters should achieve high prices, as energy shortages persist and Russian exports are shunned. However, after 2022, as global coal and LNG supply lifts and demand growth moderates, prices are likely to slide noticeably.

Our projections suggest that resource and energy export earnings will reach \$425 billion in 2021–22, but then decline to \$370 billion in real terms in 2022–23. Earnings should steady out at \$263–293 billion over the rest of the outlook period.

Higher global interest rates — in response to persistent inflation — pose a downside risk to global economic activity, and hence the resource and energy export forecasts.

1.4 Prices

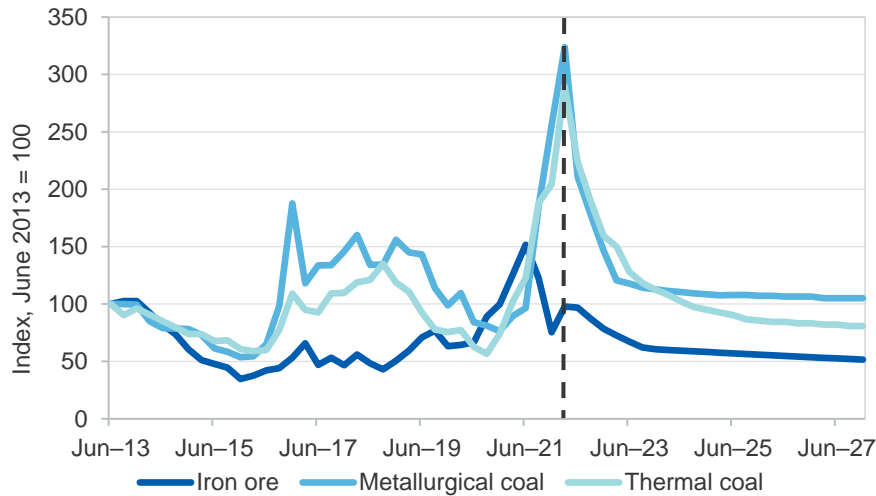
Since the December 2021 *Resources and Energy Quarterly*, the iron ore price has made modest gains but is well below mid 2021 levels. The likelihood of improved Chinese demand has added to the impact of supply problems in major exporting nations (Figure 1.5). Prices are expected to ease over the outlook period, as Brazilian supply recovers and growth in world demand moderates.

Australian metallurgical coal prices are at, or close to, record highs as bad weather in Australia impacts production and transportation. Prices are expected to ease over the outlook period, as supply recovers. Thermal coal prices are also at record levels: with rebounding economic activity and utilities shunning Russian supply, buyers are scrambling to rebuild stocks. Prices are likely to hold at relatively strong levels in the short term but decline from 2023, as demand falls back and supply expands (Figure 1.5).

Oil prices recently hit their highest level since 2008, as the market anticipates the loss of some Russian supply against a backdrop of low world inventories. The oil price seems capable of further short term gains but is then likely to fall back, as an improvement in global supply more than matches the recovery in demand. Contract LNG prices are forecast to ease, as oil prices settle. Spot LNG is likely to be high for some time.

