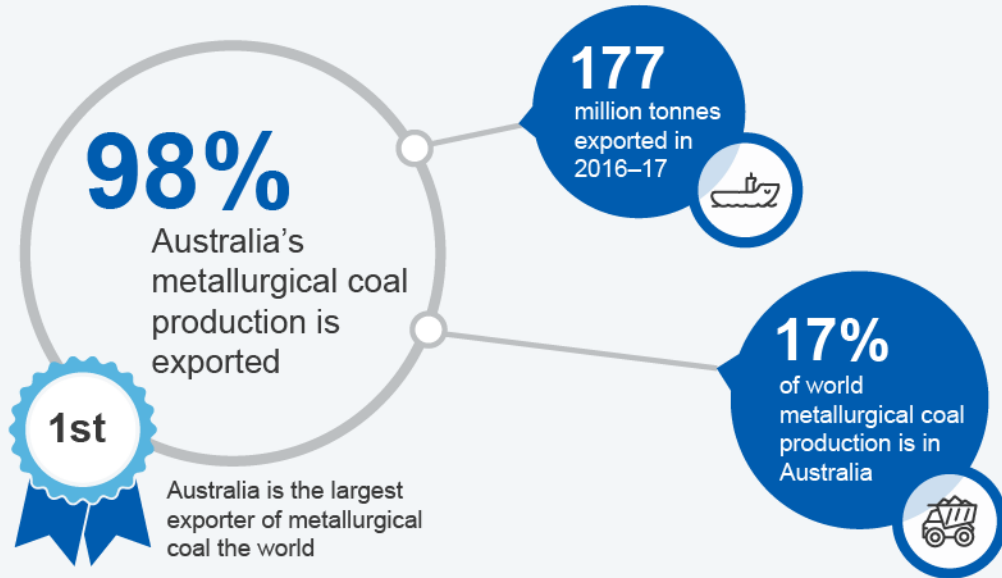
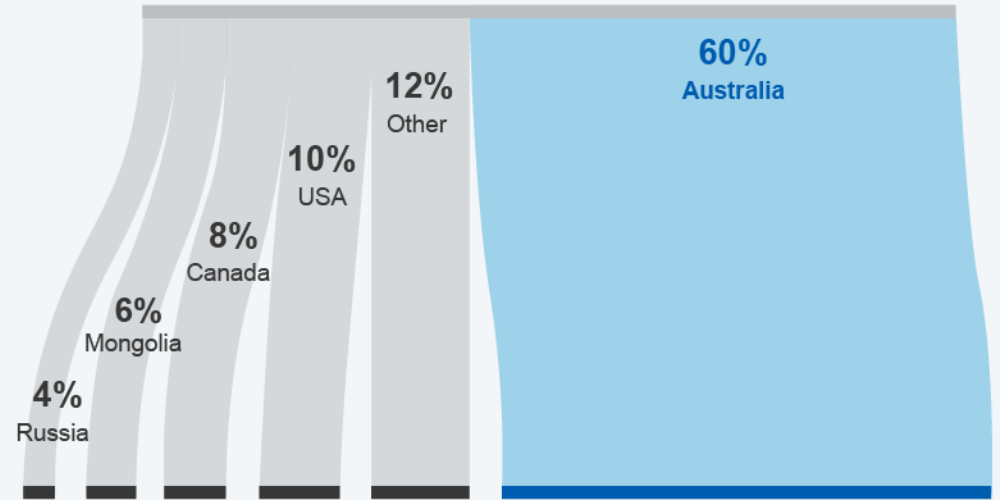


