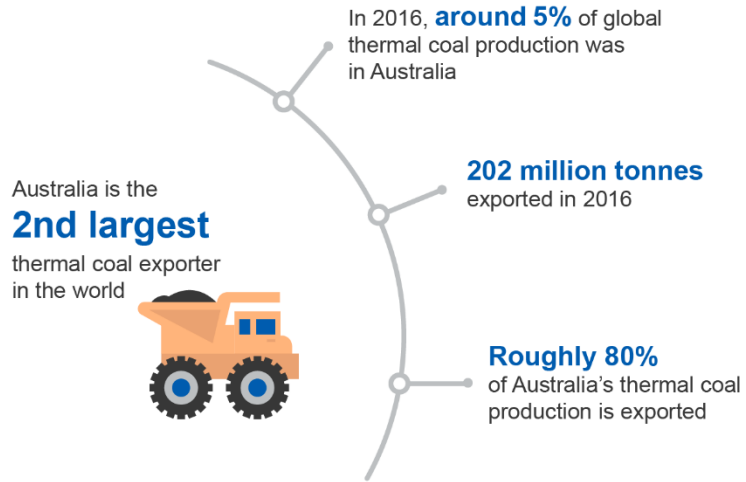
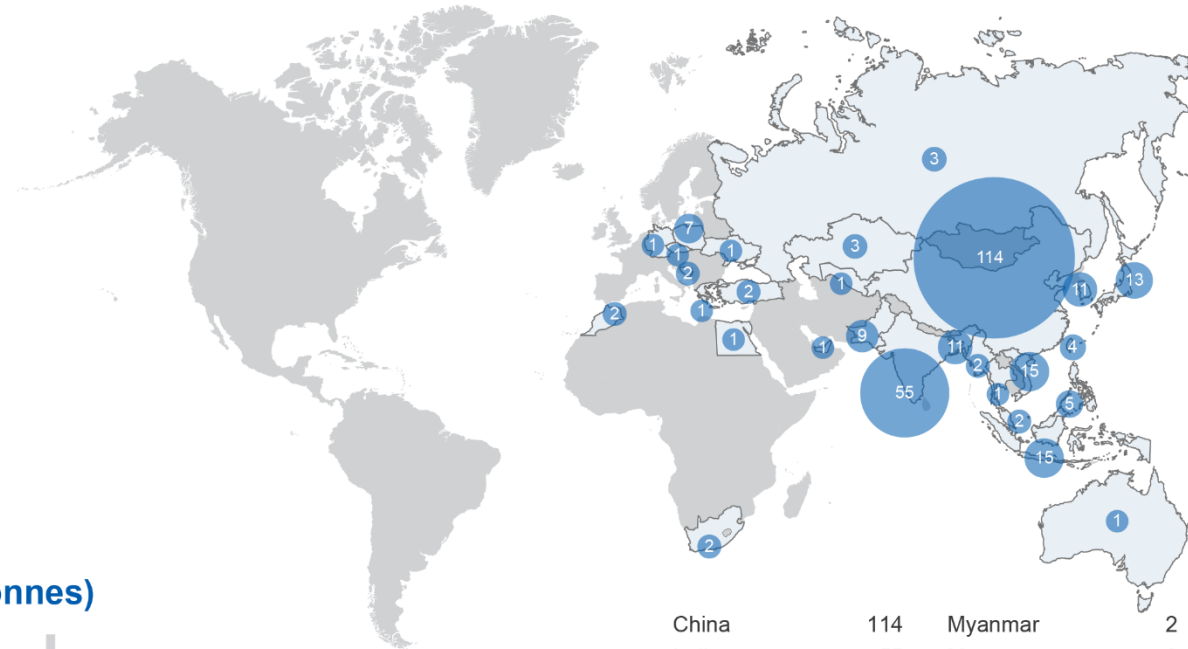


