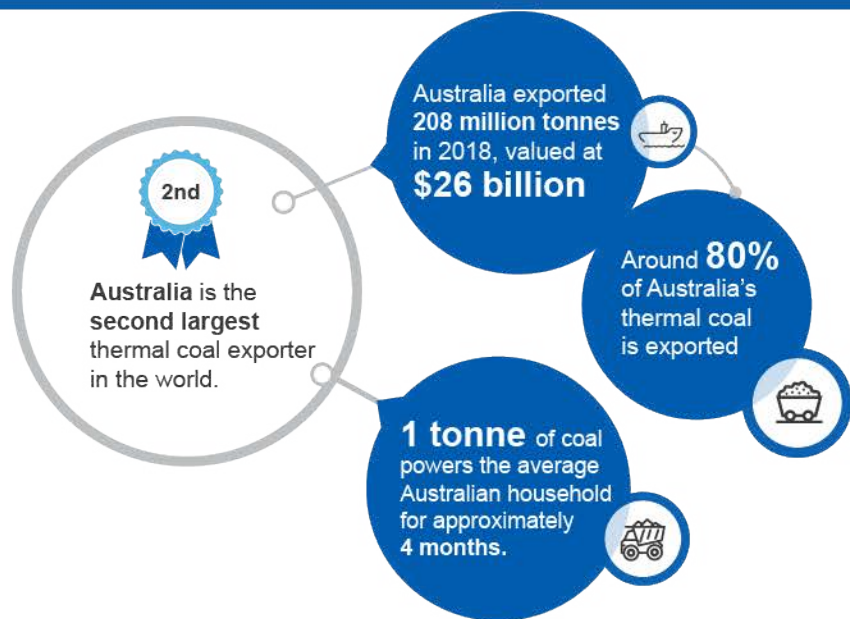


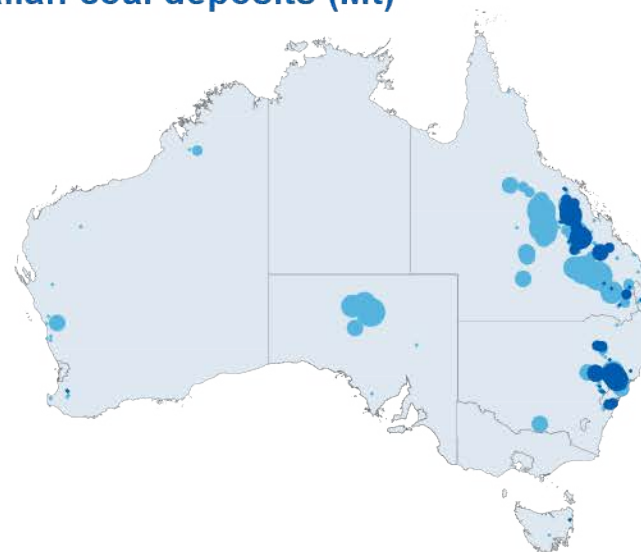
Thermal Coal

Resources and Energy Quarterly June 2019

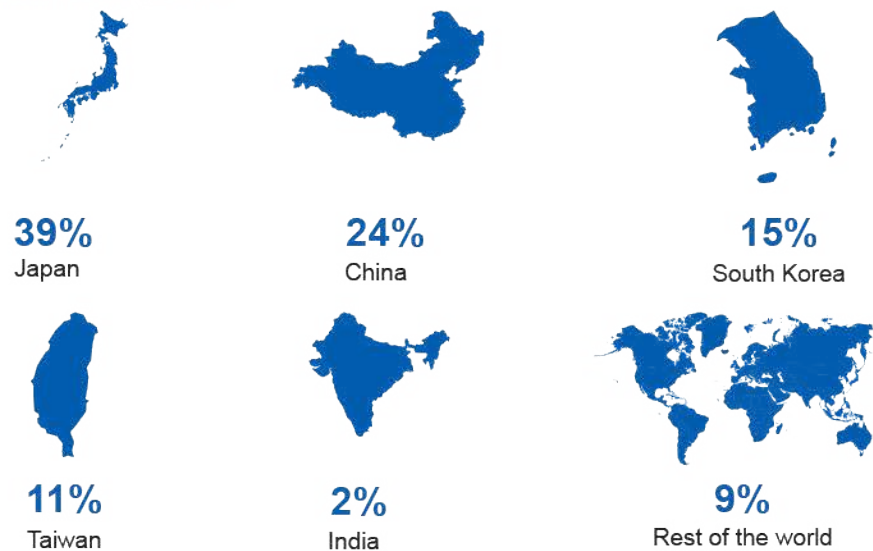


Major Australian coal deposits (Mt)

