



**Australian Government**  
**Department of Industry,  
Science and Resources**

Committee Secretary  
Senate Standing Committee on Rural and Regional Affairs and Transport  
PO Box 6100  
Parliament House  
Canberra ACT 2600

Dear Committee Secretary

**Senate Inquiry into the project known as Iron Boomerang**

The Department of Industry, Science and Resources (the department) provides the attached submission to the Senate Rural and Regional Affairs and Transport Committee.

The role of the department is to provide advice to government on industry, science and resources policy, including by drawing on the expertise of agencies such as the Commonwealth Science and Industry Research Organisation (CSIRO) and Geoscience Australia (GA).

Regulatory responsibility for mineral resources development onshore and as far as three nautical miles seaward of the baseline rests with relevant state and territory governments. The department notes the proposed project Iron Boomerang crosses several state and territory jurisdictions, including Western Australia, Queensland and Northern Territory.

This submission provides the Committee with context underpinning Australia's resources and steel industries, which are relevant to the Committee's consideration of the project known as Iron Boomerang.

Australia is the world's biggest exporter of both iron ore and metallurgical coal<sup>1</sup>, which are a significant source of our national export earnings, regional employment and economic growth. These sectors also support the provision of services to the public through their contribution to state government royalties and corporate and income tax.

On a global scale, Australia is a relatively small producer of steel, producing approximately 5.8 million tonnes per year (mtpa), or approximately 0.3 per cent of total world steel production<sup>2</sup>. There is significant differentiation and specialisation among Australia's existing steel producers.

---

<sup>1</sup> Department of Industry, Science and Resources, *Resources Energy Quarterly June 2022*.

<sup>2</sup> World Steel Association, 2022 World Steel in Figures.

The location of steelmaking facilities is also determined by a range of factors that can influence the viability of such operations. While iron ore and coal supply are important, there are a range of other commercial factors requiring consideration, including infrastructure, access to energy, and distance to domestic and international markets. These factors will also underpin the commercial considerations for the project over time.

Yours Sincerely



Donna Looney  
Head of Division  
Industry Growth Division

11 October 2022

**Industry.gov.au**

Industry House – 10 Binara Street, Canberra City, ACT 2601  
GPO Box 2013 Canberra ACT 2601 ABN: 74 599 608 295



**Australian Government**  
**Department of Industry,  
Science and Resources**

# Submission to Senate Enquiry into project known as Iron Boomerang

---

Prepared for the Senate Rural and Regional Affairs and  
Transport Committee

Date: 10 October 2022

# Contents

Submission and Inquiry Terms of Reference .....	3
Project Iron Boomerang .....	3
Australian iron ore industry.....	4
Australian metallurgical coal industry .....	5
Australian Steel Industry .....	6

## Submission and Inquiry Terms of Reference

This Submission focusses on the following Terms of Reference (ToR) of the inquiry:

- a. Capital, energy and resources required to build and operate the proposed 10 steel plants, 5 at Port Hedland, Western Australia and 5 in the Bowen Basin, Queensland.
- b. Any other related matters.

The Submission provides information and data relevant to understanding the domestic and international context and comparative performance of steelmaking, iron-ore and metallurgical coal mining. It provides the Committee with an overview and outline of the structure of the Australian steel industry and mineral resources supply-chains, and also provides a summary of trends in the industry. It will provide the Committee with some additional relevant context for its deliberations.

## Relevant aspects of the role of the Department of Industry, Science and Resources

The *Department of Industry, Science and Resources* (the department) is the Australian Government's lead agency for policy advice on matters relating to industry, science and resources, including by also drawing on expertise in agencies such as the Commonwealth Science and Industry Research Organisation (CSIRO) and Geoscience Australia (GA).

## Project Iron Boomerang

Project Iron Boomerang was originally proposed by Brisbane based company East West Line Parks Pty Ltd in 2006. It is noted that the proposal requires an estimated \$100 billion investment covering the construction of several new steel mills in Bowen, Queensland, and Newman, Western Australia, linked by a 3300 km rail line for the transport of iron ore and coal between the locations.