# Thermal coal

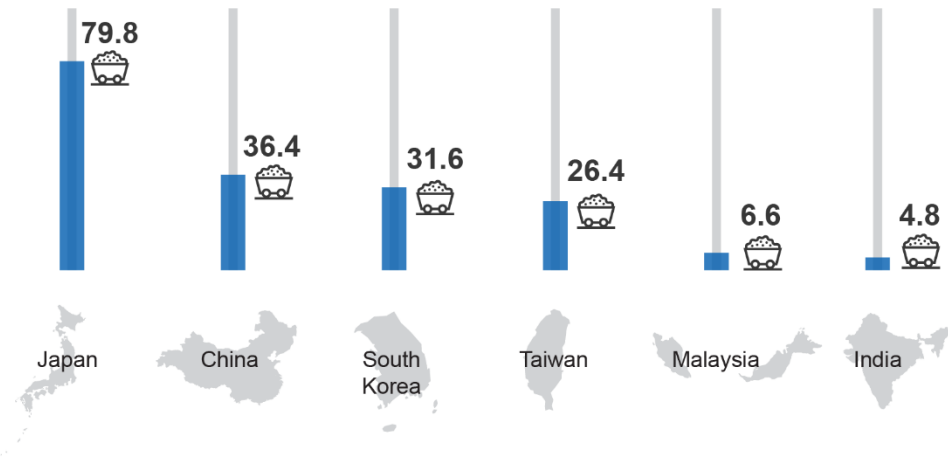
Resources and Energy Quarterly September 2017



## Number of advanced technology coal fired power stations planned or under construction



## Key importers of Australian thermal coal (million tonnes)



China	114	Myanmar	2
India	55	Morocco	2
Indonesia	15	South Africa	2
Vietnam	15	Bosnia-Herzegovina	2
Japan	13	Turkey	2
South Korea	11	Australia	1
Bangladesh	11	Thailand	1
Pakistan	9	Germany	1
Poland	7	Greece	1
Philippines	5	UAE	1
Taiwan	4	Ukraine	1
Kazakhstan	3	Uzbekistan	1
Russia	3	Czech Republic	1
Malaysia	2	Egypt	1
<b>Total</b>	<b>286</b>		

## Market summary

- Thermal coal exports totalled \$19 billion in 2016–17. The value of export earnings are forecast to be little changed in 2017–18.
- After declining over most of the first half 2017, prices rose sharply from mid-July, due to both stronger than expected import demand and industrial action affecting exports from key Australian mines.
- Spot prices are expected to decline from recent highs, dropping to US\$69 a tonne in 2019, as industrial action eases and demand softens in key markets such as China.
- In 2017–18, Australia's exports are forecast to remain broadly unchanged and then decline by 2.0 per cent to 198 million tonnes, in 2018–19.

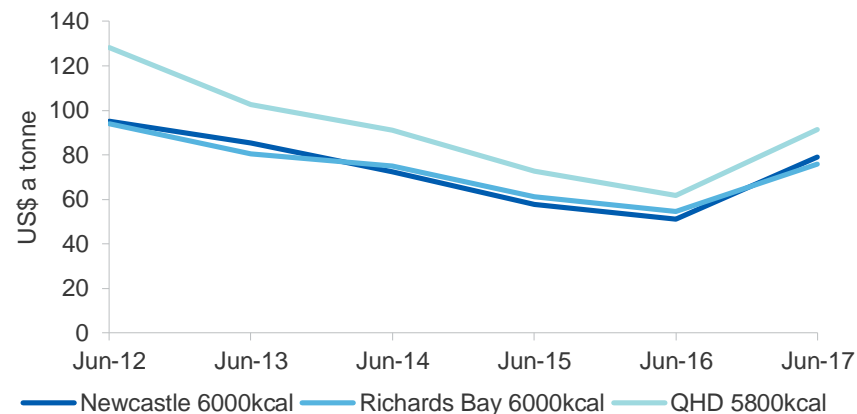
## Prices

### *Prices spike over most of the September quarter*

After declining over the first half of 2017 (averaging US\$80 a tonne), the Newcastle FOB thermal coal spot price (Australia's benchmark thermal coal) rose sharply from around mid-July, increasing to US\$99 a tonne by mid September. The price spike was driven by strong import demand from Asia and industrial action against dominant NSW coal hauler, Pacific National, and industrial action at some key thermal coal mines in Australia's Hunter Valley region. These events are expected to increase the Newcastle FOB spot price over the September quarter by an estimated 16 per cent (relative to the June quarter) to US\$91 a tonne.