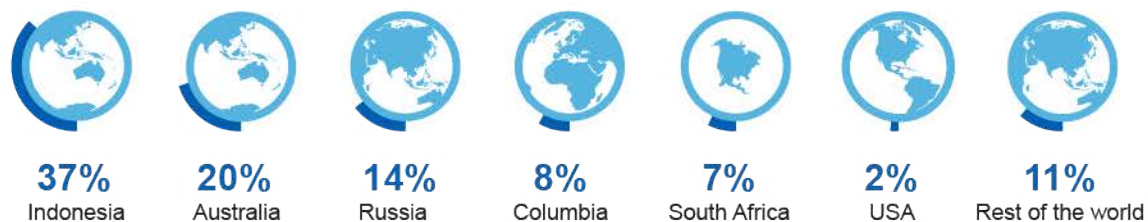
- <500
- 500-1,000
- 1,001-2,000
- 2,001-4,000
- >4,000
- Deposit
- Operating mine



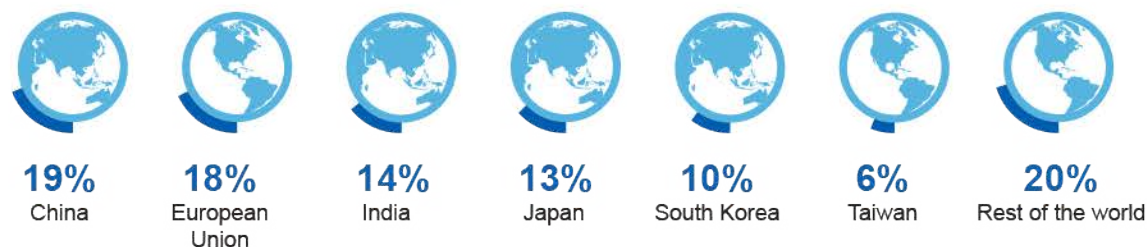
Australia's thermal coal export earnings by destination, 2018



Global share of thermal coal exports in 2017



Global share of thermal coal imports in 2017



6.1 Summary

- The Newcastle benchmark spot price is forecast to decline from an average of US\$105 a tonne in 2018 to US\$83 a tonne in 2019, and to US\$70 a tonne in 2021, as supply growth outpaces demand.
- Australia's export volumes are forecast to grow from an estimated 209 million tonnes in 2018–19 to 216 million tonnes in 2020–21, reflecting modest production growth from new capacity and expansions, a recovery from recent disruptions, and productivity improvements.
- Australia's thermal coal export earnings reached an estimated \$26 billion in 2018–19, a record high. Strong growth in export earnings has primarily been driven by high prices in 2018. Export earnings are forecast to decline to \$19 billion by 2020–21, as the impact of lower prices offsets higher export volumes.

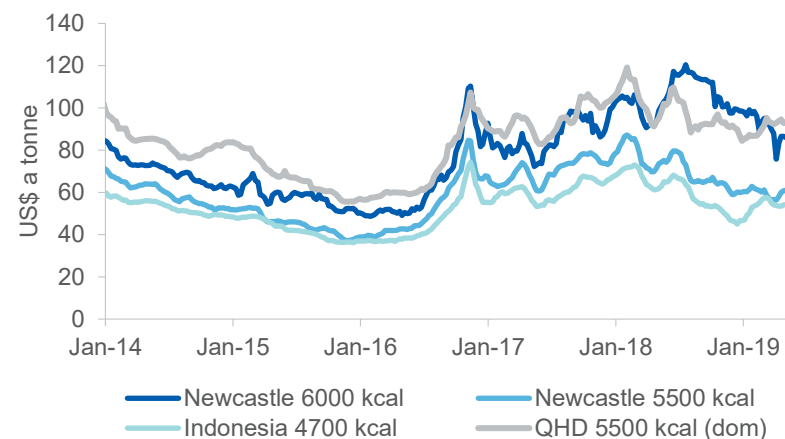
6.2 Prices

Thermal coal prices have declined on weaker fundamentals

The thermal coal benchmark spot price (Newcastle 6,000 kcal/kg NAR) declined sharply in early April, reaching a 22-month low of US\$76 a tonne (Figure 6.1). The price subsequently rebounded before resuming a slide down, placing the overall June quarter average at an estimated US\$80 a tonne — 12 per cent lower than the previous quarter and 27 per cent lower year-on-year.

A range of seasonal influences and other drivers have placed downward pressure on the thermal coal price. Northern hemisphere demand has been seasonally weak in the post-winter heating season. Both hydro and nuclear power generation have picked up in China, displacing coal-fired power generation. A range of import measures and policies at China's ports have added uncertainty into the market, although imports rebounded in April. A fall in LNG spot prices has also encouraged some coal-to-gas switching in Asia and Europe, further dampening demand. These trends have occurred against a backdrop of large volumes of thermal coal entering the seaborne market over the last two years, resulting in an oversupplied market.