The department understands the Iron Boomerang proposal, which would include construction of 10 new blast furnaces – including five in Western Australia and five in Queensland – could result in an additional 44 mtpa of steelmaking capacity (22 mtpa in WA and 22 mtpa in Qld).<sup>1</sup>

This level of production far exceeds current levels of domestic steel demand of around 6 to 7 mtpa. Therefore, if exports are going to be a key component of the commercial offer, this may place the project in direct competition with major low-cost producers in South and Southeast Asia.<sup>2</sup> The Department's projections expect India to challenge for the position as the world's second largest steel producer in the next few years following a government announced target to double India's national steel production capacity from 144 mt to 300 mt by 2030-31.<sup>3</sup> Total steel production for South East Asian countries is projected to grow by around a further 30 mtpa by 2027.<sup>4</sup> The global steel market can be cyclical in nature and this may impact on the feasibility and timing of any project investment in the sector.

While iron ore and coal supply are key factors for Australian steel producers, other important commercial factors are taken into account by investors considering the feasibility of both greenfield and brownfield steel projects. This includes labour and overhead costs, infrastructure and distance to domestic and international markets.

---

<sup>1</sup> <https://www.ewlp.com.au/overview>.

<sup>2</sup> The World Steel Association data for 2020 and 2021 indicates very little trade in pig iron: only about 1 per cent of the total pig iron output (the primary output of the blast oxygen furnace) was traded globally, i.e. about 14 mt was exported out of the total 1,354 mt produced.

<sup>3</sup> Department of Industry, Science, Energy and Resources, Commonwealth of Australia Resources and Energy Quarterly March 2022.

<sup>4</sup> National Steel Policy, 2017.

World Steel Association - World Steel in Figures 2021.

It is understood that there is currently limited publicly available information on the commerciality of the project – such as detailed business models, financial analysis and modelling assumptions (including on potential domestic and export markets). These will be important for evaluation of the project by commercial investors, and debt and equity markets.

## Australian iron ore industry

### Size and exports

Australia is the world's largest producer and exporter of iron ore. In the 2021-22 financial year, Australia produced 928 mt and exported 875 mt of iron ore. The industry is globally significant, with Australian iron ore exports representing 54 per cent of total global exports in 2021.<sup>5</sup> It is also a key contributor to Australia's gross domestic product. Iron ore was Australia's largest commodity export by value in the 2021-22 financial year, representing 21 per cent of all Australian goods and services exports, totalling \$134 billion.<sup>6</sup>

### Industry structure

Australian iron ore production is dominated by BHP, Fortescue Metals Group (FMG) and Rio Tinto. In 2022, BHP, FMG and Rio Tinto together are expected to produce 797 mt of iron ore, with the inclusion of Hancock Prospecting (the fourth largest producer), total production by these companies is 856 mt, or 93 per cent of total production.

Australian producers have made long term capital and infrastructure investments that have helped to achieve scale, and capitalise on strong demand for their products from steelmakers in Asian markets. Australia's iron ore production by state in 2021 is listed at Table 1 below.

**Table 1. Current iron ore production by state (2021)**

State	2021 estimated production (in mwmt)*
Western Australia	911
South Australia	5.8
Tasmania	2.8
Northern Territory	2.5
<b>Australian Total</b>	<b>922</b>

Source: Department of Industry, Science and Resources, *Resources and Energy Quarterly, September 2022*.

Note: mwmt means million (wet) metric tonnes.

### Factors of competitiveness

Australian iron ore has multiple competitive advantages. Processing methods for Australian ores are comparatively less capital and energy intensive when compared to global competitors such as China and Brazil<sup>7</sup>. Australian ores also tend to have ore to product ratios of around 1.2:1, contrasting favourably to the 5:1 ratio that is typical of many Chinese magnetite mines, and require less mining and processing per tonne of finished product.

Australian iron ore is also highly suited and optimised to the requirements of North Asian blast furnace steel plants, which reflects the long standing and competitive trade relationships that industry has developed over time. Australian ores are of relatively high quality due to the high iron

<sup>5</sup> Department of Industry, Science and Resources, *Resources and Energy Quarterly, September 2022*.

<sup>6</sup> Department of Industry, Science and Resources, *Resources and Energy Quarterly, September 2022*.

