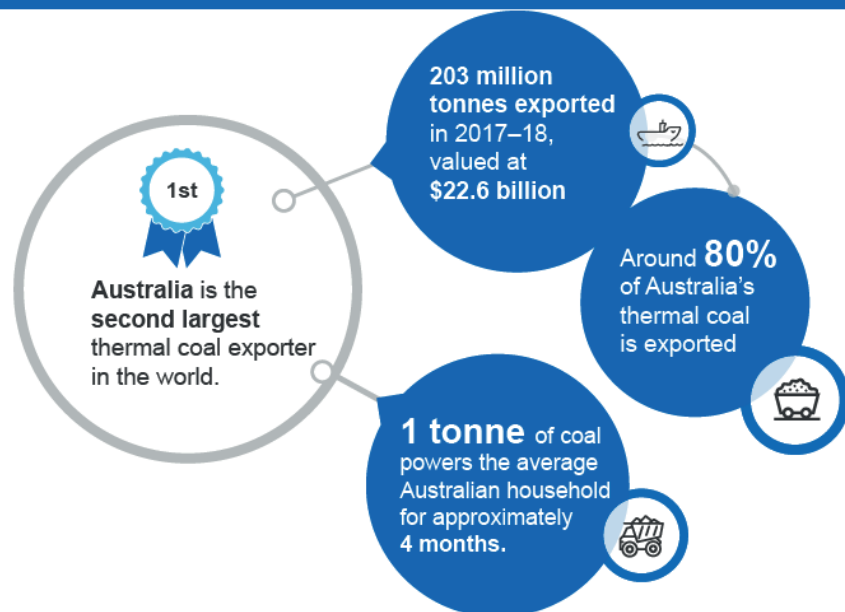
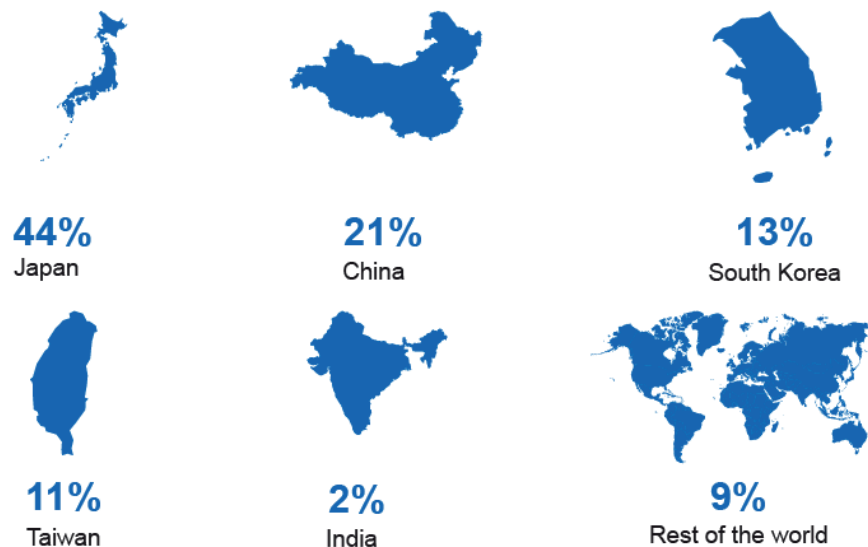