Figure 6.1: Thermal coal prices



Source: IHS (2019)

Thermal coal price forecast to remain subdued over the outlook period

The benchmark thermal coal price is forecast to decline from an average of US\$83 a tonne in 2019 to US\$70 a tonne in 2021. The Asian thermal coal market is expected to remain well supplied over the next two and a half years, from Australia, Russia, and Indonesia. Demand from the traditional Asian buyers is expected to remain subdued, offsetting gains from emerging Asia.

The Japanese contract price — which serves as a reference price for the Asian market — is also forecast to decline in tandem with the spot price. The 2019–20 (April 2019 to March 2020) contract price was settled at US\$95 a tonne, and is forecast to settle at US\$78 a tonne in 2020–21.

There are several risks to the price outlook for thermal coal. Developments in China's domestic coal market and import policies remain the key risk to the outlook, and could drive ongoing volatility in thermal coal demand. Supply from marginal producers in Indonesia and the United States could take longer than expected to contract, requiring lower prices to bring the market back to balance. Countering these headwinds are the possibility of stronger-than-expected imports from emerging Asia, and from Japan, where nuclear reactors may shut if key regulatory deadlines are missed.

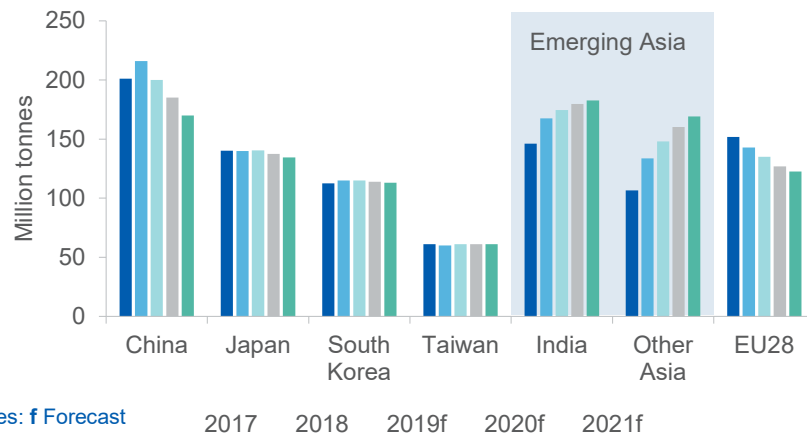
6.3 World trade

The last two years saw strong demand and high prices that attracted more supply to the seaborne market. The start of 2019 saw these trends begin to reverse. Over the outlook period, the seaborne market is expected to gradually contract at an average annual rate of 0.5 per cent between 2018 and 2021, and remain at around 1.1 billion tonnes.

World imports

Thermal coal import demand experienced a slow start to 2019. While demand is expected to pick up after the June quarter seasonal lull, the trend for world imports over the outlook period is likely to be slightly downwards. Imports from most developed countries are forecast to decline, as governments phase out coal-fired power generation. China's thermal coal imports are forecast to moderate, as domestic production continues to grow, and as the impacts of various government policy changes take effect. Countering these trends, countries in emerging Asia are expanding their coal-fired power generation and have seen stronger-than-expected import growth (Figure 6.2). The overall net result of these divergent trends is a marginal decline in imports out to 2021.

Figure 6.2: Thermal coal imports



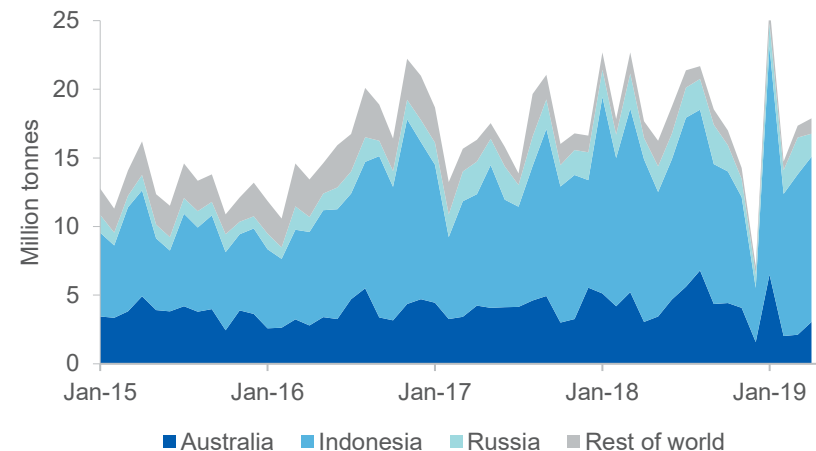
Notes: f Forecast

Source: IHS (2019); IEA (2018) Coal Market Report; Department of Industry, Innovation and Science (2019)

China's thermal coal imports forecast to moderate

China's thermal coal imports in 2019 to date have been affected by a range of seasonal and policy drivers. Imports reached a near-record high in January, as buyers restocked after an annual import quota was enforced towards the end of 2018. Imports then fell sharply in the subsequent two months, dropping by 21 per cent year-on-year, amid lunar new year celebrations in early February. Imports also decreased as a result of import policies, such as enhanced quality testing, which led to delays at several ports (Figure 6.3). Imports rebounded in March and April, but were still lower on a year-on-year basis by 13 per cent.

