



# BlueScope Blast Furnace No.6 Reline

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Critical State Significant Infrastructure Assessment  
CSSI-22545215

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# Glossary

Abbreviation	Definition
<b>BDAR</b>	Biodiversity Development Assessment Report
<b>Commissioning</b>	Bringing all services to BF6 into live condition, testing and verifying systems and ramping up to full production capacity
<b>Construction</b>	Demolition and removal of plant and equipment, removal of the blast furnace lining, repairs and installation of new equipment and infrastructure
<b>Council</b>	Wollongong City Council
<b>CSSI</b>	Critical State Significant Infrastructure
<b>DA</b>	Development Application
<b>Department</b>	Department of Planning and Environment (DPE)
<b>DPE</b>	Department of Planning and Environment
<b>EIS</b>	Environmental Impact Statement titled <i>Blast Furnace No.6 Reline Project Environmental Impact Statement</i> prepared by GHD dated 7 March 2022
<b>EPA</b>	Environment Protection Authority
<b>EP&amp;A Act</b>	<i>Environmental Planning and Assessment Act 1979</i>
<b>EP&amp;A Regulation</b>	Environmental Planning and Assessment Regulation 2021
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
<b>EPI</b>	Environmental Planning Instrument
<b>EPL</b>	Environment Protection Licence
<b>ESD</b>	Ecologically Sustainable Development
<b>FRNSW</b>	Fire and Rescue NSW
<b>Heritage NSW</b>	Heritage NSW, Department of Premier and Cabinet
<b>LEP</b>	Local Environmental Plan
<b>Minister</b>	Minister for Planning and Public Spaces
<b>Operation</b>	Receipt and processing of raw materials, production of molten iron, transfer of molten iron to other plant within the steelworks for steelmaking, collection and formation of slag into rock and granulated slag, capture and reuse of blast furnace gas

Abbreviation	Definition
<b>Planning Secretary</b>	Secretary of the Department of Planning and Environment
<b>Planning Systems SEPP</b>	State Environmental Planning Policy (Planning Systems) 2021
<b>Project</b>	The project as described in the EIS and RTS for relining Blast Furnace No. 6 at the Port Kembla Steelworks
<b>Proponent</b>	BlueScope Steel (AIS) Pty Ltd
<b>RTS</b>	Response to Submissions titled <i>Blast Furnace No.6 Reline Project Response to Submissions</i> prepared by GHD dated 6 July 2022
<b>SEARs</b>	Planning Secretary's Environmental Assessment Requirements
<b>SEPP</b>	State Environmental Planning Policy
<b>SSI</b>	State Significant Infrastructure
<b>TfNSW</b>	Transport for NSW

# Executive Summary

## Introduction

This report details the Department of Planning and Environment's (the Department) assessment of a State significant infrastructure application (SSI-22545215) for the Blast Furnace No.6 Reline Project. BlueScope Steel (AIS) Pty Ltd (the Proponent) proposes to reline, commission and operate Blast Furnace No.6 (BF6) at the Port Kembla Steelworks in the Wollongong local government area.

The Port Kembla Steelworks is the largest manufacturing facility in Australia and has produced steel since 1928. The steelworks directly employs 4,500 people, supports a total of 10,000 jobs in the Illawarra region and injects around \$10 billion annually into the NSW economy.

The steelworks currently produces 3 million tonnes of steel per year using Blast Furnace No.5 (BF5). A blast furnace is the key operating unit in steelmaking, converting iron ore into molten iron for processing into steel products. BF5 will come to the end of its operating life around 2026, so the Proponent is proposing to recommission BF6 to enable continued production of steel beyond 2026. BF6 was first built in 1996 and operated for 15 years before being placed into care and maintenance in 2011. Relining and upgrading works are required before BF6 can recommence steelmaking.

## Site Context

The steelworks are located on 750 hectares (ha) of heavy industrial zoned land at Five Islands Road, Port Kembla, and is around 2 kilometres (km) south of the city of Wollongong. It is located adjacent to the Port Kembla Inner Harbour and is surrounded by other heavy industry and ship import and export berths. The steelworks comprises numerous operational areas including raw material imports and processing, coke making and iron making, scrap steel recycling and rolling and strip mills for producing a range of steel products.

The BF6 operational area is located toward the centre of the steelworks site, with the nearest residential area of Cringila located 1.1 km to the south-west. The South Coast rail line runs through the site and the key road access points are Springhill Road, Five Islands Road and Flinders Street. The site drains into two creeks, Main Drain and Allans Creek, which discharge into the Inner Harbour.

## Current Proposal

The project includes:

- demolition and removal of the existing refractory lining and internal cooling elements within BF6
- relining the interior of the furnace with a new refractory lining and new internal cooling elements
- modification and upgrade of associated infrastructure that supports the operation of the blast furnace.

The relining works would take 3 years to complete. There would be a short commissioning phase and then the blast furnace would operate for 20 years. The development has a capital investment value of \$789 million and is expected to generate between 250 to 1,000 construction jobs and retain 4,500 operational jobs.

## Statutory Context

On 3 May 2021, the then Minister for Planning and Public Spaces (the Minister) made an order declaring the project Critical State Significant Infrastructure (CSSI) and State significant infrastructure (SSI) under sections 5.12(4) and 5.13 of the *Environmental Planning and Assessment Act, 1979* (EP&A Act).

As the project has been declared CSSI, the Minister for Planning is the approval authority for the project.

### *Engagement*

The Department exhibited the Environmental Impact Statement (EIS) for the project from Thursday 24 March 2022 until Wednesday 20 April 2022 (28 days) and consulted key government agencies including Wollongong City Council (Council). The Department received 445 submissions from the public (416 support, 21 objections and 8 comments) and advice from 7 government agencies. Council provided a submission supporting the proposal and all government agencies provided comments.

Public submissions supporting the project noted the economic and employment benefits to local people, the need for domestic steel production and the environmental improvements integrated into the project. Submissions objecting raised concerns about locking in greenhouse gas emissions, the need to adopt low emissions steelmaking technologies and the environmental impacts of using coal in the blast furnace, that is sourced from under the Sydney drinking water catchment.

The key matters raised by Government agencies related to wastewater discharges and air emissions. Council noted the project is critical for the ongoing economic viability of Wollongong and the region.

The Applicant submitted a Response to Submissions (RTS) on 22 July 2022 including additional information on water and air quality, noise, hazards and stakeholder consultation. The RTS was made publicly available on the Department's website and provided to key agencies. These agencies confirmed the RTS had sufficiently addressed the issues and provided recommended conditions for the project.

### *Assessment*

The Department has assessed the merits of the project in accordance with the requirements of the EP&A Act and applicable NSW Government policies and guidelines. The key issues for the assessment relate to water quality, air quality, greenhouse gas emissions, social and economic. Other matters were also assessed including hazards and risk, traffic, noise and vibration, contamination, waste management, social and economic, heritage and biodiversity.

### **Water Quality**

The steelworks are located adjacent to the Inner Harbour of Port Kembla, which is a moderate-highly disturbed waterway that has elevated sediments and heavy metals from over 100 years of industrial activity and previous dredging campaigns.