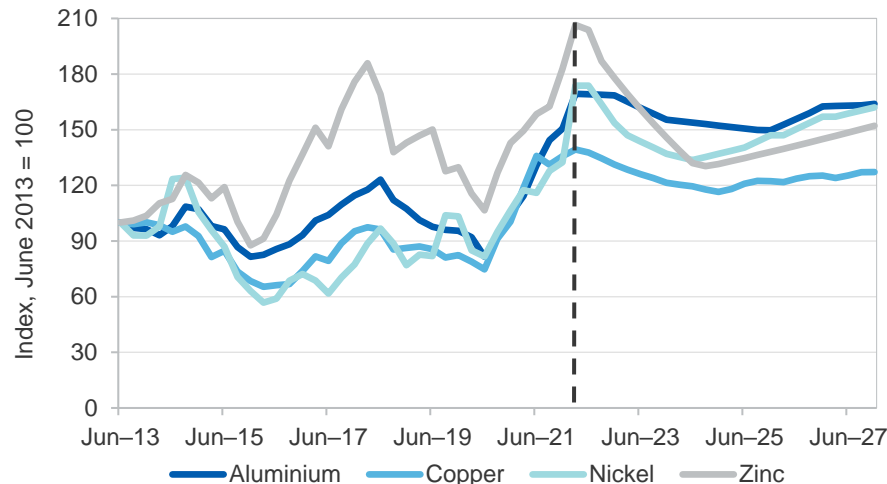
Gold briefly rose above US\$2,000 an ounce as Russia's invasion of Ukraine saw flows into safe havens. Gold also seems highly capable of more short term gains, but is then likely to fall in the next few years, as the withdrawal of widespread central bank stimulus lifts real bond yields. In mid-March 2022 — as in mid-December 2021 — all 6 base metals traded on the London Metal Exchange were in backwardation — where spot prices exceed some/all prices further out on the futures curve. This reflects tight supply: inventories have recently stayed very low or fallen further, as supply disruptions added to the impact of strong demand (following the rebound in economic activity). Base metal usage should rise, as world industrial activity recovers and as the energy transition continues. Prices should fall as supply slowly catches up with demand and stockpiles build.

Figure 1.5: Bulk commodity prices



Notes: Prices are in US dollars, and are the international benchmark prices
 Source: Bloomberg (2021); Department of Industry, Science, Energy and Resources (2022)

Figure 1.6: Base metal prices



Notes: Prices are in US dollars, and are the international benchmark prices
 Source: Bloomberg (2021); Department of Industry, Science, Energy and Resources (2022)

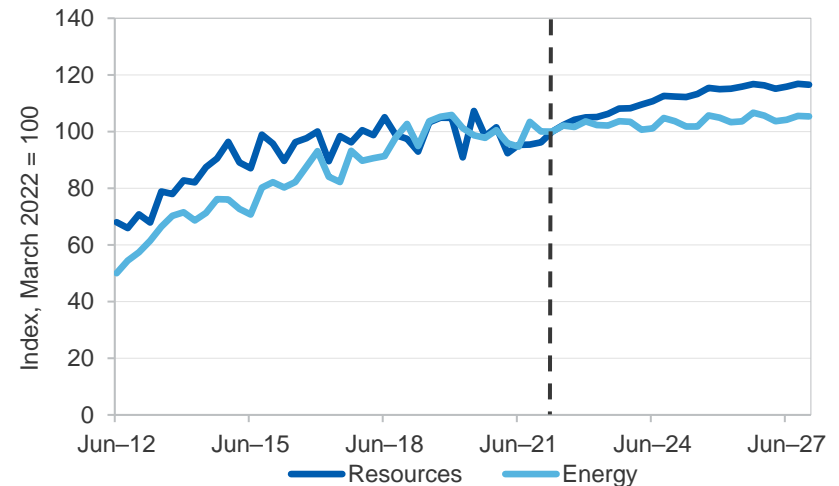
1.5 Export volumes

March quarter export volumes rose, driven by resource exports

The OCE's Resources and Energy Export Volumes Index (preliminary estimate) rose by 2% in the March quarter 2022 from the last quarter of 2021, and was 6% higher than a year before (Figure 1.7). Within this total, resource commodity volumes rose 8% in the year to the March quarter 2022, and energy commodity volumes rose by 4%. The improvement in energy exports was driven by the rebound in demand, as world activity (and thus power demand) recovered from the impact of COVID-19.

In volume terms, resource exports are likely to show further significant growth over the outlook period. Economic growth and industrial production continue to recover amongst our main trading partners, increasing demand for our ferrous and non-ferrous metals. The production of electric vehicles and new energy technologies will see growing demand for commodities such as copper, aluminium, lithium and nickel. The volume of energy exports is forecast to show only minor growth during the outlook period. Record high prices will impact adversely on near-term demand.