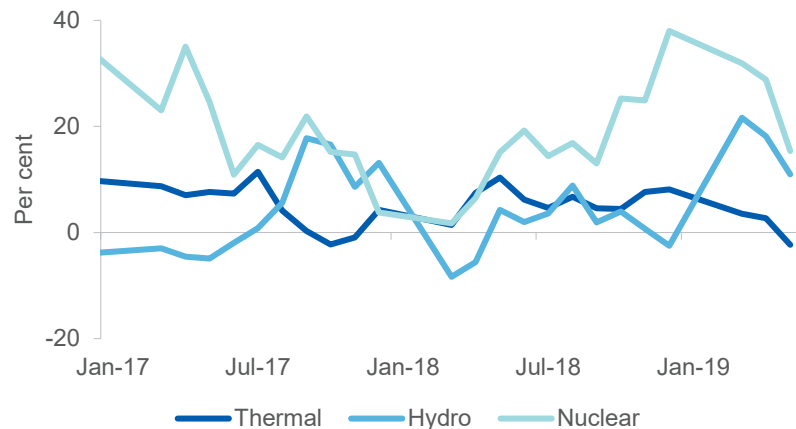
Figure 6.3: China's monthly thermal coal imports



Source: Derived from data obtained from Bloomberg (2019) National Bureau of Statistics of China

Demand has been dampened by a pick-up in hydro and nuclear power generation — which increased by 16 and 25 per cent year-on-year, respectively, in the year to May — which has displaced coal-fired power generation (Figure 6.4). China's thermal coal imports are forecast to decline over the next two and a half years, reaching 170 million tonnes in 2021. A softening Purchasing Managers Index (PMI) and a shrinking share of coal in power generation points to softening demand.

Figure 6.4: China's electricity generation, year-on-year change



Notes: Thermal includes coal and gas-fired power generation

Source: Bloomberg (2019) National Bureau of Statistics of China

Further reducing the need for imports, Chinese coal production is expected to grow over the outlook period — after three years of industry reforms, the bulk of capacity closures are largely concluded and new additions to capacity are on their way. China's railway logistics have also been enhanced since 2018, improving the connections between the nation's coal producing regions and main demand centres.

However, the possibility of weaker-than-expected domestic production in China provides a potential tailwind for imports. A spate of accidents in recent months has resulted in a new wave of safety checks and production halts at domestic operations, which has placed upwards pressure on domestic thermal coal prices (see Figure 6.1).

Policy uncertainty has been — and is expected to continue to be — a key risk to the outlook (see Box 6.1 in the March 2019 *Resources and Energy Quarterly*). The government is expected to continue to manage overall import levels to achieve various goals, including balancing domestic consumption and production, stabilising domestic coal prices, and supporting the domestic industry to counter the effects of trade tensions with the US.

Japanese thermal coal imports to gradually decline

Japan's imports of thermal coal totalled 36 million tonnes in the March quarter of 2019, a decrease of 1.6 per cent year-on-year. Over the same period, imports of thermal coal from Australia decreased by 2.0 per cent, while imports from the US and Russia both increased by around 19 per cent. Japanese power utilities have continued to change their purchasing patterns, driven by power sector reforms aimed at boosting competition and energy security. As a result, utilities have been diversifying their sources of supply and purchasing more coal on short term contracts and at spot to minimise costs. Japan's imports of thermal coal are forecast to contract at an annual average rate of 1.3 per cent, reaching 134 million tonnes in 2021. A gradual decline in coal-fired power generation is expected to be driven by ongoing nuclear restarts and low LNG spot prices — encouraging coal-to-gas switching.

At the time of writing, nine of Japan's fleet of 42 nuclear reactors are in operation, and at least another three reactors are likely to restart by 2021. However, the outcomes of safety reviews and ongoing community opposition to some of these could lead to delays. In particular, Japan's nuclear regulation authority has stated that it would order shutdowns on any reactors that missed deadlines to install counterterrorism measures. Up to nine reactors, including five that are operational, are at risk of missing these deadlines over the outlook period to 2021. While LNG is expected to be the main beneficiary of any shutdowns, there is also the potential for stronger-than-expected thermal coal demand.

There have been growing signs that Japan will pivot away from thermal coal at a faster pace than initially expected. Two coal-fired power projects have been cancelled in the last six months, with a third also likely to be shelved soon, the Japanese Environment Minister announced opposition to any new plans to build or expand coal-fired power stations (although approval for new plants comes from the Minister of Economic, Trade and Industry), and there has been a growing number of financial and corporate institutions divesting from coal-fired power generation and thermal coal mines.