<sup>7</sup> [Best in Class: Iron Ore](#) Minerals Council of Australia 2021.

content, and low gangue (silica and alumina). These qualities reduce the ore processing required, which consequently lowers capital and operating costs.<sup>8</sup>

Australian producers in the Pilbara region of Western Australia also have significant comparative advantages due to their proximity to key markets, and investment in highly efficient and optimised infrastructure. Current freight costs from the Pilbara to North Asian markets are approximately one third of the current costs of freight from Brazil, the world's second biggest iron ore exporter.<sup>9</sup>

## Historical trends and changes

The historic growth of Australia's iron ore industry has been linked to economic development of the Asia-Pacific region. The industrialisation of Japan drove the early development of Pilbara iron ore resources in the 1960s and 1970s. This was followed by the development of Taiwan and South Korea's steel industries in the 1970s and 1980s, which drove exports to more than 200 mtpa by the early 2000s. The rapid industrialisation of China initiated the Pilbara's most recent, 21st century mining boom.<sup>10</sup> From 2005-21, over one billion tonnes of iron ore production has come on line globally. In this period, the majority (64 per cent) of all new projects were located in Australia, while 19 per cent were in Brazil.<sup>11</sup>

## Employment and economic benefits

The Australian iron ore sector is made up of global mining companies through to junior miners, and also firms in the Mining Equipment, Technology and Services (METS) sector. Iron ore exports are vital to the Australian economy, supporting the provision of services to the public through the industry's contribution to export revenues, state government royalties and corporate and income tax.

In 2020-21, iron ore miners paid \$9.8 billion in royalties to the Western Australian State Government, while supporting over 60,810 jobs, the majority in regional areas.<sup>12</sup>

## Australian metallurgical coal industry

### Size and exports

Australia is the world's second largest producer of metallurgical coal. In the 2021-22 financial year, Australia produced 172 mt of metallurgical coal. We are also the world's largest exporter of metallurgical coal, exporting 162 mt in 2021-22, valued at \$64 billion.<sup>13</sup> Metallurgical coal was Australia's third biggest resources and energy export by value in 2021-22.

The industry is export oriented and currently supports industrial development in key trading partner economies. Major export destinations for Australian metallurgical coal in 2021-22 included India (49 mt), Japan (38 mt), South Korea (24 mt) and Taiwan (10 mt).<sup>14</sup>

### Industry structure

The Australian coal industry consists of a combination of private and publicly-listed companies, some domiciled in Australia and others based internationally. BHP Mitsubishi Alliance (BMA) is Australia's largest metallurgical coal producer. Other major producers include Anglo American, Glencore, Yancoal, and Stanmore Resources. In 2022, these five producers (BMA, Anglo American, Glencore,

---

<sup>8</sup> [Best in Class: Iron Ore](#), Minerals Council of Australia 2021.

<sup>9</sup> IHS Markit, 2021.

<sup>10</sup> [Best in Class: Iron Ore](#), Minerals Council of Australia 2021.

<sup>11</sup> Iron Ore Project Summary 2021, Wood Mackenzie 2021.

<sup>12</sup> [Western Australian Mineral and Petroleum Statistics Digest 2020-21](#), WA Government (2022).

<sup>13</sup> *Resources and Energy Quarterly, September 2022*, Department of Industry, Science and Resources, 2022.

<sup>14</sup> *Resources and Energy Quarterly, September 2022*, Department of Industry, Science and Resources, 2022.

Yancoal and Stanmore) contributed over 58 per cent of Australia's metallurgical coal production, with the remaining 42 per cent comprised of production from over 50 other companies.<sup>15</sup>

In 2020, Australia had approximately 91 operating coal mines.<sup>16</sup> Depending on each deposit, coal mines can produce either thermal or metallurgical coal, or a combination of both. Most black coal production takes place in Queensland and New South Wales.

## Factors of competitiveness

Australia is a dominant and low cost producer of metallurgical coal, with competitive mining technology and regulatory environments. Australia is recognised as a global development hub for technologies in the mining and resources sector due to strong technological capabilities in mining.