Figure 1.7: Resource and energy export volumes



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

1.6 Contribution to growth and investment

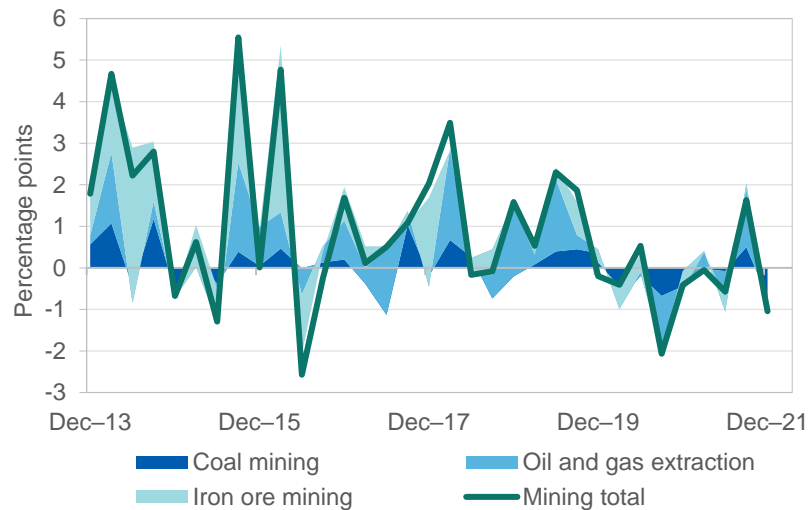
Mining industry expanded while the overall economy contracted

Australia's real Gross Domestic Product (GDP) rose by 3.4% in the December quarter 2021, and was up 4.2% over the year since the December quarter 2020.

Mining value-added fell by 1.0% in the December quarter, and was down 0.1% over the previous twelve months (Figure 1.8). Coal mining was impacted by bad weather, and the oil/gas sector by operational problems.

In the coming five years, it is likely that the resources and energy sectors will make a significant contribution to real GDP growth. In the short run, coal producers will lift output and exports in response to high prices and margins. However, absent significant investment, coal production is likely to struggle to grow significantly in the latter half of the outlook period. Ferrous and non-ferrous metal production should show stronger growth than energy production, as the global energy transition gathers pace.

Figure 1.8: Contribution to quarterly growth, by sector

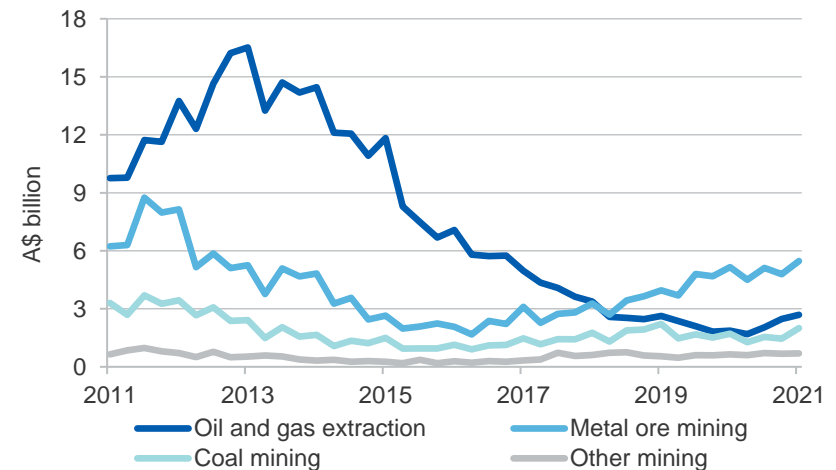


Source: ABS (2022) Australian National Accounts, 5206.0

Mining investment is picking up

The ABS Private New Capital Expenditure and Expected Expenditure survey of December quarter 2021 shows that Australia's mining industry invested \$10.9 billion in the quarter. This was up by 15% in the quarter, and 16% from the December quarter 2020. Strong iron ore prices supported growth in investment by the metal ore mining sector during 2021, though growth has now become more broadly based (Figure 1.9).