South Korea's coal imports to decline as energy transition accelerates

South Korea imported 27 million tonnes of thermal coal in the March quarter of 2019, a decrease of 5.2 per cent year-on-year. South Korea's thermal coal imports are forecast to marginally decline at an annual average rate of 0.6 per cent, to reach 113 million tonnes in 2021.

Since the change in government in 2017, South Korea has implemented a range of measures to reduce the country's reliance on coal-fired power generation. These include the cancellation of new coal-fired power plant capacity, the shutdown of older plants when the air quality is poor, and a shift in taxes to encourage a move away from coal and towards gas. From 1 April this year, the import tax on LNG was further lowered by 75 per cent, while the tax on coal was raised by 28 per cent. The South Korean government's third Basic Energy Plan was finalised in June 2019, and points to a shrinking role for coal-fired power in the country's energy system over the next three decades.

Taiwan's coal imports are forecast to remain steady

Taiwan's thermal coal imports have remained broadly steady in the year to date, with this trend forecast to continue. Imports are expected to remain at around 61 million tonnes a year over the outlook period.

India's thermal coal consumption is set to outpace production

India's thermal coal imports grew by 18 per cent year-on-year in the March quarter of 2019. Domestic production of thermal coal — while growing by an estimated 5.3 per cent over the same period and reaching record levels — failed to keep pace with the rapid growth in thermal coal consumption. Thermal coal consumption has been supported by high energy demand, due to strong economic growth. The government also sought to maintain the reliability of electricity in the lead up to the May general election, further increasing demand for coal-fired power generation.

While the government has a long-term goal to reduce thermal coal imports to zero, India's thermal coal imports are forecast to remain at high levels in the short-term, reaching 183 million tonnes in 2021. Demand growth is expected to continue outpacing domestic supply growth, which is likely to

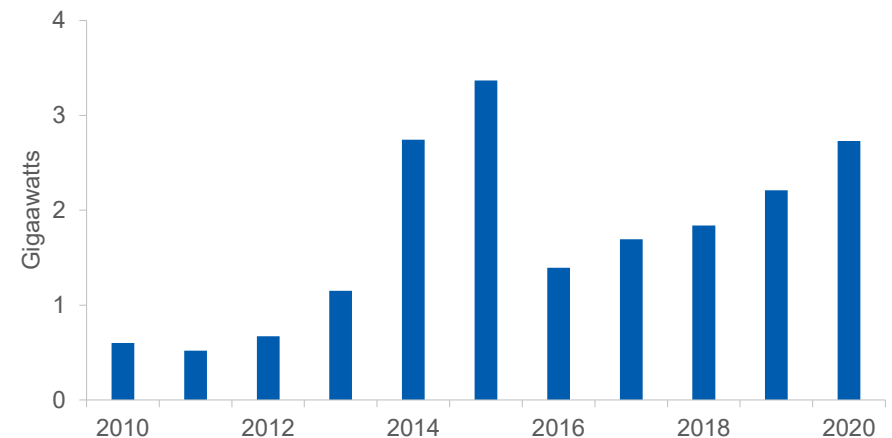
be constrained by regulatory and infrastructure challenges. Further supporting imports, the Central Electricity Regulatory Authority (CERC) has amended rules which will now allow domestic thermal power companies to be compensated for the additional costs incurred in plants that use imported coal.

Vietnam continues to be a key source of thermal coal import growth

Strong economic growth in Vietnam has continued to drive growing coal-fired power generation. Vietnam's coal imports have surged, primarily benefiting Indonesia and Australia. While Vietnam has large reserves of coal, predominantly in the north, most of the new coal-fired power plants are fueled by imported coal, due to their southern location and quality requirements.

Vietnam's thermal coal imports are forecast to grow at an average annual rate of 16 per cent, reaching 30 million tonnes in 2021, driven by growing power demand and coal-fired power capacity. An estimated 5 gigawatts of coal-fired power capacity is expected to come online in 2019 and 2020 (Figure 6.5). However, there will be some challenges to resolve, as Vietnam's coal import needs come up against port and rail capacity constraints.

Figure 6.5: Coal-fired power generation capacity additions in Vietnam

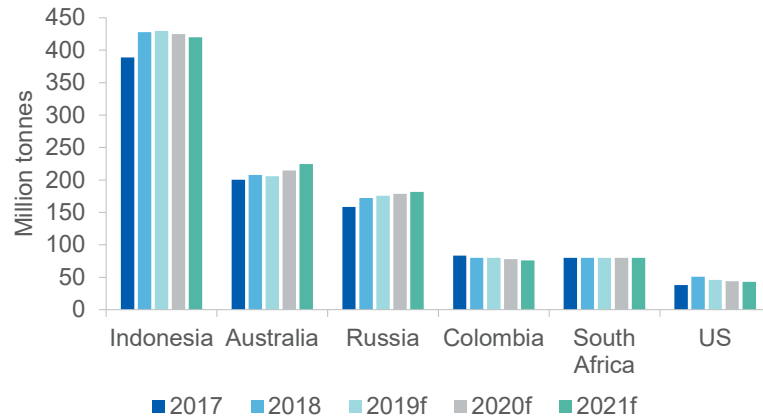


Source: IHS Markit (2019)

World exports

While supply declined from the US, South Africa and Colombia in the first few months of 2019, this was more than offset by export growth elsewhere. These trends are expected to continue, with Australia and Russia likely to be the key sources of export growth over the outlook period (Figure 6.6).