# Thermal Coal

Resources and Energy Quarterly December 2018

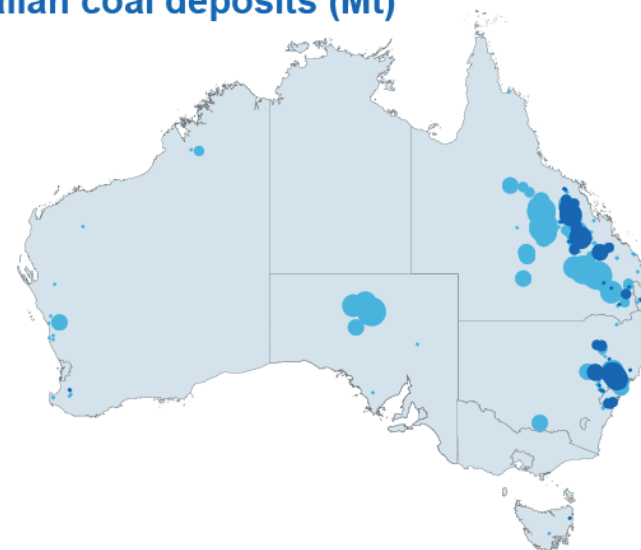


## Australia's thermal coal export earnings by destination, 2017–18

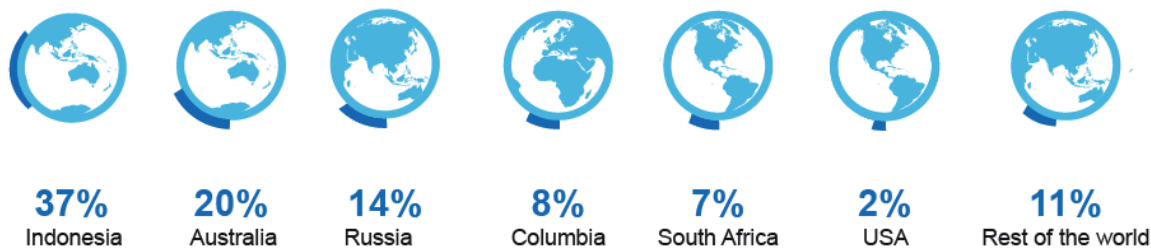


## Major Australian coal deposits (Mt)

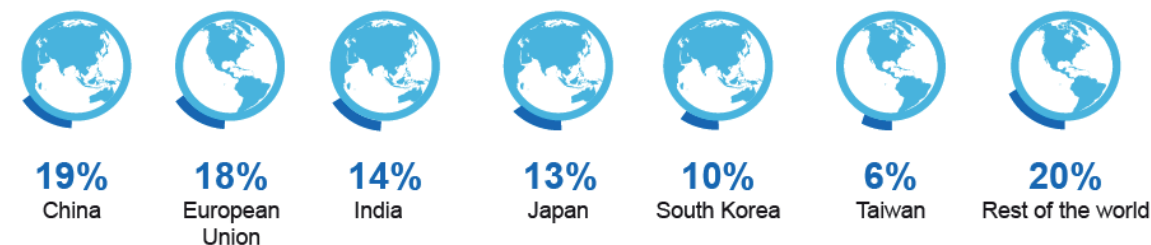
- <500
- 500-1,000
- 1,001-2,000
- 2,001-4,000
- >4,000
- Deposit
- Operating mine



## 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 estimated average of US\$105 a tonne in 2018 to US\$74 a tonne in 2020, primarily driven by declining import demand from China.
- Australia's export volumes are forecast to grow from 203 million tonnes in 2017–18 to 209 million tonnes in 2019–20, reflecting productivity improvements and modest production growth from new capacity.
- Australia's thermal coal export earnings are forecast to reach a new record of \$26 billion in 2018–19, up from a record \$23 billion in 2017–18, driven by strong prices. Export earnings are then forecast to decline to \$20 billion in 2019–20, as the impact of lower prices more than offsets rising export volumes.