Figure 1.9: Mining industry capital expenditure by commodity

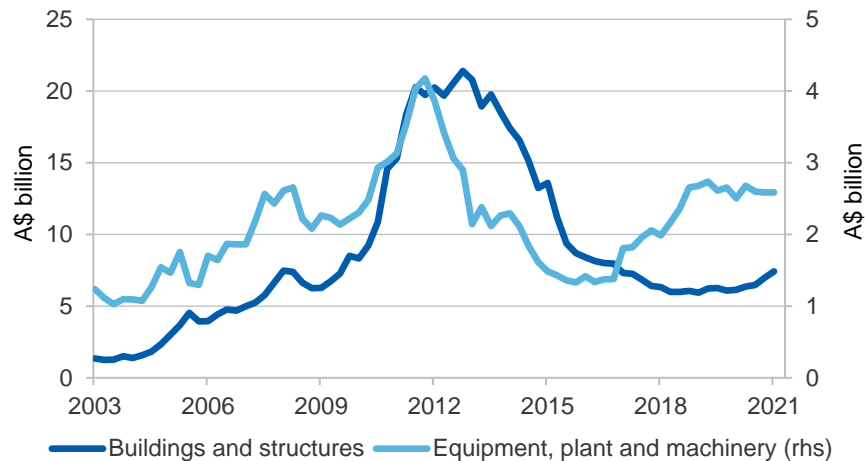


Notes: Other mining includes non-metallic mineral mining and quarrying and exploration and other mining support services; chart data is in nominal, original terms

Source: ABS (2022) Private New Capital Expenditure and Expected Expenditure, 5625.0

Expenditure lifted slightly for buildings and structures, while holding steady for machinery and equipment in the December quarter 2021 (Figure 1.10). Spending on plant and equipment remains well above its average level of recent years, though the reverse trend has been evident in buildings and structures. Forward expectations suggest that investment in 2021–22 and 2022–23 will be slightly higher than in 2020–21 (Figure 1.11). Strong prices for gold and various minerals used in low-emissions energy have been leading to new investment plans, including the re-opening of mines.

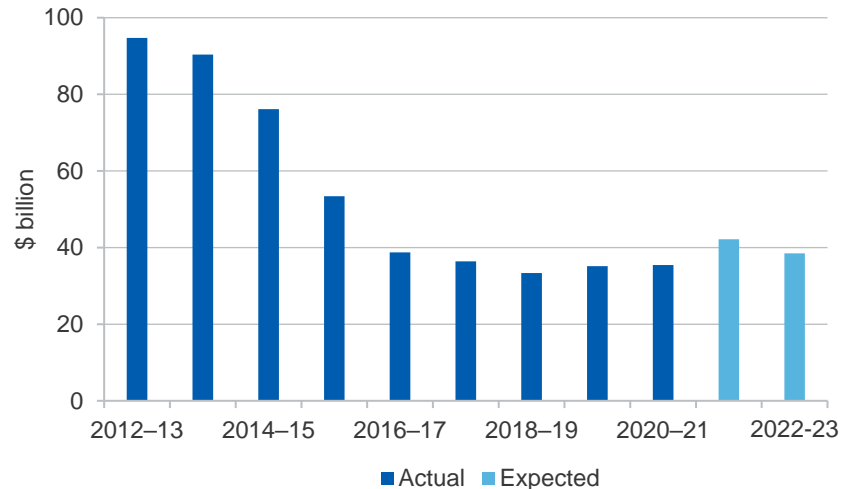
Figure 1.10: Mining industry capital expenditure by type, quarterly



Notes: Chart data is in nominal terms, seasonally adjusted.