The project would generate wastewater streams similar in composition and quantity to the current operation of BF5. This includes warmed saltwater that is used to cool the blast furnace, and some discharges from the gas cleaning process (blow down water).

Saltwater is extracted from the Outer Harbour and used once in cooling before being discharged. The water is around 0.5 to 1 degrees Celsius warmer than the ambient sea temperature at the point of discharge. The potential impacts of warm saltwater discharges are considered minor and partially offset by cold water discharges from other approved industrial activities in the port. Thermal modelling concluded there would be no major impacts on aquatic ecology in the Inner Harbour due to the slight increase in water temperatures.

Water from gas cleaning would be treated in an existing effluent treatment system, with a portion reused for gas cleaning and a component regularly discharged. Gas generated in the blast furnace contains impurities which are extracted through a wet scrubber. The resulting wastewater contains some cyanide

and ammonia that is absorbed during the gas cleaning process. These discharges are diluted by the larger volume of saltwater discharges from the cooling process. All discharges from the existing operations are monitored and managed via an Environment Protection Licence (EPL).

The Environment Protection Authority (EPA) advised there is an ongoing pollution reduction program for BF5 which aims to reduce cyanide and ammonia in the blow down water. As part of this process, the Proponent is assessing wastewater treatment options that would be installed for BF5 and would then be used for BF6 when it becomes operational. An ozone oxidation plant is currently the preferred option.

The EPA recommended the outcomes of the pollution reduction program be implemented for BF6 to ensure the quality of wastewater discharges improve and contribute to an overall improvement in waterway health. The Department has included this recommendation as a condition of approval.

Other recommended conditions include stringent discharge criteria, design and installation of the additional wastewater treatment system prior to operation, a monitoring program to verify the effectiveness of the system, and a requirement for further contingencies if needed.

The Department's assessment concluded the quality of wastewater discharges from BF6 would improve when compared to the existing operation of BF5 as additional wastewater treatment would be installed prior to the operation of BF6. The design of the wastewater treatment system would be reviewed by the EPA and approved by the Planning Secretary and a verification program would be established to ensure the effective treatment of wastewater before discharge into the Inner Harbour.

### **Air Quality**

Air emissions from operation of the blast furnace are well understood given BF5 is currently operating and BF6 previously operated for 15 years. The primary pollutants include particulates (TSP and PM<sub>10</sub>), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>) and hydrogen sulfide (H<sub>2</sub>S). Conservative air quality modeling predicted operation of BF6 would comply with the NSW impact assessment criteria at all sensitive receivers, except for one minor 24-hour exceedance of particulates (PM<sub>10</sub>). Further analysis showed this was due to elevated background levels, which presently account for 90% of total emissions.

Emissions from BF6 are predicted to be lower than BF5 as new and upgraded emission controls would operate on BF6. These include a condensing unit for the waste slag handling to reduce H<sub>2</sub>S, a waste gas heat recovery unit reducing SO<sub>2</sub> emissions, more efficient burners reducing CO and NO<sub>2</sub> emissions and a second dedusting hood to reduce particulate and gaseous emissions. The EPA requested the Proponent verify the emission reductions that would be achieved with these new and upgraded controls, recommending a verification report and monitoring. The Department has included these recommendations in the conditions of approval.

The Department's assessment concludes the project would improve air emissions compared to existing operations and would not result in adverse air quality impacts at surrounding sensitive receivers.

### **Greenhouse Gas Emissions (GHG)**

GHG emissions and the resulting impacts on climate change was raised as a key concern in submissions objecting to the development. Submitters recommended urgent adoption of green steel making methods, increased recycling of scrap steel and use of renewable energy.

In 2021, the entire steelworks emitted 6,868,848 tonnes of carbon dioxide equivalent (tCO<sub>2-e</sub>). Operation of BF6 would generate slightly less GHG emissions compared to the existing BF5, with a

reduction of around 2.5% predicted from the new technology proposed on BF6. The key emission reductions from new technology include:

- 11,000 tCO<sub>2-e</sub> per year from a top gas recovery turbine, which uses pressure and thermal energy from the blast furnace to offset electricity input
- 11,000 tCO<sub>2-e</sub> per year from a hot blast waste gas heat recovery unit, which offsets fuel consumption
- 150,000 tCO<sub>2-e</sub> per year from the installation of dual lance tuyeres which would enable future reuse of coke ovens gas in the blast furnace and ultimately hydrogen, once available.

There are other emission reductions inherent in the steelmaking process, including the use of waste slag in cement production, offsetting more than 400,000 tCO<sub>2-e</sub> per year by replacing raw materials, and the recycling of scrap steel, which makes up approximately 25% of the steel produced on site.

The new technology installed on BF6 would reduce GHG emissions by around 172,000 tCO<sub>2-e</sub> per year. There is limited scope to reduce emissions further without a large-scale hydrogen plant to provide the substantial energy requirements, or a fundamental change in the way steel is made on site.

The Proponent is pursuing alternative steelmaking technologies, with the aim of achieving low to zero emissions steelmaking at a commercially viable scale by 2050. Projects currently being pursued include low emissions iron production using an iron melter, a pilot hydrogen plant and hydrogen hub, a renewable manufacturing zone and solar power purchasing agreements, to provide up to 20% of the steelworks electricity consumption. These initiatives are consistent with the Australian Government's commitment under the Paris Agreement to achieve net zero emissions by 2050.

Steel is currently a carbon intensive material to produce and significant levels of investment and long-term planning are needed to transition to low carbon manufacturing processes. The Proponent has started this process and the Department acknowledges the transition to low emissions steelmaking will take some time to implement. The project would ensure steelmaking can continue while alternative processes are developed to a commercial scale.

The Department has recommended the Proponent implement best practice measures to reduce the greenhouse gas emissions from the project and provide reports every three years on the progress of implementing abatement technologies to reduce emissions.

Further to the above, the EPA recently released a draft Climate Change Policy and Action Plan (September 2022) setting out a pathway for achieving net zero emissions in NSW by 2050. This includes establishing sector targets for industries like manufacturing, to guide planning and licensing decisions in the future.

The Department's assessment concludes the GHG emissions from the project are consistent with the existing operations and the Proponent is pursuing alternative low emissions steelmaking processes to substantially reduce emissions by 2050.

## **Social and Economic**

The social and economic benefits of the project were a key matter raised in public submissions supporting the project. The Proponent's consideration of the social and economic impacts and benefits found there would be minimal amenity impacts and these would be similar to the existing operation with BF5. The project would have considerable social and economic benefits through the creation of at least 250 construction jobs and retention of 4,500 existing jobs at the steelworks. The steelworks contributes

\$6.5 billion to the regional economy each year and the continuation of steelmaking would ensure these economic benefits continue. The Department's assessment concluded the project would make a substantial social and economic contribution to the Illawarra region and support the growth of the NSW economy.

### **Other Issues**

The Department's assessment of hazards and risk, traffic, noise and vibration, contamination, waste management, social and economic, heritage and biodiversity concluded the project would have minimal impacts.