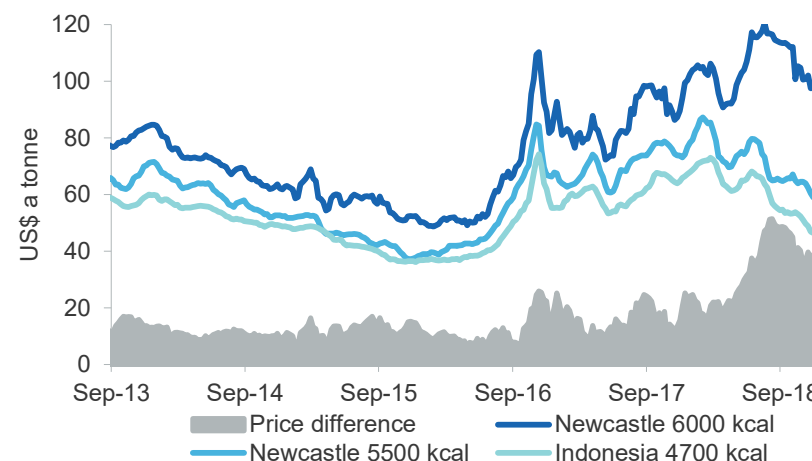
## 6.2 Prices

### Prices have declined on weak import demand from China

The Newcastle benchmark spot price (6000 kcal/kg net as received) averaged an estimated US\$100 a tonne in the December quarter of 2018, a 13 per cent decline from the previous quarter, but 6.9 per cent higher year-on-year (Figure 6.1). Prices steadily declined to below US\$100 a tonne in November, almost a 6-month low, primarily as a result of falling import demand from China, due to stronger domestic production and softening power demand in the period between summer and winter. Chinese imports are expected to fall sharply in November and December on the back of tightened restrictions on coal imports, with reports that these may be extended through to the Chinese New Year period for some power utilities.

The gap in prices for high and low quality coals narrowed in the December quarter, as the Newcastle benchmark price fell more sharply than the prices for lower quality coals. Nevertheless, the price difference remains at high levels compared to the last five years. The gap has been driven by growing demand for higher quality coal due to air quality concerns, particularly in east Asia, and lower supply of higher quality coal.

Figure 6.1: Thermal coal spot prices, weekly



Notes: Price difference refers to the gap between Newcastle 6000kcal and 5500kcal

Source: IHS (2018)

### Thermal coal prices are forecast to drift lower due to softer demand

The Newcastle benchmark spot price is forecast to decline over the next two years, from an estimated average of US\$105 a tonne in 2018 to US\$86 a tonne in 2019 and US\$74 a tonne in 2020. The Japanese Fiscal Year (JFY, April to March) contract price is forecast to settle at US\$89 a tonne in 2019–20 and US\$77 a tonne in 2020–21.

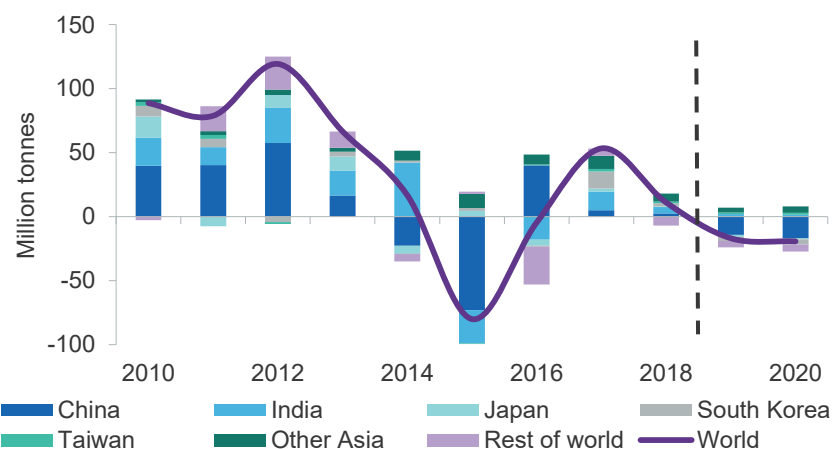
The forecast decline in prices is driven primarily by an expected slowdown in import demand from China over the next two years. Ongoing policy changes to reduce emissions and dependency on coal in other major economies are also expected to weigh on demand and thus prices.

Nevertheless, a lack of substantial investment in new thermal coal capacity is expected to put a floor under prices, which are forecast to remain well above the lows of 2015 and 2016. Despite the recent strength in prices, a range of factors have contributed to a slowdown in investment in Australia and the rest of the world, including difficulties attracting finance and uncertainty regarding future policy developments around the world.

### 6.3 World trade

World trade in thermal coal is estimated to have grown by 1.0 per cent to 1.1 billion tonnes in 2018 but it is expected to decline by 1.5 per cent to 1.08 billion tonnes in 2019, and by 1.8 per cent to 1.06 billion tonnes in 2020. Underpinning the decline in world trade is a decline in thermal coal imports from China and advanced economies, which is offsetting growth from emerging economies in Asia (Figure 6.2).

**Figure 6.2: Annual change in world thermal coal imports**



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

#### World imports

##### Import restrictions to drive down China's thermal coal imports

China's imports of thermal coal slowed substantially in September and October. Imports have been weighed down by import restrictions, an ongoing depreciation of the yuan and a rebound in domestic production. At the time of writing, trade data was not available for the last two months of the year. However, a sharp decline in thermal coal imports is expected, with import controls tightened from mid-November to the end of 2018, and possibly through to Chinese New Year, as the government attempts to cap imports to alleviate pressures in an oversupplied domestic market.