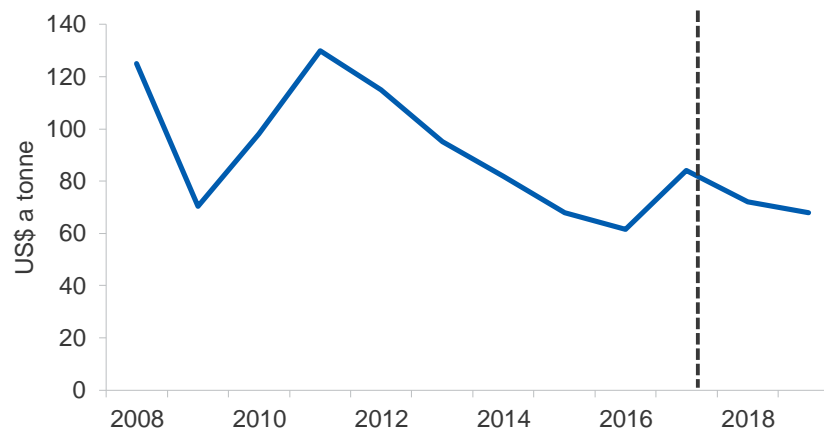
The Newcastle FOB spot price is forecast to average US\$84 a tonne over 2017, an increase of 30 per cent from 2016. The year-on-year increase is reflective of the lower prices seen in the first half of 2016 — which dragged down the annual 2016 average price, and the sharp spike in price over the September 2017 quarter.

Figure 6.1: Quarterly thermal coal spot prices



Source: IHS (2017)

Figure 6.2: Japanese Fiscal Year contract prices



Source: Department of Industry, Innovation and Science (2017)

The Japanese Fiscal Year (JFY) 2017 (April 2017 to March 2018) benchmark price was settled in April this year at US\$84 a tonne. The JFY contract price is projected to decline over the outlook period, falling by 12 per cent to US\$74 a tonne in 2018, and by 4.1 per cent to US\$71 a tonne in 2019. The falls in price are expected to be underpinned by declining import demand from China — as it moves to a more diversified energy mix — and lower demand in South Korea. Despite the unexpected uptick in spot prices in the September quarter — global benchmark spot prices are also expected to decline over the outlook period. In 2018, Australia’s Newcastle FOB spot price is forecast to decline by 16 per cent to US\$71 a tonne and decline by 2.8 per cent to US\$69 a tonne, in 2019.

## World trade

World thermal coal trade in 2017 is forecast to increase by 1.3 per cent to 1.1 billion tonnes: a sustained increase in imports from China and higher than expected imports in South Korea are expected to more than offset a decline in imports from India. Trade is forecast to decline by 1.9 per cent to 1 billion tonnes in 2018, and then to be little changed in 2019. Declines in trade volumes are expected to be driven by lower import demand from South Korea, China and India.

## World imports

### *Increased import demand from China sustained into the first half 2017*

China is currently the largest consumer and importer of thermal coal in the world, and was the second largest importer of Australian thermal coal in 2016. After rising over early 2017, China’s thermal coal imports declined by 13 per cent in the three months to August.

The overall increase in China’s imports in 2017 to date has been driven by relatively high domestic prices (increasing the attractiveness of imported coal). The higher domestic coal price has been caused by slower than expected capacity re-starts and temporary closures of some Chinese mines (due to safety issues and tighter coal mine safety inspections in the Shanxi region). China’s thermal coal imports are forecast to increase by 2.0 per cent in 2017 to 200 million tonnes, assisted by the Central Government’s new power plant coal stocking requirements.

