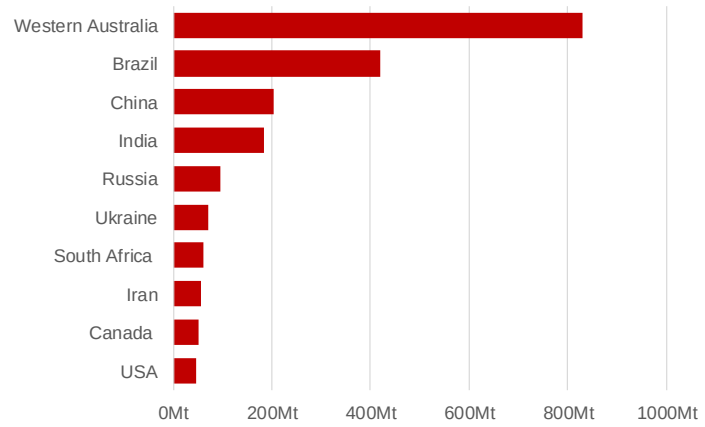
THE WORLD IRON ORE MARKET

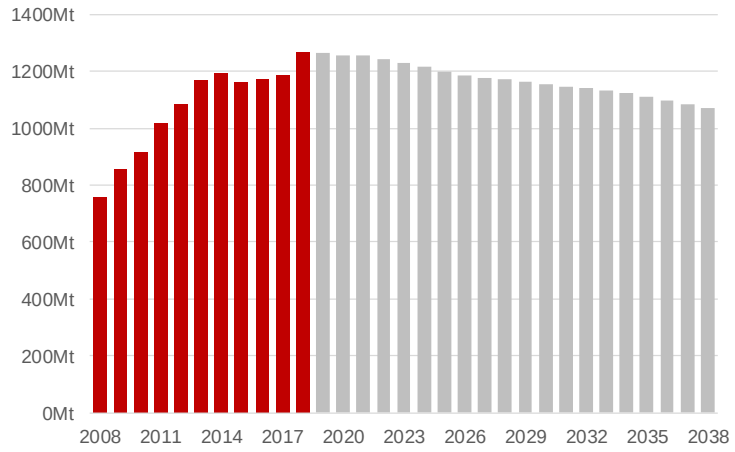
Major global iron ore[1] suppliers: 2018



[1] Dry million tonnes.
Source: AME, Iron Ore Strategic Studies (Quarterly).

- Western Australia is the largest iron ore supplier in the world, accounting for 39% of global supply in 2018.
- Brazil is the second largest iron ore supplier in the world, accounting for 19% of global supply in 2018.
- China (10%), India (9%) and Russia (4%) are major global iron ore suppliers, but retain most of their production for domestic steel production.
- China's iron ore supply was steady at 204 million tonnes in 2018, following a small increase in 2017 and three successive years of decline between 2014 and 2016. China's iron ore supply peaked at 345 million tonnes in 2013.

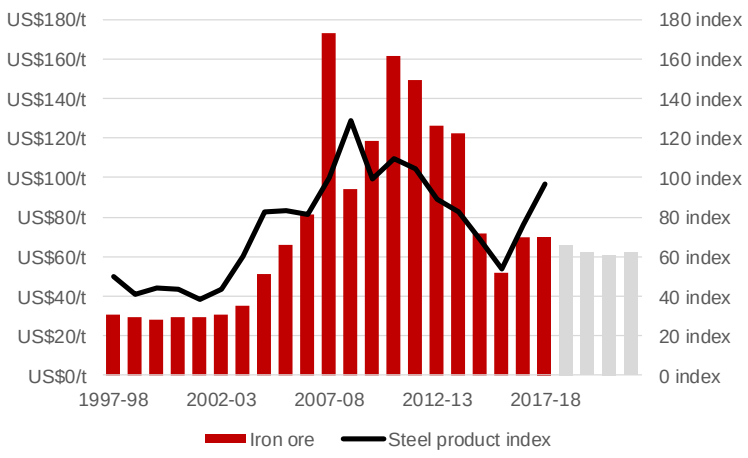
China's iron ore[1] demand



[1] Dry million tonnes.
Source: AME, Iron Ore Strategic Studies (Quarterly).