### *Summary*

The relining and operation of BF6 would enable continued domestic production of steel after 2026, ensuring supply chain security for nation building projects including significant infrastructure, defence, commercial, industrial and residential building projects. The project is critical to NSW for economic and employment reasons as the steelworks injects \$10 billion annually into the NSW economy, directly employs 4,500 people and supports 10,000 jobs in the Illawarra region. The Department's assessment has concluded the impacts of the project would be similar to the existing operation with BF5, with some improvements due to upgraded technology. The impacts of the project can be mitigated and managed to an acceptable level of environmental performance, subject to the recommended conditions.

Consequently, the Department considers the project is in the public interest and is recommended for approval, subject to conditions.

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# 1 Introduction

This report details the Department of Planning and Environment’s (the Department) assessment of the State Significant Infrastructure application (SSI-22545215) for the Blast Furnace No.6 Reline Project.

BlueScope Steel (AIS) Pty Ltd (the Proponent) operates the Port Kembla Steelworks (steelworks) in the Wollongong local government area. The Proponent currently operates Blast Furnace No. 5 (BF5), which is the key operating unit in steelmaking and is expected to reach the end of its operational life by around 2026. Blast Furnace No.6 (BF6) is an existing piece of infrastructure that commenced operation in 1996 and ran for 15 years before being placed into care and maintenance in 2011. The project involves relining and upgrading Blast Furnace No.6 so that it can be brought back into service to continue steelmaking before Blast Furnace No.5 is decommissioned.

Figure 1 shows the regional location of the steelworks.



Figure 1 | Regional Location

## 1.1 Project Background

The steelworks is the largest manufacturing facility in Australia and has produced steel since 1928. The steelworks produces 3 million tonnes of steel per annum with around 2.2 million tonnes sold in the Australian domestic market. Steel is one of the most commonly used construction materials in the world. The steelworks directly employs 4,500 people and is estimated to support a total of 10,000 jobs in the Illawarra region. The steelworks injects around \$10 billion annually into the NSW economy.

The proposed relining and upgrade of BF6 would ensure continued steelmaking once BF5 is decommissioned. The relining project would enable continued domestic production of steel ensuring supply chain security for infrastructure, defence, commercial and residential building projects. The relining involves removing and replacing the refractory lining which is required to withstand high operating temperatures (around 1,500 degrees). Relining campaigns are required approximately every 15 to 20 years.

The Proponent requested the then Minister for Planning and Public Spaces declare the Blast Furnace No.6 Reline Project to be Critical State Significant Infrastructure (CSSI) as the continued production of steel is essential to NSW for economic and employment reasons. On 3 May 2021, the then Minister for Planning and Public Spaces made an order declaring the Blast Furnace No.6 Reline Project to be CSSI and State significant infrastructure (SSI) under sections 5.12(4) and 5.13 of the *Environmental Planning and Assessment Act, 1979* (EP&A Act).

## 1.2 Site Description

The steelworks are located on 750 hectares (ha) of heavy industrial zoned land at Five Islands Road, Port Kembla. The steelworks are located around the Inner Harbour of Port Kembla where iron ore, coke and other raw materials are unloaded from ships for use in steel making. The key operational areas of the steelworks, as shown on **Figure 2**, include iron making, coke making, steelmaking, recycling areas and the rolling mills.

BF6 is located within the iron making area. The steelworks span multiple lots, with the project undertaken across four lots, Lot 1 DP 606434, Lot 1 DP 606432, Lot 1 DP 595307 and Lot 1 DP 606430.

Heavy industry surrounds the steelworks including fertiliser production facilities, petroleum storage, grain storage, a coal terminal and an approved gas terminal. Multiple ship berths are located within the Inner Harbour and the Port Kembla Port Authority has an approved Concept Plan for construction of additional port facilities in the Outer Harbour over the next 15 years. The nearest residential area to BF6 is Cringila, which is located 1.1 kilometres (km) to the south-west. Other residential areas include Warrawong over 1 km to the south and Lake Heights 1.4 km to the south-west. The Wollongong town centre is located 4 km to the north of BF6 and 2 km to the north of the steelworks site boundary.

The South Coast rail line runs through the steelworks, with three stations located along the site's western boundary. The site has access to Springhill Road in the north and west, Five Islands Road to the west and Flinders Street to the south. Five Islands Road connects to the Princes Motorway 2 km to the west of the steelworks.

The site drains into two creeks, Main Drain and Allans Creek, which discharge into Tom Thumb Lagoon (also referred to as the Inner Harbour).