**Figure 6.3: China’s monthly thermal coal imports**



Source: IHS (2017)

New draft Chinese Central Government guidelines released in the September quarter state that power plants in major coal producing regions will be required to hold inventories of at least 15 days of consumption. This new inventory requirement is likely to change the buying patterns of power stations, and temporarily increase the volume of coal purchased, placing increased pressure on domestic coal prices and increasing the attractiveness of imported coal.

In September, reports from China indicated long delays in clearing thermal coal imports into ports. Many believe these delays to be a non-tariff trade barrier, introduced to lower thermal coal imports. How this plays out over the next few months remains to be seen, especially since China has signed Free Trade Agreements to which it needs to adhere.

Regardless, China’s thermal coal imports are forecast to decline over 2018 and 2019, and this new strategy may reduce imports further. In 2018, thermal coal imports are forecast to decline by 1.0 per cent to 198 million tonnes, and decline by 7.0 per cent to 184 million tonnes in 2019. A gradual return of production capacity is expected over 2018 and 2019, as profitable capacity is brought online and safety inspections of mines are completed. Increased domestic supply availability is likely to reduce import demand.

### India's production and imports decline

India is the second largest consumer of thermal coal in the world and the second largest importer. It is the sixth largest consumer of Australian thermal coal. India's thermal coal imports declined by 9.5 per cent year-on-year in the June quarter. The decline in imports came as the production of Coal India (a state-owned coal producer and the largest in the country) declined by 4 per cent in the three months to July.

However, domestic production in the seven months to July is still higher year-on-year. India's thermal coal imports are therefore forecast to decline by 15 per cent to 141 million tonnes in 2017. This decline in imports is largely due to the Indian Government's push for domestic power plants to use local coal as part of their agenda to achieve self-sufficiency. However, there could be some upside to India's thermal coal import forecast depending on the extent of the impact of monsoon rains on domestic production. Import declines are also expected in 2018 and 2019 — partly attributable to India's slow progress in power sector reform (expected to cause stock build-ups at power plants, as a lack of profitability impacts on plant load factors) and the Indian Government's likely ongoing push to reduce reliance on imported thermal coal. Despite the forecast declines, India is likely to require some level of imported thermal coal for coal fired power plants located on the west coast, many of which are designed to run on imported coal. In 2018, India's thermal coal imports are forecast to decline by 3 per cent to 137 million tonnes, and then decline by 1 per cent to 135 million tonnes in 2019.

### Japan's thermal coal imports to increase in 2017 and remain stable thereafter

Japan is the third largest importer of thermal coal in the world and the largest consumer of Australian thermal coal. Japan's thermal coal imports rose by 7.0 per cent year-on-year, in the three months to July.

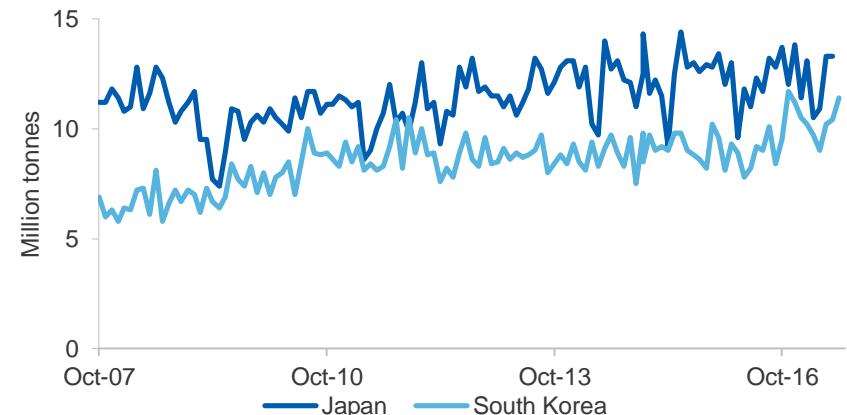
Thermal coal imports in 2017 are forecast to increase by 2.0 per cent to 141 million tonnes, supported by increasing utilisation of coal-fired power plants and an increase in installed coal-fired power generation capacity. Imports are forecast to increase slightly in 2018 and 2019, to 142 million tonnes and 143 million tonnes, respectively. Import demand in 2018 and 2019 is expected to be supported by steady coal-fired power generation.