- China accounted for 59% of global iron ore demand in 2018, followed by India (7%), Japan (6%), Russia (4%) and South Korea (4%).
- China's iron ore demand rose 7% to 1,271 million tonnes in 2018.
- AME forecasts China's iron ore demand to fall gradually over the next 20 years to 1,071 million tonnes in 2038.
- India's iron ore demand is rising, but supply is mostly sourced domestically.
- Iron ore demand in Japan and South Korea is relatively stable.

Iron ore[1] and steel product[2] prices

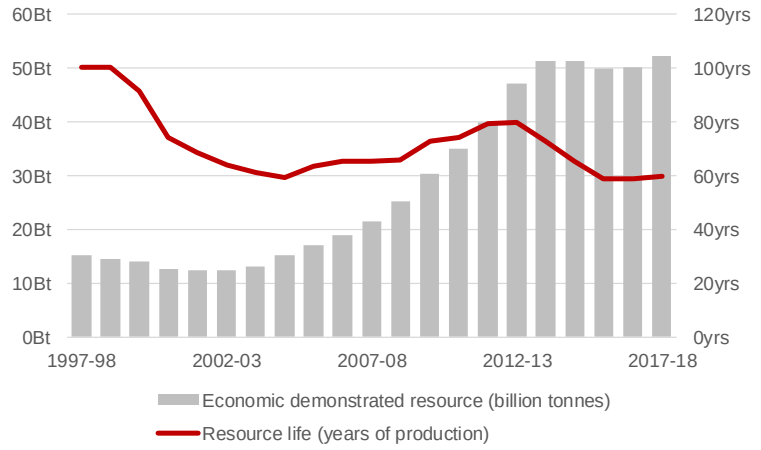


[1] Annual average China spot price in nominal US dollars, cost and freight (CFR). [2] Annual average China steel product price index (2007-08 = 100.0).
Source: World Bank, Commodity Markets; CEIC, China Premium Database; and [3] WA Government 2018-19 Mid-year Financial Projections Statement, December 2018.

- The rapid growth in China's iron ore demand led a rise in the iron ore price from US$28 a tonne in 1999-00 to US$173 a tonne in 2007-08, and averaged US$129 a tonne from 2008-09 to 2013-14.
- The subsequent supply response, mainly from Western Australia, and a slowdown in China's demand, saw the iron ore price fall 42% in 2014-15 and 28% in 2015-16.
- The iron ore price rose 35% to US$70 a tonne in 2016-17 as China's demand for higher-grade ore rose, but fell 0.2% to $US70 a tonne in 2017-18. Steel product prices in China rose 27% in 2017-18.
- The iron ore price is forecast[3] to be US$66 a tonne in 2018-19 and US$62 a tonne in 2019-20.
- In February 2019, the iron ore price rose 16% to US$88 a tonne and steel product prices rose 1%.