# Metallurgical coal

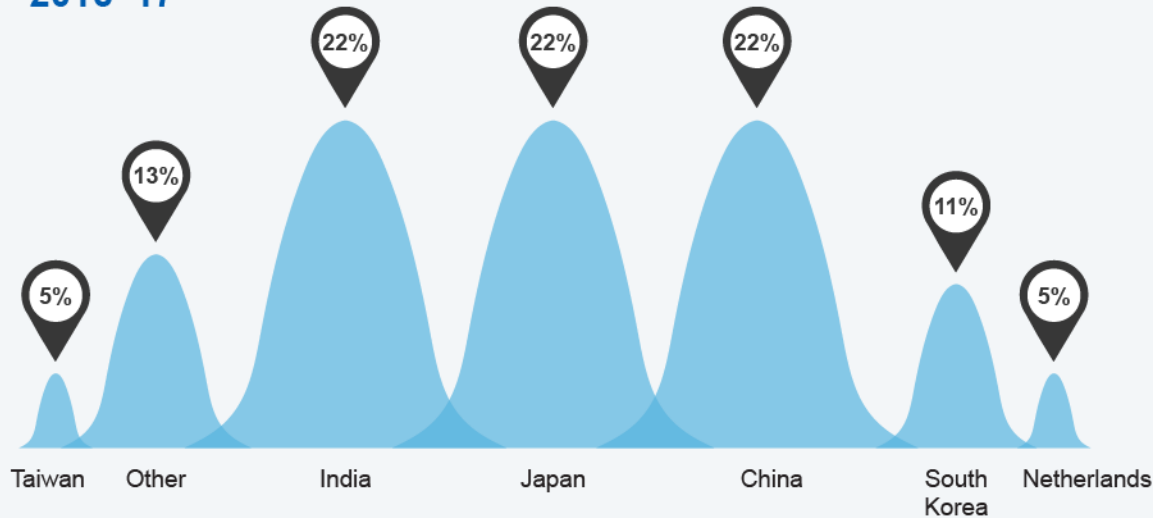
Resources and Energy Quarterly March 2018



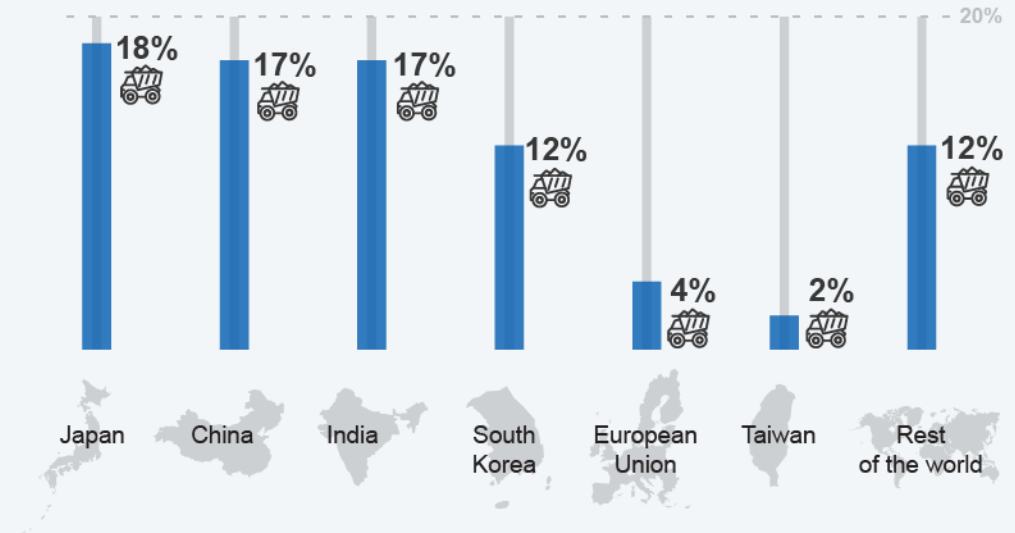
Global share of metallurgical coal exports, 2016



Australia's metallurgical coal key export destinations, 2016-17



Global share of metallurgical coal imports, 2016



## 5.1 Summary

- Metallurgical coal prices have stayed at relatively high levels in recent months, as disruptions to Australian export supply continue to leave the seaborne market short. Prices are likely to remain well above the US\$100 a tonne mark, and hence above the lows of 2015–16.
- The prospects for metallurgical coal demand over the medium term are firm. Strong growth in emerging Asia will drive strong growth in steel production and hence metallurgical coal demand.
- Supply growth will generally keep up with demand, though the ongoing rationalisation of the Chinese coal industry poses a risk to world supply.
- Export earnings are forecast to be almost \$40 billion in 2017–18, before declining. Earnings should maintain \$29 billion over the forecast period.