Metallurgical coal encompasses coking coal and pulverised coal injection (PCI) coal – which are both primarily used in the production of steel. Coking coal is charged into blast furnaces (BF) to produce molten iron, while PCI coal is injected into the bottom of blast furnaces to improve process efficiencies.

Many of the metallurgical coals produced by Australia are vital components of coal blends used in major steel mills around the world. Australian metallurgical coals are competitive due to their specific properties which ensure the coke and PCI products produced optimise BF steel plant performance.<sup>17</sup>

## Historical trends and changes

Prior to 1950, Australian coal production was centred in the Illawarra and Hunter regions of New South Wales, due to the location of steelworks in Newcastle and Wollongong. The growth of Japan's steel industry in the 1950s led to further development of metallurgical coal resources, and the development of mining in the Bowen Basin in Queensland.<sup>18</sup> Today, the Bowen Basin is Australia's largest metallurgical coal producing region, and exports predominantly serve key markets in India, Japan, South Korea and Taiwan.

## Employment and economic benefits

Australia's coal industry (both metallurgical and thermal) is a significant employer, accounting for approximately 42,000 direct jobs.<sup>19</sup> The majority of these jobs are located in regional areas in Queensland and New South Wales. In the 2021-22 financial year, the industry is also expected to have paid over \$10 billion in royalties (thermal and metallurgical coal combined).

## Australian Steel Industry

### Size and exports

Australia produces approximately 5.8 mtpa;<sup>20</sup> a relatively small producer on the global scale (approximately 0.3 per cent of total global steel production). Australia's steel producers primarily specialise in long products, flat steel products and grinding media. In 2020-21 Australia exported 0.69 million tonnes of iron and steel products, with a nominal value of \$0.81 billion. Australia is a net importer of steel products with 2.2 mtpa of iron and steel imports in 2021, with a nominal value of

---

<sup>15</sup> Coal Supply Data Q2 2022, Wood Mackenzie 2022.

<sup>16</sup> Australia's Identified Mineral Resources 2021, Geoscience Australia 2021.

<sup>17</sup> [Best in Class: Metallurgical Coal](#), Minerals Council of Australia (2021).

<sup>18</sup> [Best in Class: Metallurgical Coal](#), Minerals Council of Australia (2021).

<sup>19</sup> *Resources and Energy Quarterly*, Department of Industry, Science and Resources *September 2022*.

<sup>20</sup> World Steel in Figures, World Steel Association, 2022.



\$3.5 billion.<sup>21</sup> Australia has the capability to supply in excess of 90 per cent of the steel grades and qualities required domestically.<sup>22</sup>

## Industry structure

Australia’s three primary steel producers operate five facilities (refer Table 2). Their respective locations are illustrated below (Figure 1) – with the two blast furnaces located in Port Kembla, NSW and Whyalla, SA, and electric arc furnaces in Newcastle, Sydney and Laverton.

**Table 2: Australian main steelmaking facilities**

Steel Plant	State	Technology	Production Capacity	Started	Employees
BlueScope Port Kembla	NSW	Blast Furnace	~3 mtpa	1928	~3,000
GFG Whyalla Steelworks	SA	Blast Furnace	~1.2 mtpa	1941	~1,350
GFG Laverton Steel Plant	VIC	Electric Arc Furnace	~0.7 mtpa	1987	~300
GFG Sydney Steel Plant	NSW	Electric Arc Furnace	~0.6 mtpa	1992	/
Molycop Newcastle Steel Plant	NSW	Electric Arc Furnace	~0.3 mtpa	1918	~600

**Figure 1: Location of Australian steelmaking facilities**



## Employment and economic benefit

The sector is made up of small, medium and very large enterprises that contribute \$13.7 billion to GDP (industry value add) and employ more than 116,000 people, with approximately 22,000 working in primary steel production; 42,000 in heavy fabrication and 52,000 in medium fabrication and

<sup>21</sup> International Trade in Goods and Services, Australia, 5368.0, ABS.

<sup>22</sup> Ensuring a Sustainable Australian Steel Industry in the 2020s and Beyond, Australian Steel Institute, 2020.

general manufacturing.<sup>23</sup> Our largest steel manufacturers are located in regional areas and are important contributors to regional economies and employment.