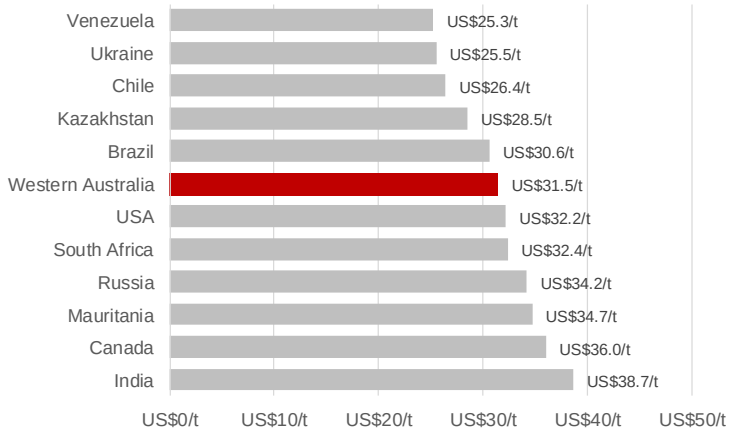
WESTERN AUSTRALIA'S COMPETITIVENESS

Estimated[1] iron ore resources



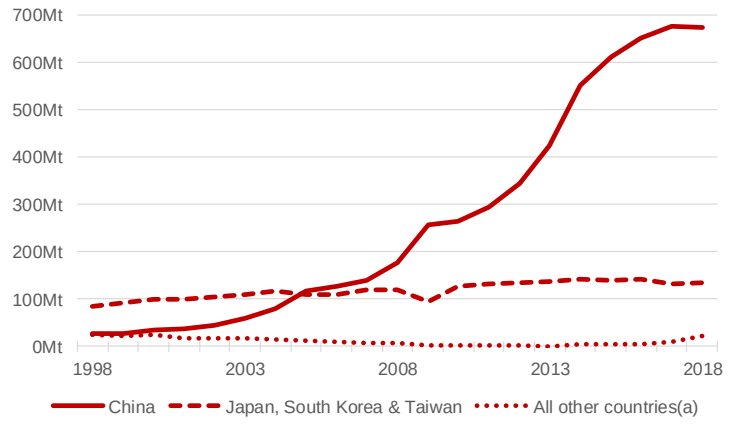
[1] Based on Western Australia's share of Australian iron ore production. [2] US Geological Survey. [3] Compound annual growth rate.
Source: ABS 5204.0 Australian System of National Accounts.

Total cash cost[1] of seaborne iron ore exports: 2018



[1] Price normalised total cash cost in US dollars, cost and freight (CFR), whereby production costs for different iron ore products are adjusted to a benchmark product (62% Fe fines) based on price differentials.
Source: S&P Global Market Intelligence, Mine Economics Model.

Major iron ore export markets



(a) Included mainly India, Vietnam, Indonesia, Malaysia, Singapore and Hong Kong (SAR of China) in 2018.
[1] Excludes China, Japan, South Korea and Taiwan.
Source: ABS 5368.0 International Trade in Goods and Services.

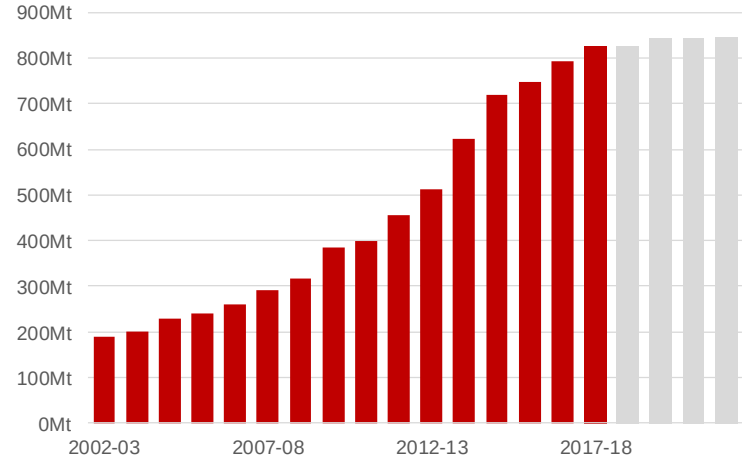
- Western Australia has large iron ore reserves, accounting for 29% of the world's crude iron ore reserves in 2017.[2]
- Western Australia had an estimated 52 billion tonnes of economic demonstrated iron ore resource in 2017-18, which could sustain current production for 60 years.
- Western Australia's reserves had an average iron content of 48% in 2017, below the world average of 49% and Brazil's 52%.[2]
- Western Australia's iron ore production had an average iron content of 62% in 2017, below the world average of 63% and Brazil's 64%.[2]
- Western Australia's iron ore exploration expenditure rose 3% to $290 million in 2018, compared with an annual decline[3] of 6% over the past ten years.

- Western Australia's iron ore miners are among the world's lowest cost seaborne iron ore exporters.
- The average total cash cost[1] of Western Australia's iron ore exports was US$31.5 a tonne in 2018, below the world average of US$31.9 a tonne, although above Venezuela, Ukraine, Chile, Kazakhstan and Brazil.
- Western Australia's major iron ore ports are close to the largest iron ore markets in Asia, reducing shipping costs relative to some of its competitors.
- According to AME, Western Australia's average iron ore shipping spot rate to North China rose 14% to US$7.6 a tonne in 2018, well below Brazil's rate of US$18.5 a tonne.