##### China's coal imports will continue to be driven by government policy

With supply side reforms in China's coal sector largely concluded, and new additions to capacity on the horizon, domestic supply is expected to increase over the next two years, resulting in reduced import demand. Ongoing coal to gas switching is also expected to contribute to declining thermal coal imports over the forecast period.

Industrial policies, safety and environmental policies, and controls on imports, are all expected to affect the pace at which new domestic supply comes online and the trajectory of China's thermal coal import demand over the next two years. Government policy thus remains the largest uncertainty over the outlook period.

##### Import demand from Japan and South Korea to marginally decline

Japan's imports of thermal coal in 2018 have been broadly steady year-on-year, but are forecast to decline marginally over the outlook period, driven primarily by softer demand due to nuclear restarts. At the time of writing, nine of Japan's fleet of 42 nuclear reactors had gained approval to restart. Eight of these reactors were in operation, with the remaining one offline for regular maintenance. Eighteen reactors currently have applications for restart. Japan's Institute of Energy Economics expects two reactors to restart by 2020, with an additional three restarts also possible by 2020. However, ongoing legal disputes and public opposition could lead to delays.

South Korea's thermal coal imports have also been broadly steady year-on-year. While Australia and Indonesia remained its largest suppliers, South Korea has continued to diversify its sources of thermal coal. In the four months to October 2018, imports from Australia and Indonesia declined by 4.7 and 13 per cent year-on-year, respectively, while imports from Canada, Colombia and Russia increased by 61, 58 and 17 per cent, respectively, although from a lower base.

South Korea's thermal coal exports are forecast to decline marginally over the outlook period, as a result of ongoing government efforts to reduce the country's reliance on coal. After a one-month trial of a cap on the sulphur

content of coal burned in October, the government will impose the cap again in March to May 2019, a month less than originally expected. As the cap applies to coal burned, not imports, higher sulphur coal can be blended with lower sulphur products. Australian coal is not expected to be substantially affected, with power generators reported to be forgoing South African and Indonesian coal rather than Australian coal.

#### India's domestic production struggles to keep pace with demand growth

India's thermal coal imports have increased in 2018, driven by strong demand. India's domestic coal production has not kept pace with rising demand from the power and industrial sectors. The government has directed Coal India, the state-owned coal producer, to divert supply to power plants in the lead up to winter, leaving industrial users to source coal from seaborne markets. While India's domestic thermal coal production grew by a solid 9.7 per cent year-on-year in the year to October to 551 million tonnes, efforts to ramp up domestic production to meet demand have been constrained by domestic infrastructure bottlenecks. Despite government plans for self-sufficiency, India's thermal coal imports are forecast to grow modestly over the outlook period, as growth in demand continues to outweigh growth in domestic supply.

### World exports

#### Indonesia's thermal coal exports forecast to decrease from current levels

Indonesia's thermal coal exports reached 316 million tonnes in the year to September, an increase of 11 per cent year-on-year. Despite weather-related supply disruptions, the Indonesian government has taken advantage of strong seaborne demand to boost exports, revising the 2018 production target from 485 million tonnes to 507 million tonnes in August. The additional production is intended to increase exports.

The government has historically prioritised securing low-cost coal for the domestic power sector, with price caps and tonnages reserved for domestic markets. However, coal is one of the country's largest exports, making it a potentially important means to reduce the country's trade deficit. Indonesia's thermal coal exports are nonetheless forecast to

decrease over the next two years, as meeting domestic demand gradually takes precedence again.

#### South Africa's coal exports to remain subdued

South Africa's thermal coal exports have remained subdued throughout 2018, totaling 65 million tonnes in the year to September, down 3.9 per cent. South Africa's thermal coal exports are forecast to remain largely flat over the outlook period, weighed down by minimal investment in new mines. Eskom, the national electricity utility, has faced increasingly severe shortages of coal, which could result in the adoption of long-term contracts and more thermal coal being diverted to the domestic market.