## 2 Project

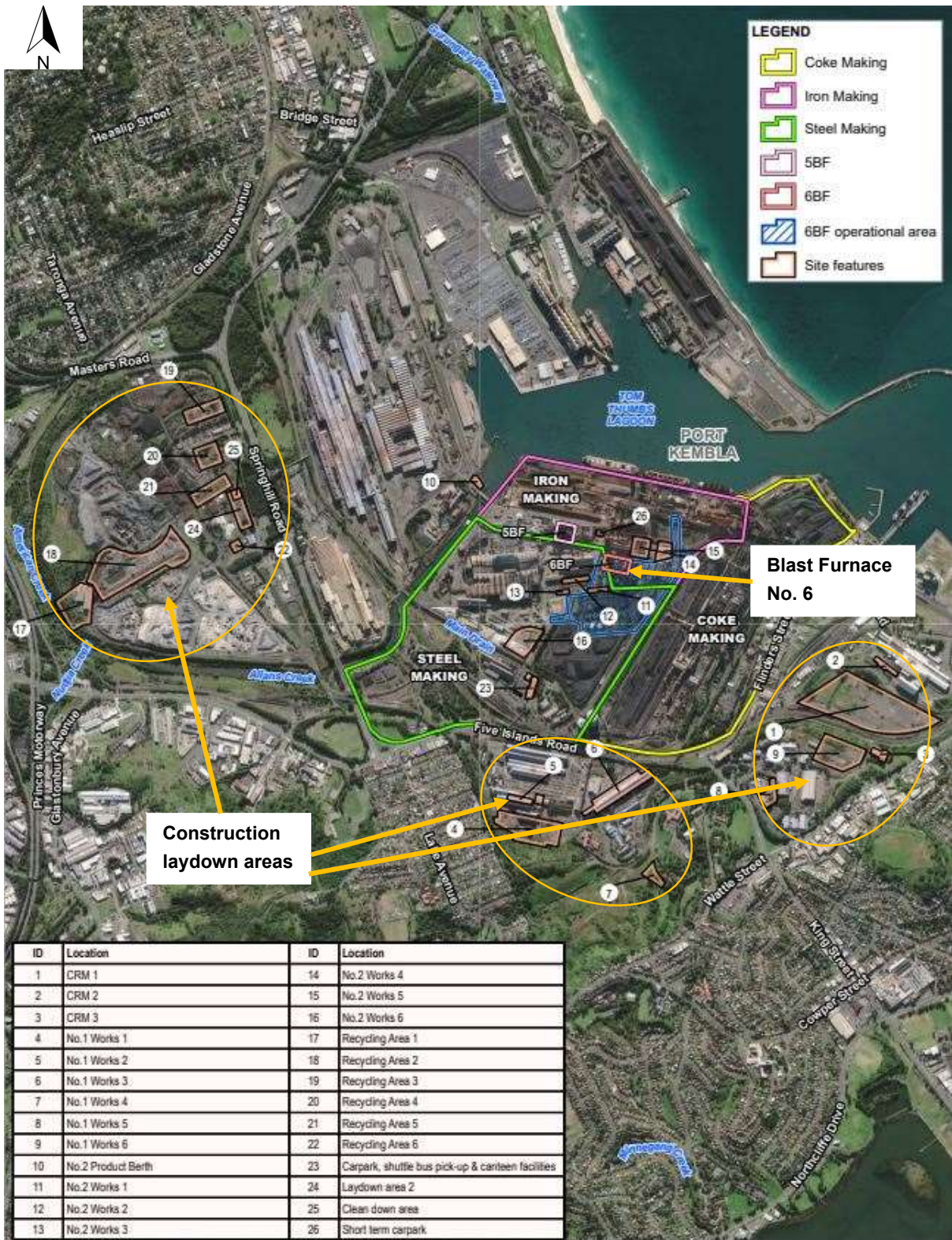
### 2.1 Description of the Project

The project involves removing and replacing the refractory lining which is required to withstand high operating temperatures (around 1,500 degrees). The major components of the project are summarised in **Table 1**, shown in **Figure 2**, and described in full in the EIS and RTS in **Appendix A**.

**Figure 3** and **Figure 4** show components of BF6.

**Table 1 | Main Components of the Project**

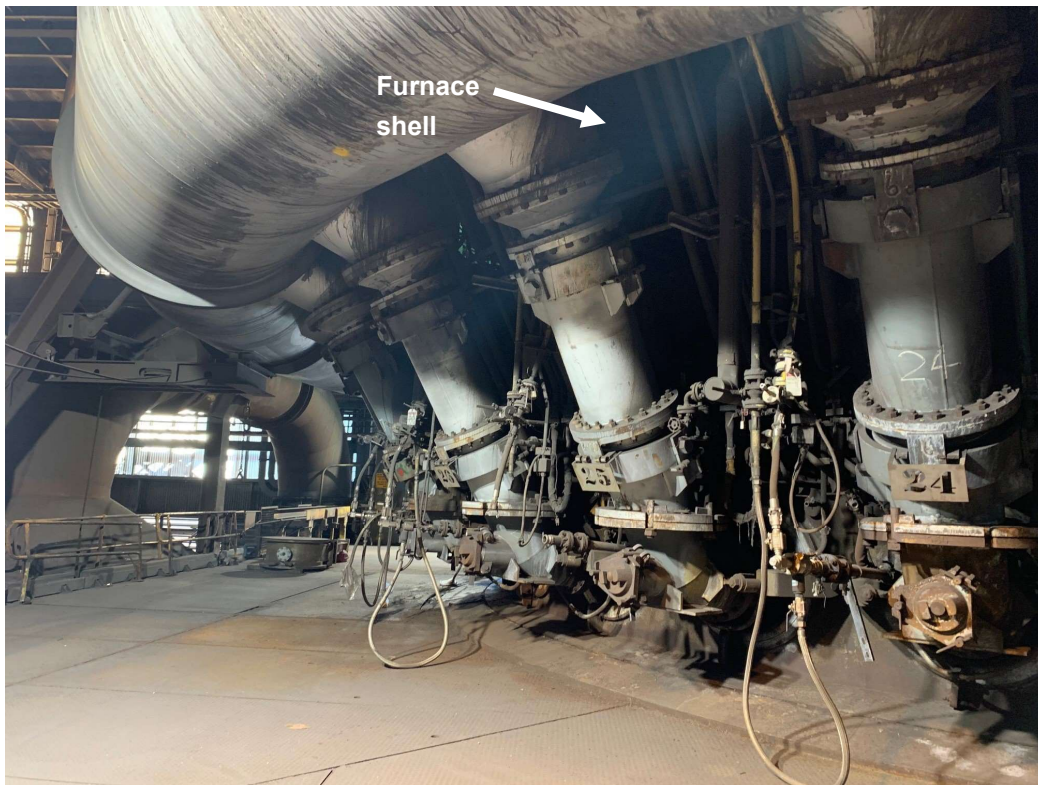
Aspect	Description
<b>Construction</b>	<ul style="list-style-type: none"> <li>remove internal furnace lining by blasting inside the furnace</li> <li>strip the staves, refractories and hearth, and repair interior elements</li> <li>install new hearth, sidewall refractories and staves</li> <li>repair or replace tuyeres, tapholes, furnace cooling systems and instrumentation</li> <li>use of laydown areas for construction materials, equipment and temporary parking</li> <li>addition of a new waste gas heat recovery system and top gas recovery turbine</li> <li>recycling and/or disposal of waste materials from the furnace</li> </ul>
<b>Commissioning</b>	<ul style="list-style-type: none"> <li>1 to 2 month period to test systems and services with progressive heating of the furnace until regular casting of iron and slag commences</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>transport and processing of raw materials (iron ore, coal, coke, fluxes)</li> <li>production of sinter and coke</li> <li>iron ore, coke and other raw materials are charged into the blast furnace for smelting, generating a mix of elemental iron, slag and blast furnace gas</li> <li>production of around 2.7 million tonnes per annum (Mtpa) of iron, transfer of molten iron to other plant within the steelworks to process into steel</li> <li>collection of slag from the furnace for formation into rock and processing around 0.88 Mtpa into granulated slag for sale as a construction material</li> <li>capture of blast furnace gas for use as an energy source in other plant at the steelworks and flaring of excess gas</li> </ul>
<b>Decommissioning</b>	<ul style="list-style-type: none"> <li>a rundown and make safe operation when the blast furnace reaches the end of its operating life (approximately 20 years)</li> </ul>
<b>Duration</b>	<ul style="list-style-type: none"> <li>Construction - 3 years   Operation – 20 years</li> </ul>
<b>Hours of operation</b>	Operation – 24 hours, 7 days
<b>Construction work hours</b>	<ul style="list-style-type: none"> <li>majority of construction works - Mon to Fri - 7 am to 6 pm, Sat 8 am to 1 pm</li> <li>blasting – Monday to Friday 9 am to 5 pm</li> <li>final 5 months of construction – 24 hours</li> <li>if operation of BF6 is required earlier than 2026 – 24 hours</li> </ul>
<b>Traffic</b>	900 vehicles per day comprising 600 cars and 300 heavy vehicles during construction
<b>Capital investment</b>	\$789,591,643
<b>Employment</b>	<ul style="list-style-type: none"> <li>Construction - between 250 – 1,000 jobs, depending on scheduling</li> <li>Operation – 105 – 110 operational jobs transferring from BF5 to BF6, retention of 4,500 existing jobs at the steelworks</li> </ul>



**Figure 2 | Location of Blast Furnace No.6 and Construction Laydown Areas**



**Figure 3 | Key Components of Blast Furnace No.6**



**Figure 4 | Furnace Structure**

## 2.2 Physical Layout

The majority of construction works would be undertaken on the existing infrastructure in the BF6 operational area. Several areas within the broader steelworks would be used for storage of construction materials and equipment and would be brought to the furnace in a scheduled sequence. Existing car parks would also be used to accommodate the construction workforce. If construction is ramped up to enable earlier operation of the blast furnace, parking for the additional construction workforce would be accommodated within existing overflow parking areas on the site, as for previous relining campaigns.