- Western Australia's iron ore industry has established long-term trade relationships across Asia.
- Over 81% of Western Australia's iron ore exports went to China in 2018, with exports down 0.3% to 674 million tonnes – the first annual decline since 1999.
- Western Australia's iron ore exports to Japan, South Korea and Taiwan rose by a combined 1 million tonnes in 2018.
- Western Australia's iron ore exports to all other countries[1] rose by 13 million tonnes in 2018.
- In 2018, Western Australia accounted for over half of the iron ore imported by China (63%), Japan (51%) and South Korea (67%).

WESTERN AUSTRALIA'S SUPPLY

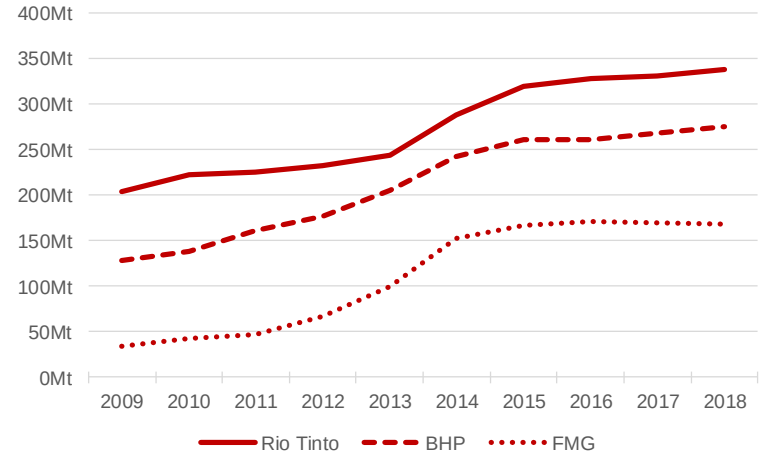
Iron ore sales volumes



[1] Compound annual growth rate.
Source: WA Department of Mines, Industry Regulation and Safety, Resource Data Files; and [2] WA Government 2018-19 Mid-year Financial Projections Statement, December 2018.

- After years of strong growth, the growth in Western Australia's iron ore sales is slowing as recently completed projects ramp-up to full production.
- In 2017-18, Western Australia's iron ore sales rose 4% to 826 million tonnes, below annual average growth[1] of 11% over the past ten years. Iron ore sales were 291 million tonnes in 2007-08.
- Western Australia's annual iron ore sales are forecast[2] to rise to 847 million tonnes by 2021-22.
- Western Australia produced mainly iron ore fines (72%) in 2018, followed by lump (25%) and concentrate (3%).

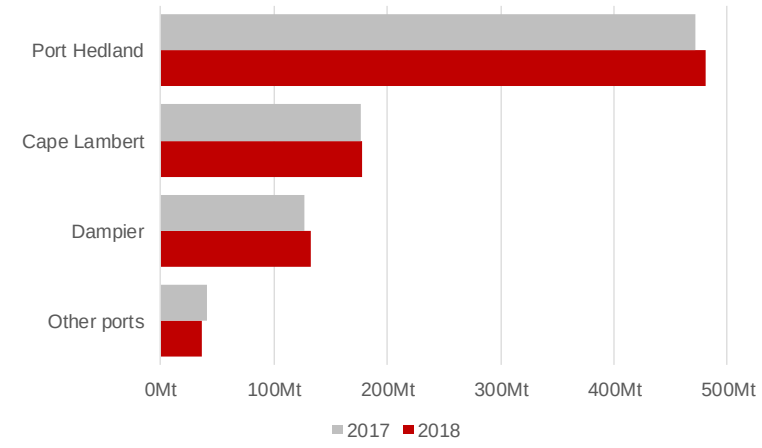
Major iron ore miners' sales[123]



[1] Western Australian operations. [2] Wet tonnes. [3] Inclusive of third party tonnes.
Source: Company production reports.