Figure 6.6: Thermal coal exports



Notes: f Forecast

Source: IHS (2019); ABS (2019) International Trade, Australia 5454.0; Department of Industry, Innovation and Science (2019)

Indonesia's thermal coal exports to soften, but remain at high levels

Indonesia's thermal coal exports grew by 11 per cent year-on-year in the March quarter of 2019, reaching a record monthly high of 42 million tonnes in March. Thermal coal exports are forecast to remain relatively high, at over 400 million tonnes each year, albeit with some softening from current record levels. Weaker Asian demand, growing domestic consumption and more restrictive government policies are all expected to weigh on exports.

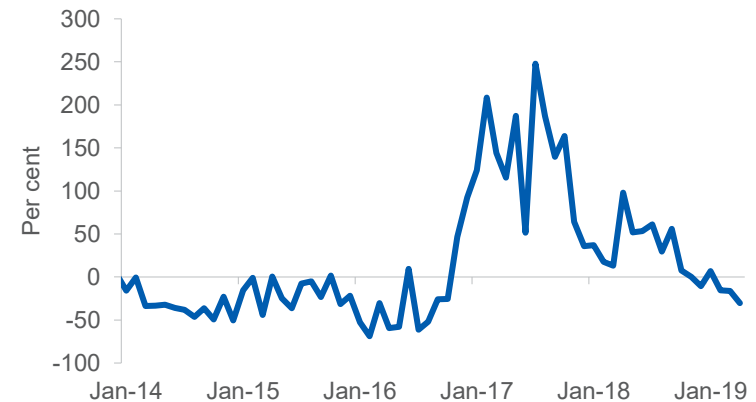
The Indonesian government has targeted national coal production at 480 million tonnes in 2019 — substantially lower than actual output in 2018 of 528 million tonnes — in a bid to stabilise seaborne prices for Indonesian coal. The domestic market obligation (DMO), under which Indonesian producers are obliged to sell a share of production into the domestic

market at capped prices, has been set at 128 million tonnes in 2019. The actual DMO level reached was 115 million tonnes in 2018, coming in under the 121 million tonne target. With the current annualised rate of exports already exceeding the implied targets, there is a possibility that the government could impose lower production quotas on producers that don't meet their targets this year, which could further drag on exports.

Low prices to drive down exports from the United States

After a strong growth cycle, US thermal coal exports have fallen back (Figure 6.7). US thermal coal exports are expected to remain at relatively high levels in 2019, with large volumes of coal exports already booked for the year. However, exports are forecast to decline further in 2020 and 2021, as prices weaken, to reach 43 million tonnes by 2021.

Figure 6.7: US monthly thermal coal exports, year-on-year growth



Source: IHS Markit (2019)

South Africa's coal exports expected to remain steady

South Africa's thermal coal exports declined by 3.6 per cent year-on-year in the first four months of 2019. South Africa's coal exporters have directed supplies towards the domestic market, amid weaker demand from India, softer export prices, and higher domestic prices. Thermal coal exports from South Africa are forecast to remain broadly steady at 80 million tonnes over the outlook period.

Russia's thermal coal exports forecast to grow

Russia's thermal coal exports grew by an estimated 14 per cent year-on-year in the March quarter of 2019, driven by port and rail developments in the east, and a surge in demand from China and South Korea. Russia's thermal coal exports are forecast to continue to grow steadily over the outlook period to reach 182 million tonnes by 2021, supported by strong Asian demand for low sulphur coal, and a weak Ruble.

Colombia's thermal coal exports to remain subdued

Colombia's thermal coal exports declined by 16 per cent year-on-year to 23 million tonnes in the first four months of 2019, primarily due to weaker market conditions. Exports are forecast to decline at an average annual rate of 1.8 per cent to reach 76 million tonnes in 2021.