#### Russia's thermal coal exports forecast to grow

Russia's largest dedicated coal port, Vostochny, exported 20 million tonnes of coal to the seaborne market in the year to October. This is 6.0 per cent higher than the same period last year, and reflects strong Asian demand. Russia's thermal coal exports are forecast to continue to grow over the outlook period, driven by growing sales to the Asian market, a weak Ruble, and upgrades to its rail and port infrastructure.

#### Thermal coal exports from swing producer United States forecast to fall

Thermal coal exports from the US have surged in 2018, with exports over the year to September growing by 44 per cent, predominantly to Asian markets. Thermal coal exports from the US are forecast to fall from 2018 levels over the outlook period, but remain strong relative to 2014 to 2017 levels. The US is a swing producer of coal, and exports are expected to decline in line with prices.

## 6.4 Australia

#### Thermal coal exports earnings forecast to reach a record \$26 billion

Australia's thermal coal export earnings totaled \$7.2 billion in the September quarter of 2018, increasing by 34 per cent year-on-year. The strong growth in export earnings was driven by high prices and growth in export volumes, which increased by 4.1 per cent year-on-year to reach a record 55 million tonnes.

In 2018–19, Australia's thermal coal export earnings are forecast to grow from \$23 billion in 2017–18 to a new record of \$26 billion, before declining to \$20 billion in 2019–20 (Figure 6.3). Export earnings in 2018–19 are expected to be supported by a weaker Australian dollar, and the high contract price of US\$110 a tonne settled for both the Japanese Fiscal Year (April 2018 to March 2019), and October 2018 to September 2019 periods, which serve as a benchmark for the rest of the industry. Roughly a third to a half of Australian thermal coal is sold under term contracts, although volumes under long-term contracts are on the decline. Japanese utilities have sought to diversify sources of supply and trade on the spot market, driven by government efforts to increase competition in its power sector.

Beyond 2018–19, modest growth in production and export volumes is expected to be outweighed by the impact of weaker prices (Figure 6.4). Export volumes are forecast to increase from 203 million tonnes in 2017–18 to 208 million tonnes in 2018–19 and to 209 million tonnes in 2019–20. Export growth is expected to be supported by productivity improvements, expansions, and the ramp up of production at new mines, including Mount Pleasant and Orion Downs. In late November 2018, Adani announced that funding for its scaled-back Carmichael project had been finalised. Production is expected to begin to ramp up in late 2020, beyond the outlook period, and eventually reach 10–15 million tonnes annually.

#### Revisions to the outlook

Australia's thermal coal export earnings have been revised up by \$3.2 billion in 2018–19, and by \$0.8 billion in 2019–20 from the September *Resources and Energy Quarterly*, reflecting a weaker outlook for the Australian dollar, and modest upwards revisions to prices and volumes.

#### Modest recovery in Australia's coal exploration expenditure

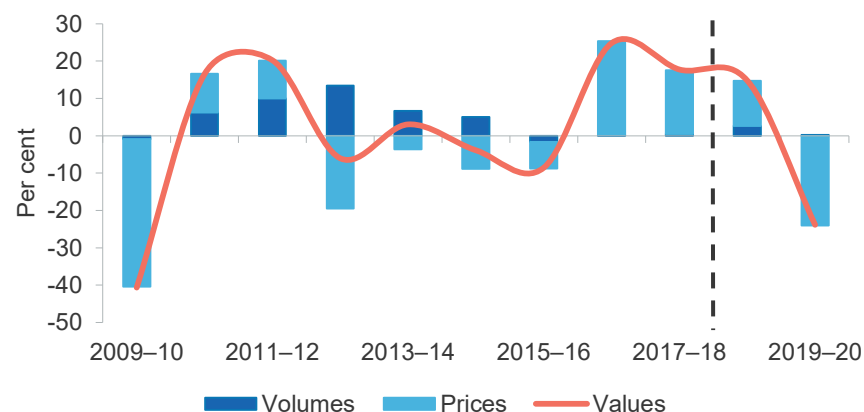
In the September quarter of 2018, Australia's coal exploration expenditure totaled \$43.6 million, remaining steady from the June quarter of 2018, and increasing by 24 per cent year-on-year. The recent recovery in coal exploration expenditure reflects firmer prospects for the sector, on the back of the recent improvement in market conditions.