- Western Australia's major iron ore miners Rio Tinto, BHP and Fortescue Metals Group (FMG) are the largest global iron ore producers behind Vale from Brazil.
- Rio Tinto (360Mtpa) and BHP (290Mtpa) are currently increasing mine production to utilise additional rail and port capacity developed over recent years, and need to develop new mines by 2021 to sustain production or reach production targets.
- Rio Tinto's iron ore sales[1] rose 2% to 338Mt in 2018 and its sales guidance for 2019 is 338-350Mt.
- BHP's iron ore sales[1] rose 2% to 274Mt in 2018 and its production guidance for 2018-19 is 273-283Mt.
- FMG's iron ore sales[1] fell 0.5% to 168Mt in 2018 and its sales guidance for 2018-19 is 165-173Mt.

Major iron ore export ports

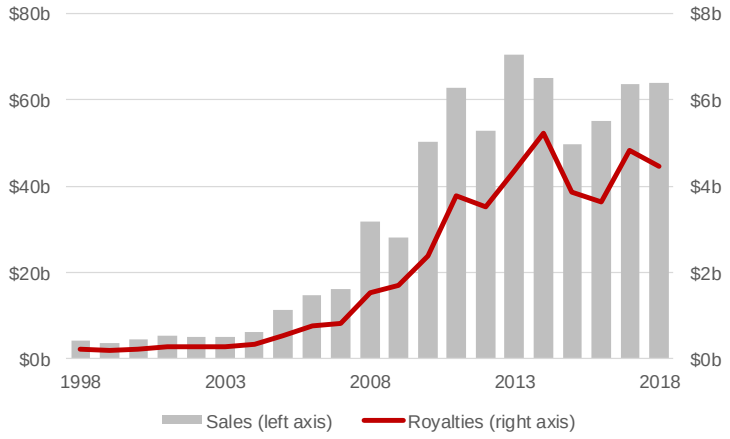


Source: ABS 5368.0 International Trade in Goods and Services.

- Port Hedland is the world's largest bulk export port, while Cape Lambert and Dampier are also major bulk export ports.
- Port Hedland (58%) exported most of Western Australia's iron ore in 2018, followed by Cape Lambert (22%), Dampier (16%) and other ports (4%).
- Port Hedland's iron ore exports rose 2% to 481Mt in 2018. Cape Lambert's iron ore exports rose 1% to 178Mt in 2018. Dampier's iron ore exports rose 4% to 133Mt in 2018.
- Rio Tinto expanded Cape Lambert and Dampier in 2015, raising annual capacity to 210Mt and 150Mt respectively. Annual shipping capacity in Port Hedland is planned to increase from 495Mt to 577Mt.

CONTRIBUTION TO WESTERN AUSTRALIA'S ECONOMY

Value of iron ore sales and royalties



[1] Includes North West Shelf Grants. [2] Compound annual growth rate.
Source: Western Australian Department of Mines, Industry Regulation and Safety, Resource Data Files.

- The iron ore industry is a large part of the Western Australian economy, accounting for 17% of gross state product and 57% of mining industry value added in 2017-18.
- In 2018, the value of iron ore accounted for 43% of Western Australia's merchandise exports and 50% of Western Australia's minerals and petroleum sales.
- The value of Western Australia's iron ore sales rose 1% to $64.0 billion in 2018, below annual growth[2] of 7% over the past ten years.
- Iron ore accounted for 74% of Western Australia's royalties[1] in 2018 and 16% of Western Australia's government revenue in 2017-18.
- Iron ore royalties fell 7% to $4.5 billion in 2018.