Source: ABS (2022) Private New Capital Expenditure and Expected Expenditure, 5625.0

Figure 1.11: Mining industry capital expenditure, fiscal year

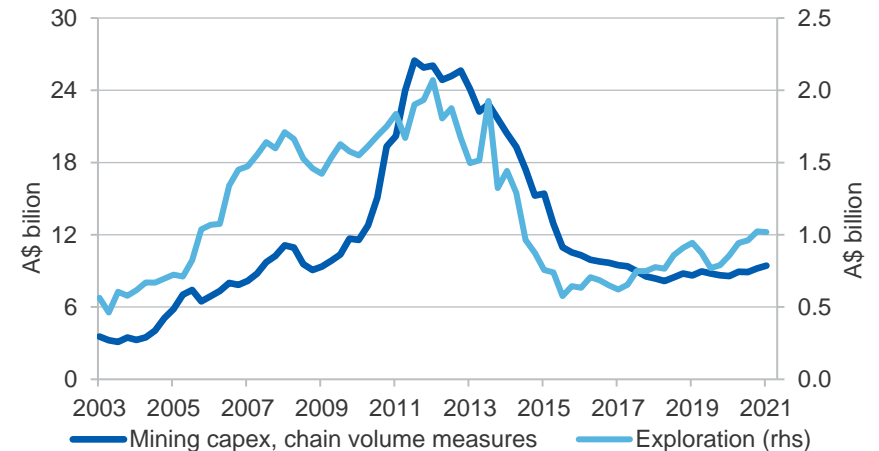


Notes: Chart data is in nominal terms

Source: ABS (2022) Private New Capital Expenditure and Expected Expenditure, 5625.0

Data on exploration spending (adjusted for inflation) suggests that mining capital expenditure continues to build up (Figure 1.12). Exploration spending was largely steady in the December quarter at \$1.0 billion. This follows five consecutive quarterly rises, representing a sustained lift from the recent low of \$769 million in the June quarter 2020.

Figure 1.12: Mining capital expenditure vs exploration, quarterly



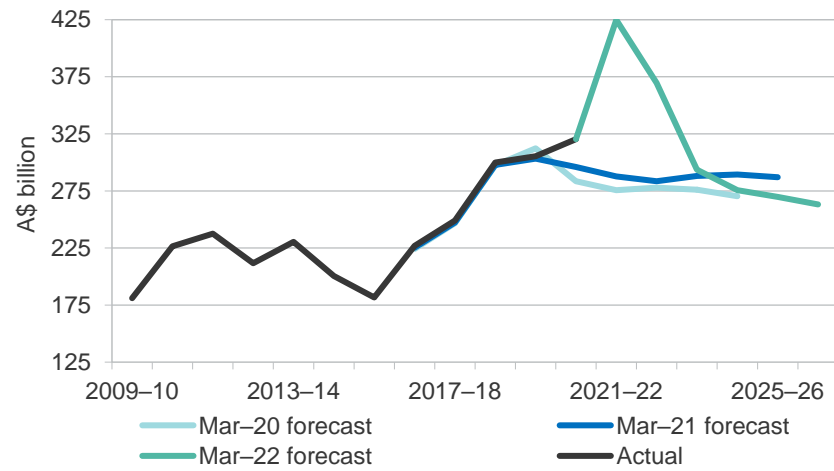
Source: ABS (2022) Private Capital Expenditure Survey, Chain Volume measure, 5625.0

1.7 Revisions to the outlook

At \$425 billion, the forecast for Australia’s resources and energy exports in 2021–22 is \$46 billion higher (in nominal terms) than those contained in the December quarter 2021 *Resources and Energy Quarterly* (REQ). The Russian invasion of Ukraine has seen an unprecedented surge in metallurgical and thermal coal and LNG prices in 2021–22. Iron ore earnings have benefited from a rebound in prices, as world demand rises and bad weather affects supply.