6.4 Australia

Australia's coal exports volumes resilient

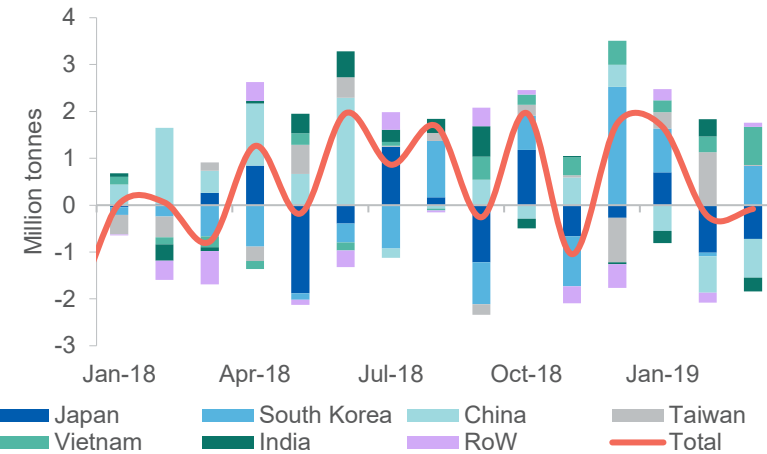
Australia exported 49 million tonnes of thermal coal in the March quarter of 2019, 2.9 per cent higher year-on-year. Export earnings increased by 11 per cent year-on-year over the same period, supported by the high contract price that was settled for the Japanese Financial Year (April 2018 to March 2019). Despite a sharp reduction in exports to China, Australia's thermal coal exports have remained resilient, reflecting a redirection of trade flows (Figure 6.8). While Australia's thermal coal exports to China declined by 19 per cent year-on-year in the March quarter (in volume terms), exports to South Korea increased by 26 per cent and Taiwan by 31 per cent. Exports to Vietnam grew by more than five-fold, although from a low base, driven by the rapid expansion of that country's coal-fired power generation capacity.

Semi-soft and thermal coal price spread could reduce thermal exports

In April, exports of semi-soft coking coal increased by 16 per cent year-on-year, as thermal coal prices fell. If the Newcastle benchmark thermal coal spot price weakens further, relative to the semi-soft coking coal price (Figure 6.9), it could become increasingly more profitable for Australian thermal coal producers with coal-washing facilities to switch to producing

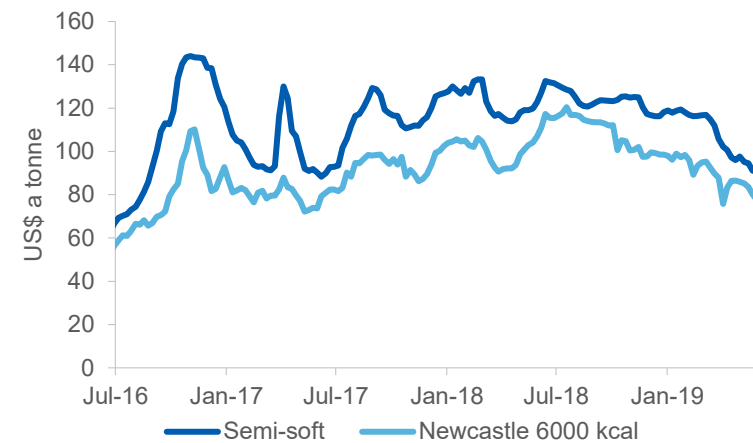
semi-soft coking coal. Thermal coal with suitable properties (such as low phosphorus content) can be converted to semi-soft coking coal for use in steel production through passing the coal through coal wash plants.

Figure 6.8: Australia's thermal coal exports, year-on-year change



Source: ABS (2019) International Trade, Australia 5368.0

Figure 6.9: Thermal coal and semi-soft coking coal prices



Source: IHS (2019); Platts (2019)

Thermal coal export earnings estimated to reach a record high

Australia's thermal coal export earnings are estimated to have grown by 14 per cent to reach a record \$26 billion in 2018–19, up from the previous record of \$23 billion in 2017–18. The strong growth in export earnings is a result of high prices, particularly in the second half of 2018, and solid growth in export volumes.

Export earnings are projected to decline over the outlook period — in line with weaker prices — finishing at \$19 billion in 2020–21. The impact of lower prices is expected to be partially offset by growth in export volumes (Figures 6.10 and 6.11).

Australia's thermal coal export volumes forecast to grow

Australia's thermal coal export volumes are estimated to have reached a record 209 million tonnes in 2018–19, up by 3.2 per cent from 2017–18.

The strong growth in export volumes reflects a recovery from various weather, industrial, technical and infrastructure-related disruptions that weighed on output in previous years, in addition to ongoing productivity improvements and the ramp up of the new Mount Pleasant mine in New South Wales.

Export volumes are forecast to grow by a further 7 million tonnes over the next two years, reaching 216 million tonnes in 2020–21, supported by productivity improvements, expansions, and the ongoing ramp up of the Mount Pleasant mine and other operations. Although there is a large pipeline of potential projects in Australia, there is a growing reluctance to commit to new greenfield projects, which could weigh on export growth beyond the outlook period.