**Figure 6.3: Australia's thermal coal exports**



Source: ABS (2018) International Trade, Australia 5454.0; Department of Industry, Innovation and Science (2018)

**Figure 6.4: 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 (2018) International Trade, Australia 5454.0; Department of Industry, Innovation and Science (2018)



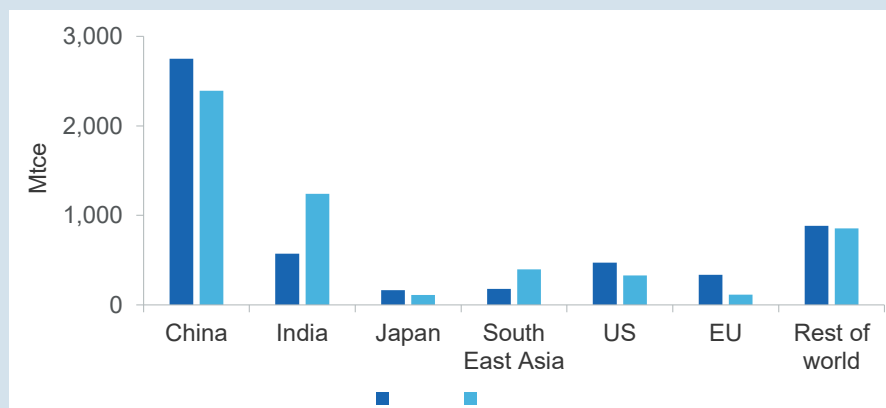
### Box 6.1: Coal in the IEA's 2018 World Energy Outlook

The 2018 World Energy Outlook (WEO) in the central New Policies Scenario revises world coal demand down by 3 per cent from the 2017 WEO to 5,441 million tonnes of coal equivalent (Mtce) in 2040. The downward revision reflects increased competition from alternative fuels, which are benefiting from growing government policy support. In the New Policy Scenario, coal demand increases only marginally — by 1.6 per cent — between 2017 and 2040, while coal's share of global primary energy demand declines from 27 per cent to 22 per cent.

#### There are stark regional variations in the outlook for coal in the NPS

While advanced economies are projected to reduce coal use to reduce emissions, developing economies are projected to increase their coal use, capitalising on its relatively low cost. India and South East Asia are expected to be the key drivers of growth in coal use, with demand in those regions projected to more than double between 2017 and 2040 (Figure 6.5). The New Policy Scenario has China's coal demand declining by 13 per cent over the same period, driven by air quality concerns and efforts to diversify the energy mix. Among the coal exporting countries, only Australia is projected to substantially ramp up coal production, supported by a locational advantage to growing Asian markets and a high quality resource base.

**Figure 6.6: Coal demand by country and region in the New Policy Scenario**



Source: International Energy Agency (2018) World Energy Outlook 2018, OECD/IEA, Paris

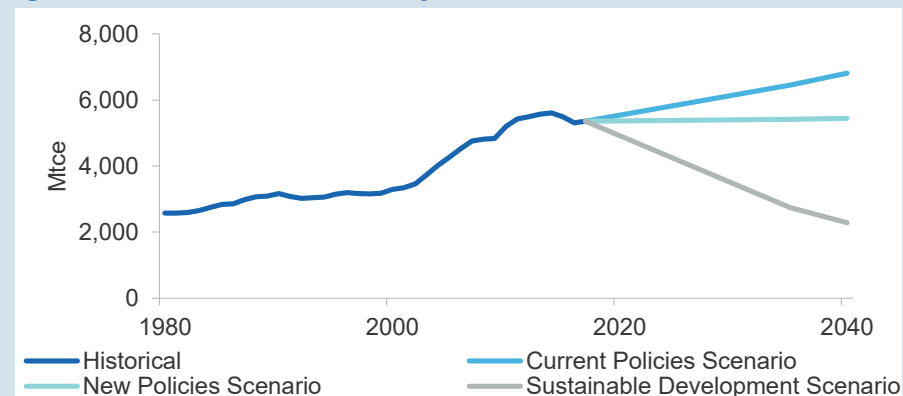
### The prospects for coal depend on the evolution of technology and policies

The trajectory of global coal demand looks very different in the Current Policies and Sustainable Development Scenarios (Figure 6.6). While the WEO does not provide a breakdown of the outlook for metallurgical and thermal coal, the scenarios highlights that the prospects for coal, and particularly thermal coal, for which there are more substitutes, are highly dependent on the evolution of technology and policies.