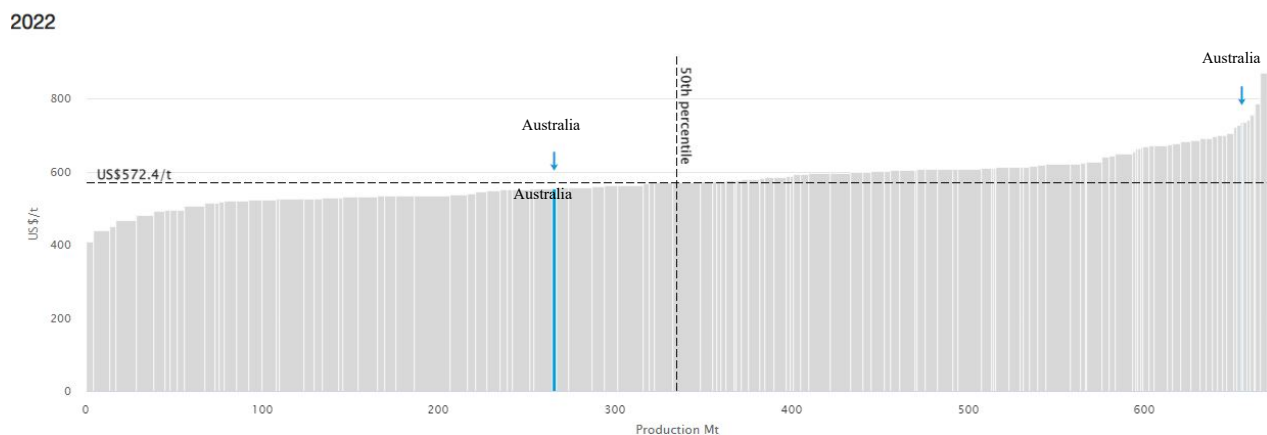
## Historical trends and changes

In recent decades, steelmaking capacity in Australia has declined - BHP closed its Newcastle steelworks in 1999, BlueScope turned off its No. 6 Blast Furnace at Port Kembla in 2011 - with Australia significantly reducing steel exports.<sup>24</sup> In more recent years, the Australian steel industry has performed strongly, supported by high global steel prices. BlueScope has announced it is undertaking feasibility studies to reline its No.6 Blast Furnace, including options for future adoption of lower emissions steelmaking once it is technically and commercially viable.<sup>25</sup>

## Factors of competitiveness

The estimated costs per tonne of steel produced at Australian plants<sup>26</sup> relative to other plants around the world using the blast furnace method are shown in Figure 2.<sup>27</sup> The relative positions for Australia on the steel cost curve are indicated by the arrows. While iron ore and coal supply benefit Australian steel producers relative to the rest of the world, other commercial factors must be considered when investigating the feasibility of both greenfield and brownfield steel projects, including labour and overhead costs, infrastructure and distance to domestic and international markets. The availability of commercially feasible technologies for the transition to low emissions steel production is also pivotal for future competitiveness. The local steel manufacturers have committed to be consistent with Australia's emissions reduction targets (43 per cent below 2005 levels by 2020 and net zero by 2050).

Figure 2: Global blast furnace crude steel production costs by facility, (Source: CRU 2022)



Our proximity to China and Japan puts domestic products in direct competition with these significant steel producing countries for non-specialty products, where decisions to purchase are based on price. Australia's geographic proximity to this substantial growth in steelmaking has underpinned strong growth in our national resources sector.

Australia continues to maintain its reputation as a reliable source of iron ore and metallurgical coal to our export and trade partners, and the sectors continue to deliver significant export earnings.

<sup>23</sup> Australian Industry, ABS 81550DO003\_202021, 2020-21.

<sup>24</sup> BlueScope Steel Annual Report, 2011 ASX Release.

<sup>25</sup> BlueScope Steel, 15 August 2022, pg. 2 ASX Release.

<sup>26</sup> The plants have not been identified to protect confidentiality.

<sup>27</sup> CRU 2022.

Longer term, there are prospects for greater use of hydrogen in steelmaking and industrial processes, potentially replacing the need for metallurgical coal.