## 2.3 Process Description

Raw materials for steel making are brought to the site by road, rail and ship. The key materials include iron ore, coke, coal, limestone and fluxes (materials that remove impurities during smelting). Iron ore, coke and fluxes are first processed in a sinter plant and then transferred to the blast furnace. Coal is processed in a pulverised coal injection plant to create fine coal granules for use in the blast furnace.

The processed raw materials are charged into the blast furnace which is operated at around 1,500 degrees Celsius (°C) to produce molten iron which is transported to other plant for making into steel. Key operational components of the blast furnace include:

- a charging system to feed raw materials into the furnace including a stockhouse and conveyors
- the blast furnace vessel where iron ore is reduced to iron at high temperature. The furnace is 40 m high and the overall structure is 90 m high with the gas collection equipment at the top
- a hot blast system which provides hot air to the furnace
- casthouses where liquid iron is extracted from the furnace. The casthouse is fitted with a baghouse to capture dust during the extraction process. Dust is treated and returned to the sinter plant process
- a gas cleaning system which cleans and cools by-product gas using a dust catcher, high energy scrubber and recycled water
- a cooling system.

By-products include slag and gases. Slag is recycled into a construction product and gases are reused as an energy source throughout the site.

## 2.4 Timing

The estimated construction timeframe is 3 years with four key project stages:

Stage	Works	Duration
1	Early works for enabling activities – cranes, lifts, casthouse roof replacement, drainage and construction facilities	24 – 30 months
2	Demolition, civil work, stockhouse, slag handling, hot blast, gas and cooling systems, furnace, control system	24 months
3	Initiated within 12 months notice of the end of BF5 operation – relining works and commissioning	12 months
4	Managed transition from BF5 to BF6 and decommissioning and make safe of BF5	6 – 8 weeks

## 2.5 Related development

The Proponent is proposing to upgrade three existing ship berths at the Port Kembla Steelworks. The upgrade project would enable the Proponent to import coal from other suppliers, ensuring the security of raw material supplies to the blast furnace. The project (Commodity Logistics and Import Project) was declared CSSI and Secretary's Environmental Assessment Requirements (SEARs) were issued in March 2022.

The Proponent is currently pursuing a number of projects as part of its transition to low to zero emissions steelmaking over the longer term. Some of these projects are at feasibility stage and others are in the early stages of the planning process. The Proponent is investigating low emissions steelmaking through the use of renewable hydrogen in the blast furnace and a transition to alternative steelmaking methods involving the use of an iron melter and electric arc furnace. A pilot hydrogen plant is proposed on the site along with the development of a hydrogen hub, to enable the use of hydrogen in vehicle fleets. The initial hydrogen project has received SEARs from the Planning Secretary and an EIS is currently being prepared. Other projects include a renewable manufacturing zone on site, to enable the construction of wind towers and steel products for other renewable projects including solar farms and hydro-electric schemes.

## 3 Strategic Context

### 3.1 Project Setting

Port Kembla was established in the late 1800s to export coal and in 1928 the first steel mill was constructed. The port was expanded in the 1930s with additional land reclamation works around Tom Thumb Lagoon extending the industrial area.

The port is divided into an Inner Harbour and Outer Harbour, with 18 import and export berths and a deep-water shipping channel to accommodate large vessels. Water quality in the port has been impacted by industrial discharges and port activities, including dredging works, with elevated heavy metals in the sediments.

Land uses surrounding the port include a mix of commercial and residential, with the town centre of Wollongong 2 km north of the port. The Illawarra Escarpment State Conservation Area is located 5 km to the west of the port and Lake Illawarra is located 2.5 km to the south.

### 3.2 Regional Planning

The Illawarra Shoalhaven Regional Plan 2041 is a 20-year land use plan for the Wollongong, Shellharbour, Kiama and Shoalhaven local government areas.

Port Kembla is recognised in the Regional Plan as a global gateway, connecting the region to the world through its export of bulk commodities, import of motor vehicles and steelmaking operations. Objective 3 of the Regional Plan is to grow Port Kembla as an international trade hub.

The Regional Plan highlights the importance of the port in supporting thousands of jobs and contributing over \$500 million to the regional economy each year. The Regional Plan identifies Port Kembla as a strategic location for the development of a hydrogen hub to transition to zero carbon emissions and support jobs and economic growth.

The project is consistent with Objective 3 of the Regional Plan as it would retain steelmaking capabilities at Port Kembla, ensure continued employment for 4,500 people and invest over \$700 million in the regional economy.

The Wollongong 2028 Community Strategic Plan details the community's vision and goals for a 10-year period and aligns with the priorities established in the Regional Plan. Council noted in its submission (see Section 5.2.1), the project aligns with Council's strategic plans for a sustainable local economy and the on-going economic viability of Wollongong. The project is consistent with the plan's aim of having an innovative and sustainable economy.

### 3.3 Economic Context

The 2040 Economic Blueprint (NSW Treasury, 2019) sets the direction for NSW's continued economic success and sets aspirations to become a \$2 trillion state after 2040. The key aspirations relevant to the project include a diversified economy, innovative industries, well-connected major urban centres, and productive and growing regions. The project would ensure continued production of steel in NSW which contributes \$10 billion annually to the NSW economy and facilitates nation-building projects including infrastructure, defence, commercial and residential construction. The project would invest over \$700 million in the Illawarra region and would generate up to 1,000 construction jobs. The project is consistent with the aspirations of the 2040 Economic Blueprint.

The 20-year Economic Vision for Regional NSW identifies priorities for achieving long-term social and economic success in regional areas and notes the Illawarra-Shoalhaven's economic output is underpinned by its strong manufacturing and mining industries, with freight and logistics as well as green hydrogen production at Port Kembla emerging as priority growth sectors. The vision identifies areas for investment in infrastructure, technological innovation and defence, to stimulate business attraction and job creation.

The continued production of steel at Port Kembla would ensure ongoing economic benefits to NSW and the Illawarra region, including the contribution of \$10 billion annually to the NSW economy and the employment of 4,500 people in the Illawarra region.

### **3.4 Climate Change Policy**

The NSW Climate Change Policy Framework aims to achieve net-zero emissions by 2050 and make NSW more resilient to a changing climate. The policy framework is supported by the Net Zero Plan Stage 1: 2020-2030 which prioritises the uptake of proven emission reduction technologies and investment in future reduction technologies.