## 5.2 Prices

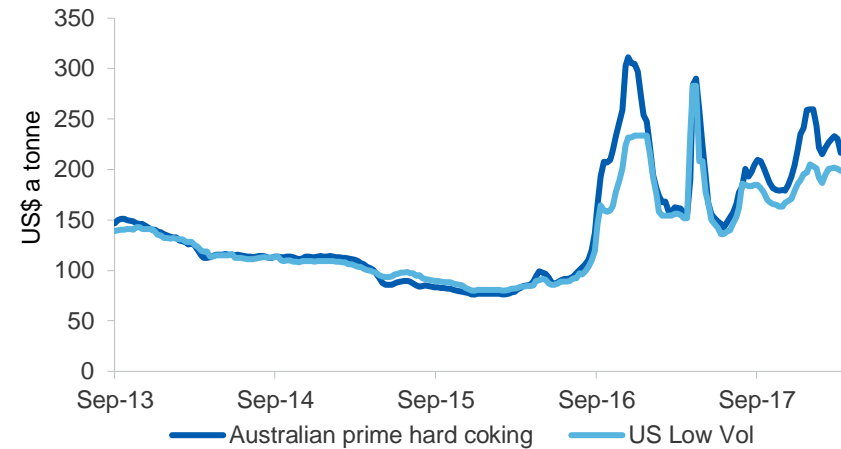
Prices have stayed high, as ongoing supply issues added to firm demand

The Australian Prime Hard Coking Coal (HCC) FOB spot price remains around US\$220 a tonne, as strong Asian demand, bad weather in the United States early in 2018 and ongoing supply problems in eastern Australia all keep the seaborne market tight.

The price of metallurgical coal is expected to fall over the first half of the forecast period, as supply expands to better match growing demand. The price is expected to bottom out at the US\$140 a tonne mark halfway through the forecast period before rebounding. The favourable outlook relative to thermal coal reflects metallurgical coal's lack of substitutes in the majority of existing steel-making production, and efforts around the world to reduce reliance on thermal coal as a power/energy source. Metallurgical coal will not be immune from environmental problems: air pollution problems in large Asian cities will likely result in pressure to use high grade iron ore, allowing lower coal use.

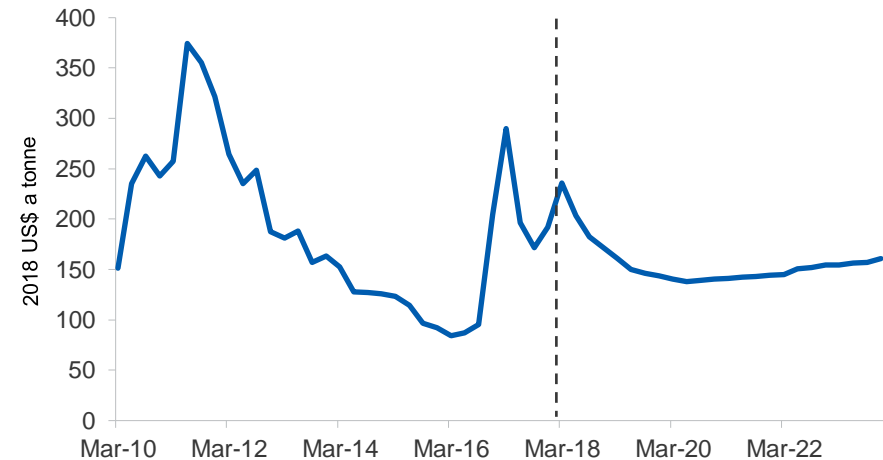
With Australia likely to remain the dominant force in the global seaborne metallurgical coal market, weather events in north eastern Australia will continue to have the potential to impact adversely on global seaborne supply and thus drive periodic price spikes.