In the Current Policies Scenario, coal demand increases by 27 per cent between 2017 and 2040. In the Sustainable Development Scenario, coal demand will need to decrease by 57 per cent, reducing coal's share in primary energy demand to 12 per cent by 2040.

Technology plays a critical role in the outlook for coal. Potential game-changers include an increase in the operational flexibility of coal-fired power to complement the variable nature of wind and solar, and the development of commercially viable carbon capture, utilisation and storage.

**Figure 6.6: Global coal demand by scenario**



Notes: The Current Policies Scenario considers the impact of policies and measures that are firmly enshrined in legislation as of mid-2018. The New Policies Scenario incorporates current policies and also the likely effects of announced policies, including official targets. The Sustainable Development Scenario entails a pathway consistent with the goals of universal access to modern energy by 2030; emissions reduction in line with the Paris Agreement; and improving air quality.

Source: International Energy Agency (2018) World Energy Outlook 2018, OECD/IEA, Paris

**Table 6.1: World trade in thermal coal**

	Unit	2017	2018 <sup>s</sup>	2019 <sup>f</sup>	2020 <sup>f</sup>	Annual percentage change		
						2018 <sup>f</sup>	2019 <sup>f</sup>	2020 <sup>f</sup>
World trade	Mt	1,088	1,099	1,082	1,063	1.0	−1.5	−1.8
<b>Thermal coal imports</b>								
Asia	Mt	800	819	808	795	2.4	−1.3	−1.6
China	Mt	201	204	189	172	1.2	−7.0	−9.0
India	Mt	161	166	168	170	3.1	1.2	1.0
Japan	Mt	140	141	139	139	0.5	−1.0	−0.5
South Korea	Mt	113	115	112	108	2.2	−3.0	−3.5
<b>Thermal coal exports</b>								
Indonesia	Mt	389	410	402	398	5.4	−2.0	−1.0
Australia	Mt	200	204	207	215	2.0	1.2	3.7
Russia	Mt	158	162	166	170	2.5	2.5	2.5
Colombia	Mt	83	84	85	85	0.8	0.9	1.0
South Africa	Mt	70	69	68	68	−1.0	−1.0	−1.0
United States	Mt	38	52	45	42	38.0	−13.0	−7.9

Notes: <sup>s</sup> Estimate; <sup>f</sup> forecast.

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

**Table 6.2: Thermal coal outlook**

						Annual percentage change		
World	Unit	2017	2018 <sup>s</sup>	2019 <sup>f</sup>	2020 <sup>f</sup>	2018 <sup>s</sup>	2019 <sup>f</sup>	2020 <sup>f</sup>
Contract prices <sup>b</sup>								
– nominal	US\$/t	84	110	89	77	31.0	–19.4	–13.5
– real <sup>c</sup>	US\$/t	86	110	87	73	27.8	–21.3	–15.4
Spot prices <sup>d</sup>								
– nominal	US\$/t	88	105	86	74	20.5	–18.5	–13.5
– real <sup>e</sup>	US\$/t	90	105	84	72	17.6	–20.3	–14.5
Australia	Unit	2016–17	2017–18	2018–19 <sup>f</sup>	2019–20 <sup>f</sup>	2017–18 <sup>f</sup>	2018–19 <sup>f</sup>	2019–20 <sup>f</sup>
Production	Mt	262	262	271	272	–0.1	3.2	0.5
Export volume	Mt	202	203	208	209	0.5	2.7	0.3
– nominal value	A\$m	18,902	22,584	25,898	20,297	19.5	14.7	–21.6
– real value <sup>h</sup>	A\$m	19,709	23,103	25,898	19,816	17.2	12.1	–23.5

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 2018 US dollars; **s** Estimate; **f** Forecast; **h** In 2018–19 Australian dollars.

Source: ABS (2018) International Trade in Goods and Services, Australia, Cat. No. 5368.0; IHS (2018); NSW Coal Services (2018); Queensland Department of Natural Resources and Mines (2018); Company Reports; Department of Industry, Innovation and Science (2018)