The project incorporates new emission reduction technologies such as the top gas recovery turbine and hot blast waste gas heat recovery system. The Proponent is also working towards a target of net-zero emissions by 2050 across its global operations and a medium-term target of 12% improvement in greenhouse gas emissions intensity for steelmaking by 2030. The Proponent is transitioning to the use of renewable energy, with solar power purchasing providing 20% of its electricity consumption.

In addition, the Proponent is investing in the development of a pilot hydrogen plant at Port Kembla with the aim of transitioning to low emissions steelmaking and a renewable manufacturing zone to build domestic manufacturing capability for renewable energy projects, such as the manufacture of wind towers.

## 4 Statutory Context

### 4.1 Critical State Significant Infrastructure

On 3 May 2021, the then Minister for Planning and Public Spaces made an order declaring the Port Kembla Steelworks Blast Furnace No.6 Upgrade Project to be SSI and CSSI under sections 5.12(4) and 5.13 of the EP&A Act. The project is listed as CSSI under Schedule 5 of State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP).

As the project has been declared CSSI, the Minister for Planning is the approval authority for the project.

### 4.2 Permissibility and Environmental Planning Instruments

In accordance with section 5.22(2) of the EP&A Act, no environmental planning instruments substantially govern the carrying out of the project other than the Planning Systems SEPP identifying the project as CSSI. Notwithstanding this, consideration was given to Environmental Planning Instruments (EPIs) that would have applied, including:

- State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP). Encompassing the former Three Ports SEPP, this provides a consistent planning regime for development and delivery of infrastructure on land in Port Botany, Port Kembla and the Port of Newcastle. The project is located in the Port Kembla lease area and is permissible with consent in the IN3 Heavy Industrial zone under the Transport and Infrastructure SEPP.
- State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP). Chapter 2 addresses development in the coastal zone, Chapter 3 identifies potentially hazardous or offensive developments and Chapter 4 addresses contaminated land. The Applicant has considered the project against these objectives in the EIS. The Department's detailed consideration is provided throughout Section 6 and concludes the project is consistent with the aims of the Resilience and Hazards SEPP.
- Wollongong Local Environmental Plan 2009 (LEP). The LEP does not apply to infrastructure in the Port Kembla lease area, as defined by the Transport and Infrastructure SEPP.

### 4.3 Surrender of Development Consent

The steelworks operates under multiple development consents issued by Wollongong City Council and the then Minister for Planning. The construction and operation of BF6 was originally approved by Wollongong City Council in 1993 (DA93/16). This consent does not cover the relining and upgrade works proposed under the current SSI application. The Proponent intends to surrender the existing consent for BF6 once approval is granted under this SSI application.

The other relevant development consent is for the reline and operation of BF5, issued by the then Minister for Planning in 2005 (DA 113-5-2005-i). The Proponent intends to retain this consent for maintenance of BF5 until a decision is made to permanently decommission the structure (i.e., no future reline campaigns).

### 4.4 Other Approvals

The production of iron and steel are scheduled activities under the *Protection of the Environment Operations Act 1997* (POEO Act) therefore an Environment Protection Licence (EPL) is required. The Proponent has three EPLs covering different scheduled activities on the site. EPL 6092 covers iron and steel production, this licence would be varied to include the operation of BF6.

The Department has consulted with and considered the advice of the Environment Protection Authority (EPA), as the authority responsible for administering the POEO Act. The Department has included the EPA's recommended conditions in the project approval.

#### 4.5 Exempt Approvals

Under Section 5.23 of the EP&A Act, the following approvals are not required for CSSI projects:

- permits under Sections 201 and 219 of the *Fisheries Management Act 1994*
- various heritage approvals under the *National Parks and Wildlife Act 1974* and *Heritage Act 1977*
- a bushfire safety authority under Section 100B of the *Rural Fires Act 1997*
- various water-related approvals under Sections 89-91 of the *Water Management Act 2000*.

However, the assessment of these matters has been integrated with the assessment of all other matters under the EP&A Act. The Department has consulted with the agencies responsible for administering these authorisations where relevant, and included recommended conditions.

#### 4.6 Application of Biodiversity Conservation Act 2016

Section 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act) requires all applications for SSI to be accompanied by a Biodiversity Development Assessment Report (BDAR) unless the Planning Agency Head and the Environment Agency Head determine that the proposal is not likely to have any significant impact on biodiversity values.

On 11 June 2021, the Proponent submitted a request to the Planning Secretary to waive the requirement for a BDAR, on the basis that the project does not involve disturbance or removal of any native vegetation. The Environment Agency Head and Director, Industry Assessments, as nominee of the Planning Secretary, determined the proposal is not likely to have any significant impact on biodiversity values. A BDAR waiver was granted for the project on 5 August 2021.

#### 4.7 Commonwealth Matters

Under the EPBC Act, assessment and approval is required from the Commonwealth Government if a development is likely to impact on a matter of national environmental significance (MNES), as it is considered to be a 'controlled action'. The EIS for the development included a preliminary assessment of the MNES in relation to the development and concluded the development would not impact on any of these matters and is therefore not a 'controlled action'. As such, the Proponent determined a referral to the Commonwealth Government was not required.

#### 4.8 Matters for Consideration

When deciding whether or not to approve the carrying out of the project under Section 5.19 of the EP&A Act, the Minister is required to consider the reports, advice and recommendations contained in this report, which includes the EIS, public submissions, RTS, advice from public authorities and the Department's merit assessment and recommended conditions of approval.

#### 4.9 Objects of the EP&A Act

The objects of the EP&A Act, incorporating ecologically sustainable development principles, are the underpinning principles for all decision making under the Act. The Department has assessed the project against the objects found in section 1.3 of the EP&A Act. **Appendix B** provides a summary of how these objects have been considered.

# 5 Engagement

## 5.1 Consultation

The Proponent, as required by the SEARs, undertook consultation with relevant local and State authorities as well as the community and affected landowners. The Department undertook further consultation with these stakeholders during the exhibition of the EIS and throughout the assessment of the application. These consultation activities are described in detail in the following sections.

### Consultation by the Proponent

The Proponent undertook a range of consultation activities throughout the preparation of the EIS including:

- project briefings at BlueScope's quarterly Community Consultative Committee (CCC) meetings. The CCC includes representatives from Council, government agencies, NSW Ports, community groups, environment groups, schools and health services
- direct consultation with State and Federal government agencies
- presentations at existing business and industry forums
- a community meeting, held online on 7 October 2021
- a project website, social media, local and national media stories
- a public notice of the EIS exhibition in the Illawarra Mercury.

### Consultation by the Department

The Department undertook a range of consultation activities during the assessment process including consultation with public authorities, attendance at a site visit on 1 June 2022 and meetings with the EPA and the Proponent to discuss recommended conditions.

After accepting the EIS for the project, the Department:

- made it publicly available on the Department's website from **Thursday 24 March 2022** until **Wednesday 20 April 2022** (28 days)
- notified landowners in the vicinity of the site about the exhibition period by letter
- notified and invited comment from relevant State government authorities and Wollongong City Council by letter
- advertised the exhibition in the Illawarra Mercury.

The publication of the EIS satisfies the requirements of the *Environmental Planning & Assessment Regulation 2021*.