**Figure 5.1: Metallurgical Coal Prices - Australian Prime Hard vs US Low Vol, FOB**



Source: IHS Markit (2018)

**Figure 5.2: Benchmark contract price for Australian Hard Coking Coal**



Source: IHS Markit (2018); Department of Industry, Innovation and Science (2018)

### 5.3 World trade

A feature of 2017 was the uniform strengthening in industrial activity in the world's major economies. The acceleration in global steel output associated with this economic pickup drove a strong rise in metallurgical coal usage. The rise in demand came just at a time when supply declined, mainly as a result of stagnant Chinese output and transportation problems affecting Australian exports. Metallurgical coal demand in ex-China developing Asia should continue to post healthy gains over the forecast period. Relatively strong growth and the ongoing urbanisation of these nations will boost steel usage (and thus metallurgical coal demand), largely offsetting minor drops in steel usage in North East Asia.

#### World demand and imports

##### Developments in China remain a significant market force

Strong Chinese demand and domestic production cuts helped drive market tightness in 2017. The closure of a significant number of (illegal) steel induction furnaces — which do not use metallurgical coal as an input — were a factor adding to Chinese metallurgical coal demand in 2017. As induction furnaces closed, blast furnaces — which do use metallurgical coal — increased production. Imports rose by 10 million tonnes on 2016 levels to hit 69 million tonnes, the 2nd highest level of imports on record.

In 2018, Chinese production of metallurgical coal will continue to be constrained by the impact of both ongoing mine safety inspections across Shanxi province and coal transport restrictions in northern China. These factors should clear over the remainder of the outlook period, reducing the need for metallurgical coal imports. Over the rest of the five year outlook period, the impact on Chinese import demand of a modest decline in Chinese steel output will be (largely) offset by the ongoing consolidation of China's coal industry whereby small/unsafe mines will be closed.

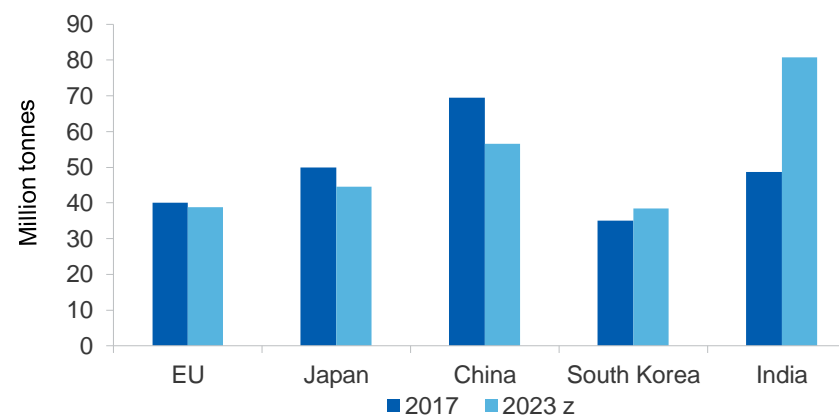
Trade sanctions announced by the US Administration so far this year on steel, solar panels, washing machines, and aluminium, are unlikely to have a significant impact on China: the US last year imported only around US\$6 billion worth of these products from China.

Mongolian metallurgical coal exports to China totalled 26.3 million tonnes in 2017, an increase of 11 per cent on 2016. The Mongolian Government's recently imposed limits to road usage by coal trucks to solve congestion problems has had a deep impact on exports to China in early 2018, and this issue is expected to take a year or more to ease. Longer term, the prospects are for only a modest rise in output: Mongolia is a captive supplier to Chinese buyers, and consequently receives low prices for its output, hurting investment in new coal projects.

##### India's imports of metallurgical coal will continue to rise

In 2017, India's metallurgical coal imports were unchanged from 2016. Weighing on imports was strong resistance by Indian steel mills to the sharp price gains of seaborne metallurgical coal after March. Metallurgical coal inventories were run down, as the mills waited for Australian supply to normalise. Mills turned to North America as an alternative supply source. With India's steel production set to rise strongly over the forecast period, and a lack of meaningful metallurgical coal deposits, India's metallurgical coal imports are set to continue to grow. India will likely become the world's largest importer of metallurgical coal by 2020; imports are forecast to rise at annual rate of almost 9 per cent in the period to 2023.

Figure 5.3: Major metallurgical coal importers – 2017 and 2023



Notes: z projection

Source: IEA (2017), Department of Industry, Science and Innovation (2018)

### Japanese demand declining

Despite a 2.8 per cent decline in metallurgical coal imports in 2017, Japan retained its position as the world's second largest metallurgical coal importer. The prospects are for a gradual decline in Japanese imports in the second half of the forecast period, as steel production drifts lower.