### South Korea's low quality thermal coal imports forecast to decline

South Korea is the third largest importer of thermal coal and third largest consumer of Australia's thermal coal. Despite newly-elected President Moon Jae-in's plans to curb coal-fired power generation to combat air pollution, thermal coal imports increased by 21 per cent year-on-year in the three months to August. Growth was driven by strong power demand and the outage of eight nuclear power stations.

Prior to his election and immediately after he was elected, President Moon Jae-in announced a suite of new policies to curb the use of coal in power generation to combat rising air pollution in the country. Despite announcing the temporary shutdown of coal fired power plants and an increase in the coal consumption tax, thermal coal imports have increased since his election, with Unit 2 of the 595 MW Bukpyeong coal-fired power plant also coming online in August. In 2017, South Korea's thermal coal imports are forecast to increase by 6.5 per cent to 106 million tonnes, supported by increased power demand and increased coal fired power generation.

Figure 6.4: Monthly imports of Japan and South Korea



Source: IHS (2017); Department of Industry, Innovation and Science (2017)

In 2018, South Korea's thermal coal imports are expected to decline by 2 per cent to 104 million tonnes, as the six remaining nuclear reactors currently idled gradually come back online. South Korea's thermal coal imports are forecast to be broadly unchanged in 2019, as newly installed coal fired power generation capacity offsets shutdowns of old coal fired power plants (part of the Government's agenda to reduce air pollution). It remains to be seen how President Moon Jae-in's policy announcements/commitments play out in terms of the magnitude of imports to be affected over the outlook period.

## World exports

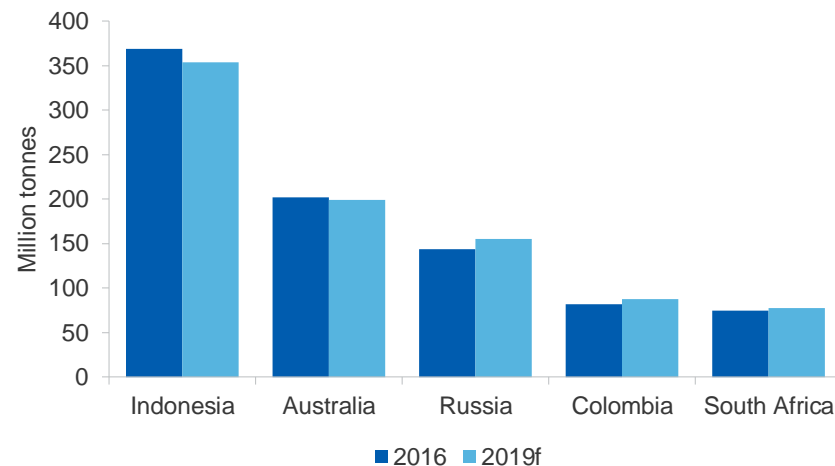
### *Indonesia's exports remain steady, year-on-year*

Indonesia's thermal coal exports in the June quarter remained broadly unchanged year-on-year. Tighter coal quality checks by the Chinese Government and a ban on thermal coal imports at small Chinese ports appear to have had an impact on low quality coal producers in Indonesia. New Chinese Government quality tests and clearance procedures at ports have caused delays of up to eight weeks.