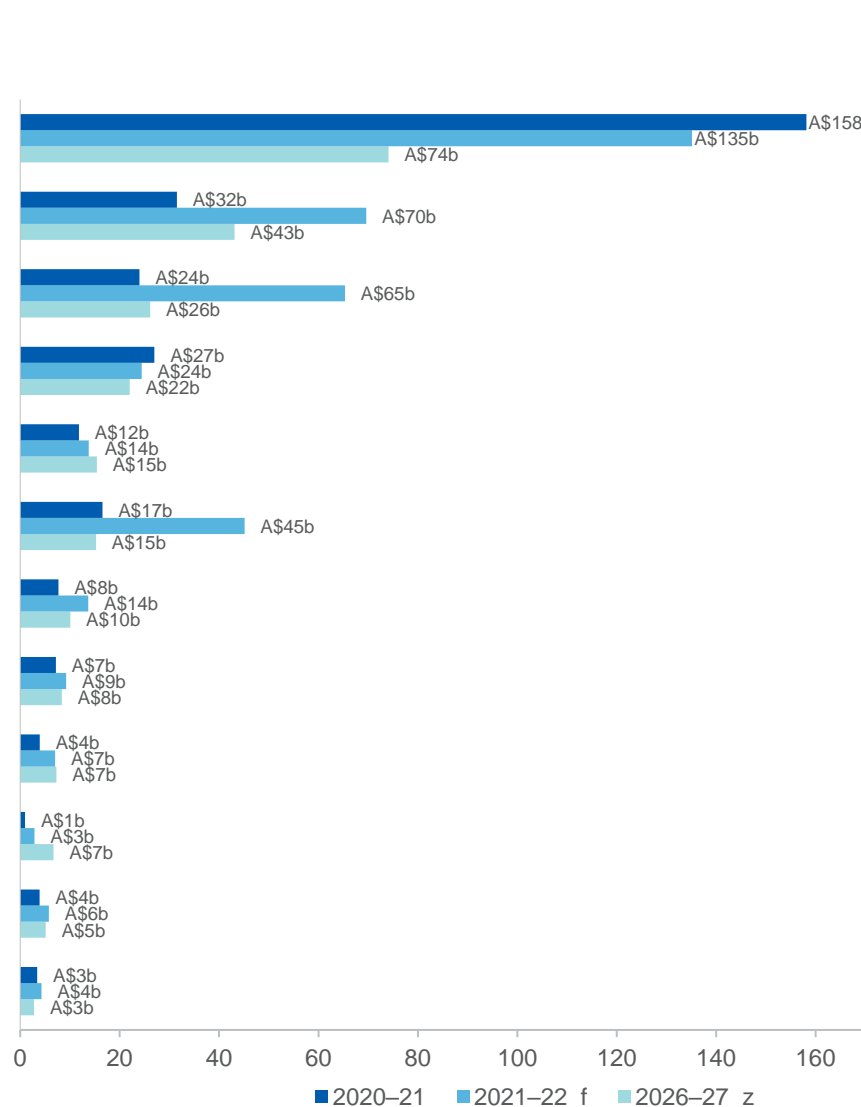
The forecast for \$372 billion (nominal terms) in export earnings in 2022–23 is up around \$62 billion from the December quarter 2021 REQ. The likelihood that energy prices will remain higher than expected — as the exclusion of a significant amount of Russian oil, gas and coal exports from world markets leaves shortages — has driven the upward revision.

Figure 1.13: Resource and energy exports, by forecast release



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

Figure 1.14: Australia's major resources and energy commodity exports, 2021–22 dollars



% change from 2020–21

CAGR % change from 2020–21

	2021–22			2026–27 z		
	volume	EUV	value	volume	EUV	value
Iron ore	▲	▼	▼	▲	▼	▼
LNG	▲	▲	▲	▲	▲	▲
Metallurgical coal	➔	▲	▲	▲	➔	▲
Gold	▲	▼	▼	▲	▼	▼
Copper	▼	▲	▲	▲	▲	▲
Thermal coal	▲	▲	▲	▲	▼	▼
Oil & condensate	▲	▲	▲	▲	▲	▲
Alumina	▼	▲	▲	➔	▲	▲
Nickel	▲	▲	▲	▲	➔	▲
Lithium	▲	▲	▲	▲	▲	▲
Aluminium	▲	▲	▲	▲	▲	▲
Zinc	▼	▲	▲	▼	▼	▼

Notes: f forecast. EUV is export unit value.