### ASEAN demand forecast to strengthen

ASEAN itself will only import/consume comparatively modest amounts of metallurgical coal. Its main consumption of metallurgical coal will be indirect, through steel imports from the large Asian steel making nations. Along with India, strong ASEAN steel demand will help offset the impact on global metallurgical coal consumption of a minor decline in domestic usage of steel in China, Japan and South Korea.

### World production and exports

Global metallurgical coal production is forecast to remain steady over the medium term, at just over 1 billion tonnes. Cutbacks in Chinese production will be offset by rising output in Australia and Russia. Exports will decline in the short term, as swing suppliers such as the US react to lower prices<sup>1</sup>.

### The decline in Chinese production appears likely to have ended

After two years of significant declines, Chinese metallurgical coal production has levelled out in recent quarters. China has been closing down small, loss-making State-owned mines and cracking down on unsafe mining operations. A push to lower air pollution has seen Chinese steel mills move towards using high grade iron ore that requires lower metallurgical coal usage.

### United States' production to hold much of its recent gains

United States' metallurgical coal exports remained relatively strong as the calendar year turned. American exports were buoyed by high prices and a firm push by countries such as India to diversify their sources of supply.

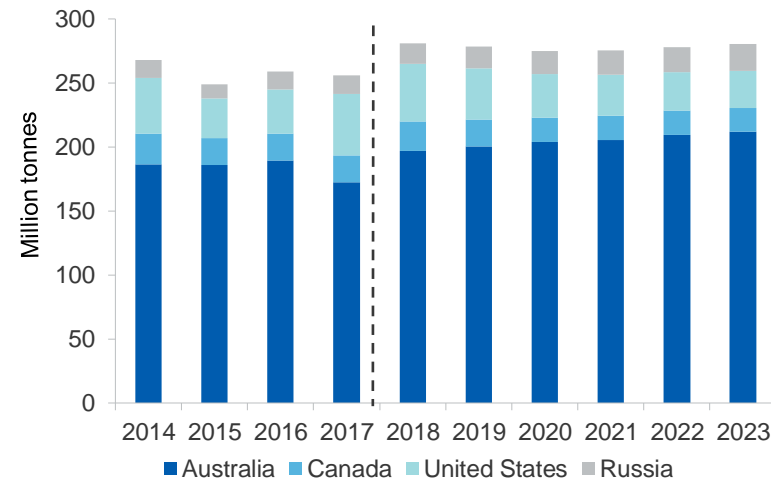
<sup>1</sup> Indonesian metallurgical coal exports are a source of some uncertainty. Item 27011210 [Indonesian statistical website](#) details volumes of 'bituminous coal – coking coal'.

Going forward, American exports will ease as seaborne metallurgical coal prices subside; large new investment in new mines and expansions is unlikely, given the temporary nature of the price spike of the past year. The US Administration's moves to protect domestic steel makers, the healthy corporate climate and easier mine permitting will assist domestic metallurgical coal consumption and production. Corsa Coal aims to double 2017 output of 1.8 million tonnes by 2019 via several new mines. Annual output at RAMACO's Elk Creek operations will rise to 3.8 million tonnes by 2020 from 0.6 million tonnes in 2017.

### Russian exports are likely to rise steadily

Russian metallurgical coal exports are likely to gain over the forecast period. However, the country's reserves of metallurgical coal are not nearly as extensive as its reserves of thermal coal, and Russia's ability to take large slabs of market share is thus limited.