Over 2017, Indonesia's thermal coal (bituminous, sub-bituminous and lignite) exports are forecast to increase by 1.5 per cent to 374 million tonnes — as thermal coal import demand from South Korea increases (in 2016, roughly 35 per cent of South Korea's imports came from Indonesia). Indonesia's thermal coal exports are forecast to decline by 2 per cent to 367 million tonnes in 2018, and fall by 3.5 per cent to 354 million tonnes in 2019. The decline in exports over the forecast period is likely to be driven by falling thermal coal prices (which have been more pronounced for lower calorific value coal — a significant proportion of Indonesian production), which is expected to put pressure on Indonesia's high cost producers.

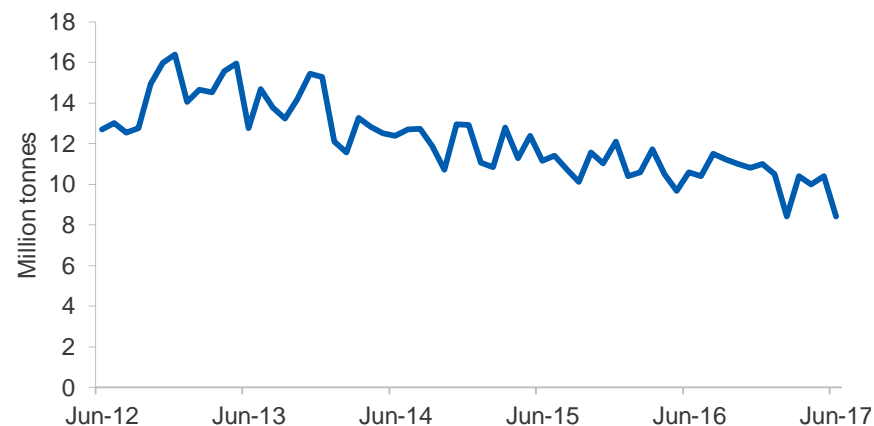
However, Indonesia's domestic coal usage is forecast to rise in 2017. State-electricity provider, PLN, expects a 16 per cent annual rise in coal required domestically in 2017, due to new power capacity having come online. Over the outlook period, it is possible that the Indonesian Government's mandated domestic coal obligation policy may play a part in reducing the amount of output available for export. The policy enforces a domestic reserve policy — a requirement that domestic coal mines fulfil most of the country's coal-fired power generation needs first.

**Figure 6.5: Major thermal coal exporters**



Source: IEA (2017); Department of Industry, Innovation and Science

**Figure 6.6: Indonesia's monthly thermal coal (bituminous) exports**



Source: IHS (2017); Department of Industry, Innovation and Science (2017)



### *Russia's exports continue to grow*

Russian thermal coal exports increased by 18 per cent year-on-year in the three months to July. Exports are forecast to steadily increase over the outlook period, as Russian producers continue to benefit from the sharp drop in the Russian Rouble since 2014.

### *South Africa's thermal coal exports grow steadily*

South African thermal coal exports increased by 17 per cent year-on-year in the three months to July. In 2017, South Africa's thermal coal exports are forecast to remain similar to 2016 levels — at around 76 million tonnes — as expected increases in output from operators such as Wescoal offsets expected declines in production from South 32 and others.

South Africa's thermal coal exports are forecast to be broadly unchanged in 2018 and 2019. While there may be more coal available for export — due to the South African Government's shift away from coal fired power plants to renewable forms of energy — infrastructure constraints and difficult regulatory processes are causing some operators to reassess their coal strategy within South Africa. This could potentially limit the amount of investment in the domestic industry in the short to medium term, but is likely to be more of a longer term constraint.

## **Australia's exploration, production and trade**

### *Overall year-on-year coal exploration remains subdued*

Australia's exploration expenditure increased by 8.8 per cent in the June quarter 2017 relative to the March quarter, to \$6 million. However, exploration expenditure declined by 14 per cent year-on-year and declined by 31 per cent in 2016–17 from 2015–16, to \$120 million.