Source: ABS (2021) International Trade in Goods and Services, 5368.0; Department of Industry, Science, Energy and Resources (2021)

Table 1.1: Outlook for Australia's resources and energy exports in nominal and real terms

Exports (A\$m)	2020–21	2021–22 ^f	2022–23 ^f	2023–24 ^f	2024–25 ^z	2025–26 ^z	2026–27 ^z	CAGR ^f
Resources and energy	309,863	424,855	381,175	310,848	299,151	300,157	300,159	-0.5
– real ^b	320,333	424,855	369,635	293,614	275,566	269,749	263,171	-3.2
Energy	81,229	200,317	180,061	130,926	117,992	115,495	115,481	6.0
– real ^b	83,974	200,317	174,610	123,667	108,689	103,794	101,250	3.2
Resources	228,634	224,538	201,114	179,923	181,159	184,662	184,678	-3.5
– real ^b	236,360	224,538	195,025	169,947	166,877	165,955	161,921	-6.1

Notes: **b** In 2020–21 Australian dollars; **f** forecast; **r** Compound annual growth rate for forecast period; **z** projection.

Source: ABS (2021) International Trade in Goods and Services, 5368.0; Department of Industry, Science, Energy and Resources (2021)

Table 1.2: Australia's resource and energy exports, selected commodities

	Unit	Prices			Unit	Export volumes			Export values, A\$b		
		2020–21	2021–22 ^f	2026–27 ^z		2020–21	2021–22 ^f	2026–27 ^z	2020–21	2021–22 ^f	2026–27 ^z
Iron ore	US\$/t	140	118	64	Mt	867	897	1,044	158	135	74
LNG	A\$/GJ	7	16	12	Mt	77	82	80	32	70	46
Gold	US\$/oz	1,850	1,789	1,576	t	283	285	372	27	24	22
Metallurgical coal	US\$/t	123	348	151	Mt	171	171	184	24	65	26
Thermal coal	US\$/t	76	193	71	Mt	192	206	209	17	45	15
Copper	US\$/t	7,971	9,716	8,926	Kt	896	834	965	12	13	14
Crude oil	US\$/bbl	54	92	71	Kb/d	276	281	316	7.7	13.8	10.1
Alumina	US\$/t	282	382	372	Mt	18,600	18,250	18,314	7.2	9.2	8.4
Nickel	US\$/t	16,267	22,736	23,438	Kt	181	273	326	3.9	7.0	7.3
Zinc	US\$/t	2,657	3,476	2,684	Kt	1,392	1,234	1,217	3.4	4.3	2.8
Aluminium	US\$/t	2,029	2,905	2,969	Kt	1,357	1,417	1,474	3.9	5.8	5.1
Lithium	US\$/t	448	1,043	806	Kt	1,628	1,936	4,668	1.0	2.8	6.7
Uranium	US\$/lb	30	42	53	t	6,166	4,944	5,980	0.6	0.5	0.7

Notes: **a** Export data covers both crude oil and condensate; **f** forecast; **z** projection. **Price information:** Iron ore fob (free-on-board) at 62 per cent iron content estimated netback from Western Australia to Qingdao China; Metallurgical coal premium hard coking coal fob East Coast Australia; Thermal coal fob Newcastle 6000 kc (calorific content); LNG fob Australia's export unit values; Gold LBMA PM; Alumina fob Australia; Copper LME cash; Crude oil Brent; Aluminum LME cash; Zinc LME cash; Nickel LME cash; Lithium spodumene ore.

Source: ABS (2021) International Trade in Goods and Services, Australia, Cat. No. 5368.0; LME; London Bullion Market Association; The Ux Consulting Company; US Department of Energy; Metal Bulletin; Japan Ministry of Economy, Trade and Industry; Department of Industry, Science, Energy and Resources (2021)