Revisions to the outlook

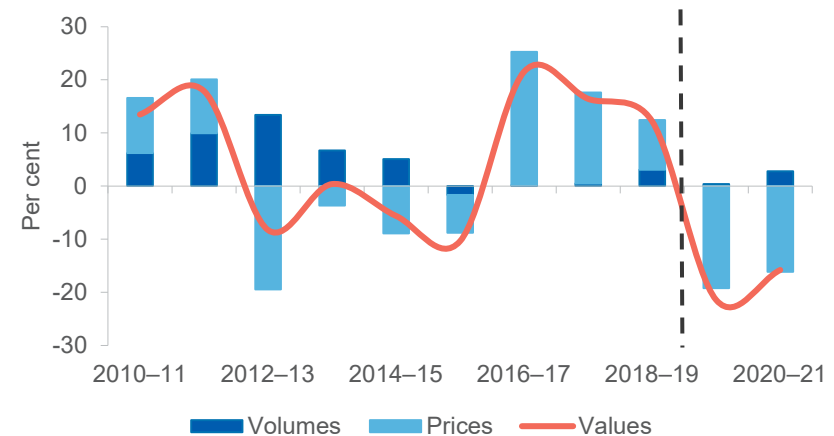
Compared to the forecast in the March 2019 *Resources and Energy Quarterly*, Australia's forecast thermal coal export earnings have been revised down by \$2.9 billion in 2019–20 and by \$3.1 billion in 2020–21. The revision reflects a lower forecast benchmark thermal coal price, which declined at a faster-than-expected pace in the June quarter of 2019, due to weak Asian demand amid a well-supplied market.

Figure 6.10: Australia's thermal coal exports



Source: ABS (2019) International Trade, Australia 5368.0; Department of Industry, Innovation and Science (2019)

Figure 6.11: Annual growth in Australia's thermal coal exports values, and contributions from export volumes and prices



Notes: Price changes are based on export unit values.
Source: ABS (2019) International Trade, Australia 5368.0; Department of Industry, Innovation and Science (2019)

Table 6.1: World trade in thermal coal

	Unit	2018	2019 ^f	2020 ^f	2021 ^f	Annual percentage change		
						2019 ^f	2020 ^f	2021 ^f
World trade	Mt	1,140	1,138	1,132	1,121	-0.1	-0.6	-0.9
Thermal coal imports								
Asia	Mt	832	839	837	830	0.9	-0.2	-0.8
China	Mt	216	200	185	170	-7.3	-7.5	-8.1
India	Mt	168	175	180	183	4.2	2.9	1.7
Japan	Mt	140	140	137	134	0.4	-2.1	-2.2
South Korea	Mt	115	115	114	113	0.0	-0.9	-0.9
Taiwan	Mt	60	61	61	61	1.9	0.0	0.0
Thermal coal exports								
Indonesia	Mt	428	430	425	420	0.5	-1.2	-1.2
Australia	Mt	208	204	214	225	-1.0	4.3	4.7
Russia	Mt	172	176	179	182	2.2	1.7	1.7
Colombia	Mt	80	80	78	76	0.0	-2.6	-2.7
South Africa	Mt	80	80	80	80	0.0	0.0	0.0
United States	Mt	51	46	44	43	-9.8	-3.9	-2.3

Notes: f forecast.

Source: IEA (2018) Coal Information 2018, accessed through the IEA 20/20 Professional Browser; IEA (2018) Coal Market Report 2018; IHS (2019); Department of Industry, Innovation and Science (2019)

Table 6.2: Thermal coal outlook

World	Unit	2018	2019 ^f	2020 ^f	2021 ^f	Annual percentage change		
						2019 ^f	2020 ^f	2021 ^f
Contract prices ^b								
– nominal	US\$/t	110	95	78	73	-13.9	-18.1	-6.4
– real ^c	US\$/t	113	95	76	69	-15.8	-19.9	-8.4
Spot prices ^d								
– nominal	US\$/t	105	83	75	70	-21.1	-9.9	-6.3
– real ^e	US\$/t	108	83	73	67	-22.8	-11.9	-8.3
Australia	Unit	2017–18	2018–19 ^s	2019–20 ^f	2020–21 ^f	2019–20 ^f	2019–20 ^f	2020–21 ^f
Production	Mt	267	270	274	280	1.1	1.5	2.2
Export volume	Mt	203	209	210	216	3.2	0.4	2.8
– nominal value	A\$m	22,586	25,632	21,193	18,546	13.5	-17.3	-12.5
– real value ^h	A\$m	23,036	25,632	20,696	17,676	11.3	-19.3	-14.6

Notes: **b** Japanese Fiscal Year (JFY), starting April 1, fob Australia basis. Australia–Japan average contract price assessment for steaming coal with a calorific value of 6700 kcal/kg gross air dried; **c** In current JFY US dollars; **d** fob Newcastle 6000Kcal net as received; **e** In 2019 US dollars; **f** Forecast; **h** In 2018–19 Australian dollars; **s** Estimate.

Source: ABS (2019) International Trade in Goods and Services, Australia, Cat. No. 5368.0; IHS (2019); NSW Coal Services (2019); Queensland Department of Natural Resources and Mines (2019); Company Reports; Department of Industry, Innovation and Science (2019)