**Figure 5.4: Major metallurgical coal exporters, annual**



Source: IEA (2017); Department of Industry, Science and Innovation (2018)

**Table 5.1: World metallurgical coal trade**

	Million tonnes							Per cent
	2017 s	2018 f	2019 f	2020 z	2021 z	2022 z	2023 z	CAGR r
Total world trade	308	315	321	324	327	331	334	1.3
<b>Metallurgical coal imports</b>								
European Union 28	40	40	40	40	39	39	39	-0.5
Japan	50	49	49	48	47	46	45	-1.9
China	69	60	59	58	58	57	57	-3.3
South Korea	35	36	37	37	37	38	38	1.6
India	49	55	61	67	71	75	81	8.8
<b>Metallurgical coal exports</b>								
Australia	172	197	201	204	206	210	212	3.5
Canada	21	23	21	19	19	19	19	-2.1
United States	48	45	40	34	32	30	29	-7.9
Russia	15	16	17	18	19	20	21	6.1

Notes: s Estimate; f Forecast; z Projection

Source: IEA (2017); Department of Industry, Innovation and Science (2018)

## 5.4 Australia

### Australian exports to improve steadily after 2018

Rail and port maintenance issues pose a major risk to metallurgical coal exports in 2018, a repeat of 2017 — when bad weather and (mainly weather-related) damage and problems with transport infrastructure also hampered exports. Temporary closures for maintenance at a number of berths at Gladstone and Dalrymple Bay in April and May will add to the impact of similar berth closures at Hay Point and Abbott Point in March. Of major concern, the Aurizon Network — the below-rail operator of the Central Queensland Coal Network — has advised that 20 million tonnes of

capacity could be lost across the system, as it aligns maintenance operations with the Queensland Competition Authority's Draft Access Undertaking (UT5). This undertaking curbs annual maintenance charges that Aurizon can bill the system. Miners in Queensland could be expected to build stockpiles to make sure that they are ready to transport coal when or if the rail transport system returns to previous capacity levels.

By 2022–23, exports should reach 210 million tonnes. The gains will come on the back of firm prices, as Australian producers attempt to keep up with rising demand in India and ASEAN. Both have few metallurgical coal resources of their own.

### Australian production to rise steadily

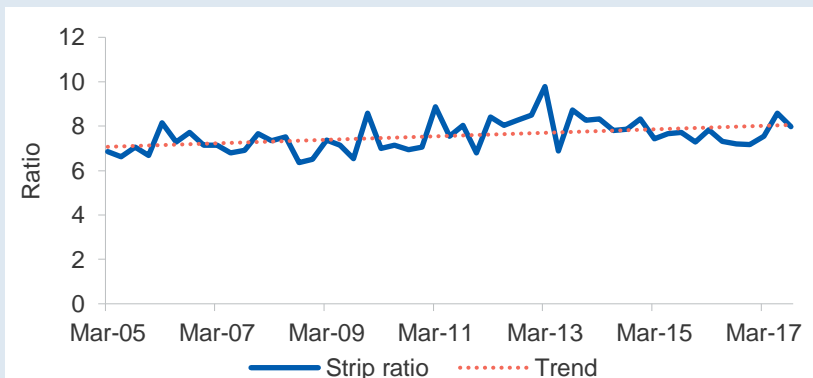
Australian metallurgical coal production declined by around 10 million tonnes in 2017, hit by bad weather, industrial action and operational changes. The average strip ratio rose in trend terms (see Box 1).

Assuming no large weather-related outages, production is expected to rebound in 2018, helped by strong prices. However, significant problems with transport and export infrastructure in Queensland could see production disappoint compared to levels that might have otherwise been achieved. NSW producers are not immune from problems: South32 expects mine problems to cause production at its Illawarra complex to decline to 4.5 million tonnes, down 36 per cent on 2016–17.

#### Box 5.1: Queensland strip ratio

The average strip ratio at Queensland (metallurgical and thermal) open cut coal mines rose in 2017, as the strong rise in prices in 2016–17 justified exploiting areas of mining tenements that required increased overburden removal. Strip ratios have been steadily rising over the past decade, as metallurgical coal production comprises a larger and larger portion of total coal production in the State. Declining prices over the next couple of years could be expected to cause strip ratios fall back modestly.