## 5.2 Submissions and Advice

During the exhibition period, the Department received 445 submissions from the public (35 special interest groups and 410 individuals). There were 416 public submissions in support of the proposal, 21 objected and 8 provided comments. The majority of community members who made a submission live within 20 km of Port Kembla.

Wollongong City Council (Council) made a submission supporting the project. Advice was also received from 7 government agencies providing comments on the project.

A summary of the submissions and government advice is provided in **Table 2** and a link to the submissions and advice is provided in **Appendix A**.

**Table 2 | Summary of Submissions and Advice**

<b>Group</b>	<b>Total</b>	<b>Support</b>	<b>Object</b>	<b>Comment</b>
Public	410	384	20	6
Special interest groups	35	32	1	2
Council	1	1	0	0
Government agencies	7	0	0	7
<b>TOTAL</b>	<b>453</b>	<b>417</b>	<b>21</b>	<b>15</b>

### 5.2.1 Key Issues - Public Authorities

None of the public authorities objected to the project. However, they provided comments on the key aspects of the project and recommended conditions of consent. A summary of the key matters raised by public authorities is provided below. Where clarification was requested, those matters were addressed through the assessment process and additional information provided by the Proponent. Where relevant, this is summarised in the relevant assessment section.

**Wollongong City Council (Council)** supported the project noting the economic benefits of continued steelmaking in the Illawarra region and continued employment of the existing workforce. Council advised the project aligns with Council’s strategic plans for a sustainable local economy and the ongoing economic viability of Wollongong. Council recommended conditions of approval covering demolition, erosion and sediment control, noise, air and water quality. Council also encouraged BlueScope to implement new technologies to reduce greenhouse gas emissions as soon as possible.

**Environment Protection Authority (EPA)** requested additional information to assess air, noise and water quality impacts. EPA requested further consideration of trigger levels for protection of water quality in Port Kembla Harbour, characterisation of discharges from the blast furnace to inform the impact assessment and details of long-term management measures that are consistent with best practice. The EPA also requested information on the proposed environmental improvements in air emission controls and predicted performance against best available techniques (BAT) emission levels. Clarification was requested on whether alternative fuels (such as hydrogen gas) were part of the application as further information would be required to assess the changes in air emissions. In relation to noise, the EPA requested clarifications on the receiver locations to confirm they are representative of all affected residential receivers and existing noise levels from the steelworks.

**Transport for NSW (TfNSW)** did not object to the proposal subject to inclusion of conditions regarding car parking and obtaining permits for the use of oversized vehicles during construction.

**Fire and Rescue NSW (FRNSW)** recommended conditions for an updated Emergency Response Plan to address the use and storage of explosives and an emergency services information package and tactical fire plans to be displayed at the site’s main entry.

**DPE Water (Water Group) and the Natural Resources Access Regulator (NRAR)** noted the potential for the proposal to intercept groundwater and provided advice in relation to water access licence requirements for groundwater take. The Water Group also recommended the Proponent prepare a management plan for any works that would intercept groundwater.

**DPE Biodiversity and Conservation Division (BCD)** had no comments, noting that a BDAR waiver had been issued for the project.

**Heritage Council of NSW** noted as the site is not listed on the State Heritage Register and there are no heritage items in the immediate vicinity, no heritage comments are required.

**Heritage NSW (HNSW)** recommended the Proponent provide further information about consultation with the Aboriginal community to consider any potential impacts on Aboriginal cultural heritage values.

### 5.2.2 Key Issues - Special Interest Groups/Private Businesses

The Department received 35 submissions from special interest groups comprising businesses, industry forums and environmental groups. The majority of special interest groups supported the project. The submissions are summarised in **Table 3**.

**Table 3 | Special Interest Group Submissions**

Position	Group	Key Issues
Support (32)	Port Authority of NSW, Australian Workers Union, Peabody, Fenner Conveyors, Aurizon, Fredon, The Flagstaff Group, SCE Group, Illawarra Innovative Industry Network (i3net), Pipe& Engineering Supply, Bridge Project Solutions, Regional Development Australia, DBC Group Australia, IXOM Operations, Community Industry Group, Arrow Electrical Services x 2, Qube Holdings, 360HR Solutions x 2, Triple I, Illawarra Industrial Supplies, AlSCO, K& Fabrications, Nathan Thompson Engineering, QCM, Allmen Industrial Services, CorWear, Port Kembla Gateway x 2, Hirono(Aust), Hyemans& Associates, Galway Refractories	<ul style="list-style-type: none"> <li>• supports thousands of jobs and creates new jobs</li> <li>• critical for the Illawarra economy, directly supports other Illawarra businesses</li> <li>• maintain sovereign capability in steel manufacturing</li> <li>• incorporation of emissions reduction technology</li> <li>• use of local contractors</li> <li>• social and economic contribution to workers with disabilities</li> <li>• enable continued support from BlueScope for community projects</li> </ul>
Object (1)	Protect Our Water Catchment	Object to using coal from the Sydney drinking water catchment to operate the blast furnace
Comment (2)	Protect Our Water Alliance, Port Kembla Gateway	<ul style="list-style-type: none"> <li>• recommend emissions reduction</li> <li>• object to the use of coal from the Sydney drinking water catchment for steel production</li> <li>• benefits to business and industry in the region</li> <li>• BlueScope has made environmental improvements in waste management, air quality and water quality</li> </ul>

### 5.2.3 Key Issues - Public Submissions

A total of 410 individual submissions were received from the public with 384 in support (94%), 20 objecting (5%) and 6 providing comments (1%). The majority of public submissions were from people living within 20 km of Port Kembla.

Public submissions supporting the project noted:

- the economic and employment benefits to local people and the broader region, with many submissions from BlueScope employees and contractors. Submitters noted the steelworks provides direct employment for 4,500 people and 10,000 people when considering flow-on jobs
- the project would support continued steelmaking while BlueScope transitions to lower emissions steelmaking when it becomes commercially viable. The project also incorporates \$100 million of environmental improvements
- the project would maintain Australia's domestic capabilities in steelmaking, providing vital supply chain security for defence, construction, infrastructure and renewables projects.

The key reasons for objecting to the project included:

- relining the blast furnace would lock in greenhouse gas emissions, when Australia has made global commitments to reducing emissions
- the environmental and water security impacts of using coal in the blast furnace that is sourced from underground mines in the Sydney drinking water catchment.

Submissions making comments on the project noted the importance of the steelworks for jobs and to maintain Australia's steelmaking capabilities.

**Appendix C** summarises how the key issues raised in public submissions have been addressed in the Department's assessment.

### 5.3 Response to Submissions

On 22 July 2022, the Proponent provided a Response to Submissions (RTS) report. The RTS was made publicly available on the Department's website and provided to key agencies to consider whether it adequately addressed the issues raised. The RTS did not propose any changes to the project but included additional information on water quality, air quality, noise, hazards and stakeholder consultation.