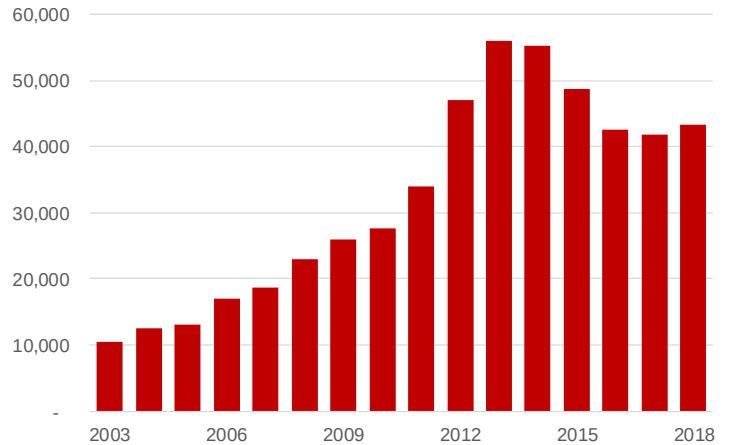
Major iron ore projects

Operator	Mine/deposit	Capex ($m)[1]	Mtpa	Fe (%)[2]	Start-up
Major operating:					
Rio Tinto	Mt Tom Price	n.a.	40	62	1966
BHP	Newman	n.a.	100	62	1969
Rio Tinto	Robe River - Pannawonica	n.a.	35	57	1974
BHP	Yandi	n.a.	80	58	1992
Rio Tinto	Yandicoogina	n.a.	50	59	1998
Rio Tinto	Robe River - West Angelas	1,700	35	62	2002
BHP	Mining Area C	3,000	60	62	2003
Rio Tinto	Nammuldi	n.a.	60	62	2006
Rio Tinto	Hope Downs	3,400	45	61	2007
FMG	Chichester Hub	8,800	100	58	2008
Recently completed:					
FMG	Solomon Hub	9,600	70	58	2013
Gindalbie	Karara*	2,600	8-16	66	2013
CITIC Pacific	Sino Iron*	12,000	24	66	2013
BHP	Jimblebar	3,800	35-55	63	2013
Rio Tinto	Nammuldi (Expansion)	2,200	10-20	62	2014
Hancock Pros.	Roy Hill	13,700	55-60	61	2015
Rio Tinto	Silvergrass	338	10-20	62	2017
Under construction or committed:					
Rio Tinto	Billiard South	118	n.a.	59	2019
Mt Gibson	Koolan Island (Restart)	97	5	63	2019
BHP	Port Hedland Tug Haven	280	n.a.	n.a.	2019
FMG	Eliwana	1,678	30	60	2020
Rio Tinto	Dampier Port Upgrades	70	n.a.	n.a.	2020
BHP	South Flank	4,700	80	62	2021
Rio Tinto	Robe Valley Mesa B,C & H	1,300	n.a.	62	2021
Rio Tinto	West Angelas Deposits C & D	800	n.a.	62	2021
Rio Tinto	Koodaideri	3,500	43-70	60	2021
FMG	Iron Bridge Stage 2*	3,700	22	67	2022

n.a. – not available or not applicable. * Magnetite. [1] Includes mines, and rail and port infrastructure. [2] Product grade if available, otherwise reserve grade for direct shipping ores. Source: S&P Global Market Intelligence; and company announcements, reports and presentations.

- In early April 2019, Western Australia had $16.2 billion of major iron ore projects under construction or committed and $41.6 billion under consideration.
- Rio Tinto is developing the Koodaideri deposit by late 2021 to reach production of 360 million tonnes a year. Rio Tinto also approved a $44 million pre-feasibility study into Koodaideri Phase 2 in the December quarter 2018 and has two other projects to sustain production capacity at the Robe River Joint Venture.
- BHP is developing the South Flank deposit to replace Yandi mine production by mid-2021.
- FMG is developing the Eliwana deposit to replace Firetail mine production by late 2020 and has approved the Iron Bridge Stage 2 development.

Direct iron ore industry employment



Source: Western Australian Department of Mines, Industry Regulation and Safety, Resource Data Files.

- Iron ore accounted for 46% of direct employment in Western Australia's minerals mining industry in 2018 (excluding exploration). Iron ore's share has risen from 32% of total minerals mining employment in 2008.
- Direct employment in Western Australia's iron ore industry rose 4% to 43,349 in 2018, the first annual increase since 2013.
- Iron ore industry direct employment reached 56,065 in 2013.
- Iron ore industry direct employment rose by 7% a year over the ten years to 2018.