Figure 5.5 Queensland strip ratio\*, quarterly



Notes: \*Overburden removed (cubic metres) divided by raw coal output of open-cut mines  
Source: Queensland Department of Natural Resources and Mines (2018)

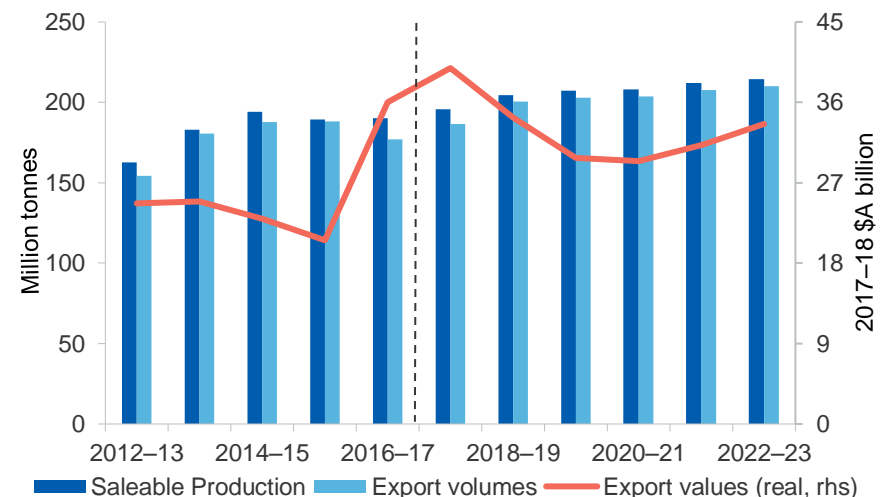
Australian production is then expected to break through the 200 million tonne level and keep on climbing through the rest of the forecast period. By 2022–23, production should reach 215 million tonnes, representing annual growth of 2.0 per cent from 2016–17.

### Australia's export earnings to stay in a \$29–34 billion range

Australian metallurgical coal export earnings are expected to hit a record of almost \$40 billion in 2017–18. The price impact of tighter global supply — due to both the anaemic recovery in Chinese production (after the Beijing-enforced cutbacks of mid 2016) and severe transport outages in Australia — will outweigh the impact on earnings of lower export volumes.

Export earnings are forecast to decline in the two years after 2017–18, as the impact of declining prices more than outweighs rising export volumes. Export earnings are nevertheless expected to hold above the \$29 billion mark. Rising export volumes and price gains in the 2020 should result in an export earnings rebound, hitting \$34 billion in real terms in 2022–23.

Figure 5.6: Australia's metallurgical coal production and exports – fiscal year basis



Source: ABS International Trade in Goods and Services, 5368.0; Department of Industry, Innovation and Science (2018)

**Table 5.2: Metallurgical coal outlook**

World	Unit	2017	2018 f	2019 f	2020 z	2021 z	2022 z	2023 z	CAGR r
Contract prices b c									
– nominal	US\$/t	210.1	200.5	155.5	148.0	155.0	167.5	179.5	-2.6
– real d	US\$/t	215.0	200.5	152.2	142.1	146.1	154.9	162.9	-4.5
Spot prices g									
– nominal	US\$/t	189.2	200.5	154.9	147.7	155.2	167.5	179.6	-0.9
– real d	US\$/t	193.6	200.5	151.6	141.9	146.3	154.9	163.0	-2.8
Production	Mt	1,072	1,070	1,062	1,054	1,049	1,044	1,039	-0.5
Consumption	Mt	1,061	1,071	1,065	1,059	1,054	1,049	1,049	-0.2
Australia	Unit	2016–17	2017–18 f	2018–19 f	2019–20 z	2020–21 z	2021–22 z	2022–23 z	CAGR r
Production	Mt	190.0	195.7	204.6	207.1	208.0	211.9	214.5	2.0
Export volume	Mt	177.2	186.4	200.5	203.0	203.8	207.7	210.2	2.9
Export values									
– nominal value	A\$m	35,335	39,863	35,055	31,160	31,575	34,317	37,860	1.2
– real value hi	A\$m	36,045	39,863	34,250	29,746	29,428	31,215	33,603	-1.2

Notes: **b** Fob Australian basis; **c** Contract price assessment for high-quality hard coking coal; **d** In 2018 calendar year US dollars; **f** Forecast; **g** Hard coking coal fob Australia east coast; **z** Projection  
 Sources: ABS (2018) International Trade, cat.no 5465.0; Company Reports; Bloomberg (2018) Steel Business Briefing; Department of Industry, Innovation and Science (2018)