### *Australia's export earnings forecast to remain strong*

Australia's thermal coal export earnings increased by 28 per cent year-on-year to \$19 billion in 2016–17, driven by increased spot thermal coal prices. Export volumes in 2016–17 increased marginally year-on-year, to 202 million tonnes. The increase in export volumes was supported by increased import demand from China, notably in the first half of the year. Export values in 2017–18 are forecast to be similar to 2016–17 levels.

A large volume of Australia's thermal coal exports are sold on a contractual basis, therefore the higher negotiated price in JFY 2017

(36 per cent higher than JFY 2016) is likely to bode well for exporters in 2017–18. However, the impact of some of these gains is expected to be offset by lower spot prices.

Despite production disruptions in the first quarter of the financial year, stronger import demand in the first half of 2017–18 is expected to keep export volumes similar to 2016–17 levels. However, export volumes are forecast to drop off slightly in the second half of 2017–18, as South Korea's nuclear power reactors come back online, softening their import demand for coal.

Export values for 2018–19 are forecast to decline by 13 per cent to \$17 billion, in line with lower export volumes and (spot and contract) prices. In 2018–19, export volumes are forecast to decline by 2.0 per cent to 198 million tonnes, due to expected subdued Chinese and Indian thermal coal import demand.

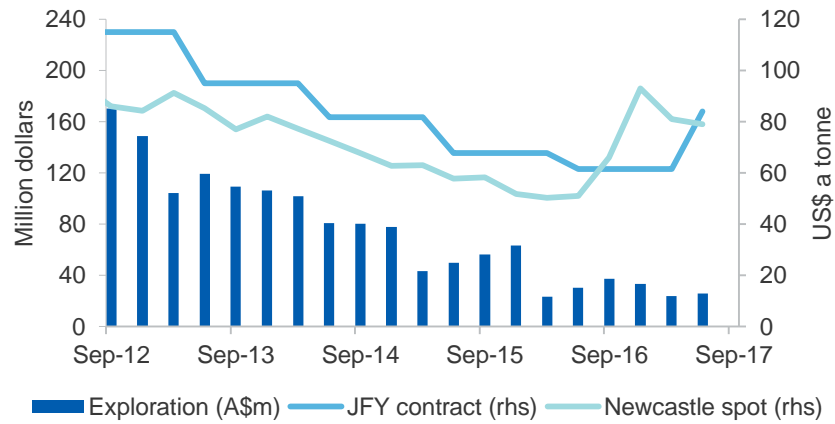
There is some potential for a higher export result, given China's slower than expected capacity re-starts and temporary closures of mines, due to safety concerns. If China's domestic supply availability remains low, in 2017–18 and 2018–19, Australian export volumes could be higher than forecast.

### *Australia's production forecast to decline before increasing in 2018–19*

In 2016–17, Australia's production was unchanged at 250 million tonnes. In 2017–18, production is forecast to decline slightly — by 0.8 per cent to 248 million tonnes — due to production disruptions in the Hunter Valley and lower demand from China and South Korea, expected later in the financial year. The Rail, Tram, and Bus Union (RTBU) have been carrying out industrial action against dominant NSW coal hauler Pacific National over most of the September quarter. In addition, workers at six operations across Glencore's Hunter Valley Operations simultaneously downed tools for the first time, with at least 1,400 workers involved. However, despite the size of the industrial action, industry experts believe the production impact to be limited.

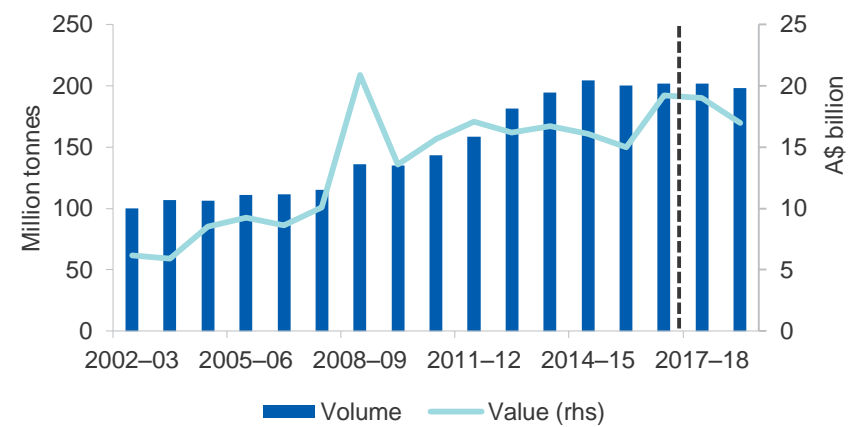
In 2018–19, production is forecast to increase by 1.4 per cent to 251 million tonnes. Production is expected to be supported by the ramp up in production at some mines, including Ravensworth (up to 9.3 million tonnes a year capacity).

**Figure 6.7: Australia's coal exploration expenditure**



Source: Department of Industry, Innovation and Science (2017)

**Figure 6.8: Australia's thermal coal export volumes and values**



Source: Department of Industry, Innovation and Science (2017)

**Table 6.1: Thermal coal outlook**

World	Unit	2016	2017 f	2018 f	2019 f	Annual percentage change		
						2017 f	2018 f	2019 f
Contract prices b								
– nominal	US\$/t	62	84	74	71	36.4	-11.9	-4.1
– real c	US\$/t	63	84	72	68	33.5	-13.9	-6.4
Spot prices d								
– nominal	US\$/t	65	84	71	69	29.6	-15.6	-2.8
– real e	US\$/t	67	84	70	66	27.0	-17.4	-4.9
Coal trade	Mt	1,045	1,058	1,038	1,014	1.3	-1.9	-2.3
<b>Imports</b>								
Asia	Mt	759	759	760	751	-0.1	0.1	-1.1
China	Mt	196	200	198	184	2.0	-1.0	-7.0
Chinese Taipei	Mt	59	63	66	67	7.0	4.0	2.5
India	Mt	166	141	137	135	-15.0	-3.0	-1.0
Japan	Mt	138	141	142	143	2.0	1.0	0.5
South Korea	Mt	100	106	104	104	6.5	-2.0	-0.5
Europe	Mt	214	204	189	176	-5.0	-7.0	-7.0
European Union 27	Mt	163	155	144	134	-5.0	-7.0	-7.0
other Europe	Mt	51	49	45	42	-5.0	-7.0	-7.0
<b>Exports</b>								
Australia	Mt	202	199	199	199	-1.2	-0.2	0.0
Colombia	Mt	82	82	84	88	-0.1	2.0	5.0
Indonesia	Mt	369	374	367	354	1.5	-2.0	-3.5
Russia	Mt	144	151	153	155	5.0	1.1	1.3
South Africa	Mt	75	76	76	78	1.0	-0.2	2.6
United States	Mt	18	33	27	25	90.0	-20.0	-5.0
<b>Australia</b>	<b>Unit</b>	<b>2015–16</b>	<b>2016–17</b>	<b>2017–18 f</b>	<b>2018–19 f</b>	<b>2016–17</b>	<b>2017–18 f</b>	<b>2018–19 f</b>
Production	Mt	250.8	250.0	248.0	251.4	-0.3	-0.8	1.4
Export volume	Mt	201.3	202.0	202.0	198.0	0.4	0.0	-2.0
– nominal value	A\$m	14,751	18,937	19,181	16,691	28.4	1.3	-13.0
– real value h	A\$m	15,330	19,348	19,181	16,302	26.2	-0.9	-15.0

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; **e** In 2017 US dollars; **f** Forecast; **g** Includes lignite; **h** In 2017–18 Australian dollars.

Source: ABS (2017) *International Trade in Goods and Services, Australia*, Cat. No. 5368.0; IHS Inc; IEA 2015 *Coal Information*; Coal Services Pty Ltd; Queensland Department of Natural Resources and Mines; Company Reports; Department of Industry, Innovation and Science.