A summary of the government authority responses is provided below:

- EPA confirmed the RTS had provided sufficient information and recommended the Proponent provide a commitment to implement the outcomes of the existing Pollution Reduction Program (PRP) 182 for wastewater discharges from BF6. EPA recommended conditions for water discharges, air emissions, noise and blasting.
- HNSW confirmed the additional information satisfied the requirements for consultation and noted the consultation had been conducted in a meaningful and respectful manner and demonstrated sustained engagement and active involvement of the Aboriginal community.
- TfNSW reviewed the RTS and advised it had no further comments.

## 6 Assessment

The Department has considered the EIS, the issues raised in the submissions and the Proponent's RTS in its assessment of the project. The Department considers the key assessment issues are:

- water quality
- air quality
- greenhouse gas emissions
- social and economic.

A number of other issues have also been considered. These issues are assessed in **Table 4** under **Section 6.4**.

### 6.1 Water Quality

#### Background

The steelworks generate wastewater that is treated and discharged to the Inner Harbour. The quality of wastewater must meet criteria for the protection of aquatic ecology to ensure there are no adverse impacts on water quality in the Inner Harbour.

Operation of BF6 would generate two primary wastewater streams. These include:

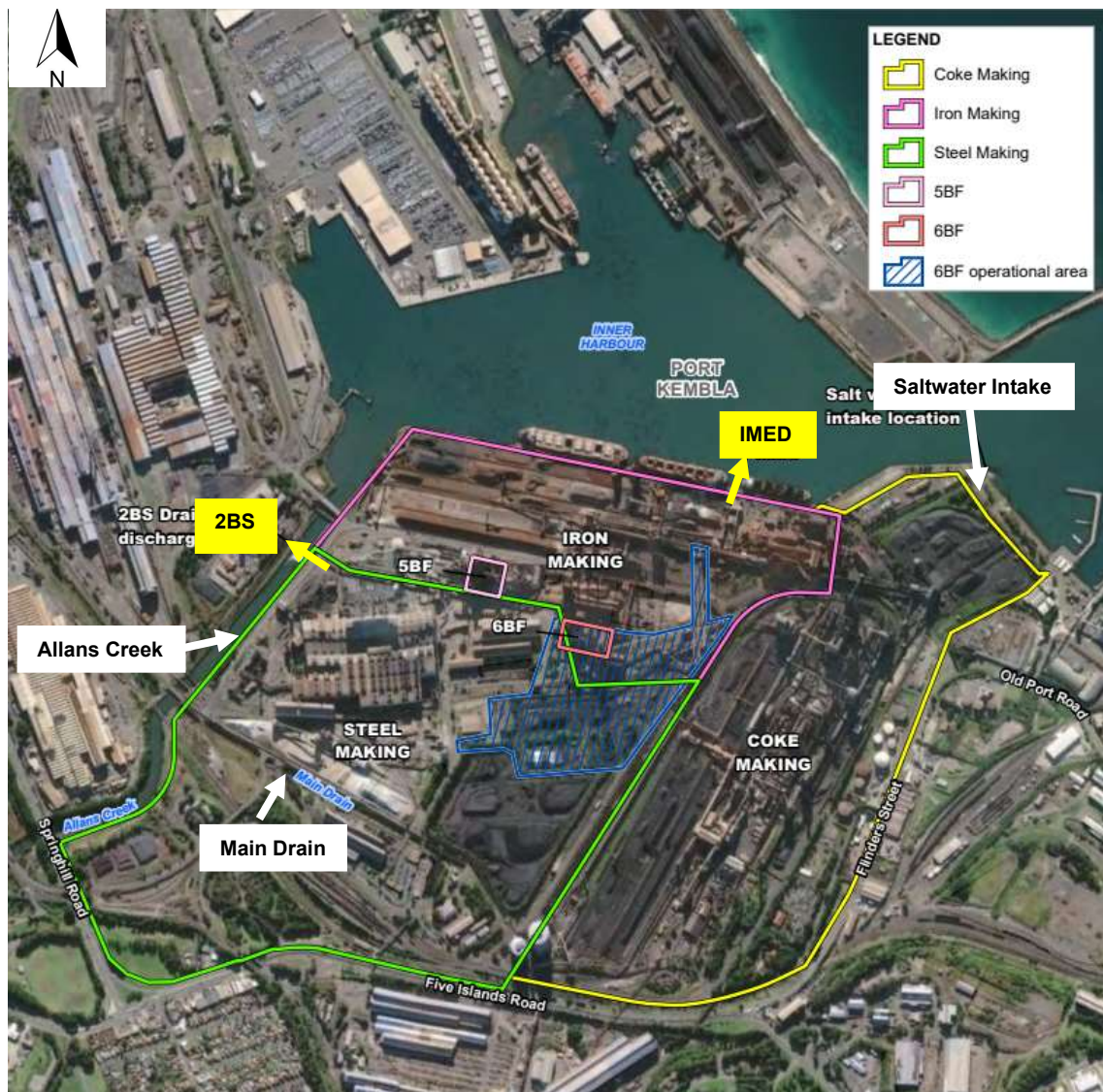
- Wastewater from gas cleaning – a wet scrubber is used to cool and clean blast furnace gas that exits the top of the furnace. This wastewater stream contains ammonia, cyanide and heavy metals from the gas cleaning process. It would pass through an effluent treatment system comprising an aeration tank and clarifier to remove some of the metals. Treated water is reused for gas cleaning, and a portion is 'blown down' or discharged to Allans Creek to prevent a buildup of contaminants.
- Saltwater – it is extracted from the Outer Harbour and is used once for cooling before being discharged to Allans Creek. BF5 uses a combination of saltwater and an evaporative cooling tower using freshwater. BF6 would use only the saltwater cooling system, which would increase the total volume required by around 10% compared to BF5.

Wastewater from the blast furnace discharges through two locations, these include the No.2 Blower Station Drain (2BS) and the Ironmaking East Drain (IMED). 2BS is the primary discharge point, with the IMED providing overflow discharge during rainfall events. **Figure 5** shows the two discharge locations and the saltwater intake location.

All discharges from the site are regulated by the EPL. There is currently an active pollution reduction program (PRP 182) on the EPL for discharges from BF5. The PRP is investigating whether the EPL limits remain appropriate for the site as a series of uncontrolled discharges in 2019 showed elevated levels of ammonia and cyanide in the wastewater stream. These discharges occurred during abnormal blast furnace operating conditions, which sometimes occur during planned or unscheduled maintenance.

The Proponent has been collecting data to characterise all discharges from the site as multiple process units discharge to the 2BS drain. In its submission on this application, the EPA noted that saltwater discharges dilute the concentrations of pollutants in the 2BS drain and this is not an appropriate long-term practice for managing pollution. PRP 182 was implemented to address this issue for BF5 and the

EPA noted the outcomes of PRP 182 must be implemented for future operation of BF6 to ensure continual improvement in waterway health.



**Figure 5 | Operational Areas, Discharge Locations and Saltwater Intake**

Receiving environment

Two creeks, Main Drain and Allans Creek, pass through the steelworks site and drain into the Port Kembla Inner Harbour and ultimately the Outer Harbour. Allans Creek is a heavily modified waterway that receives industrial wastewater discharges from the steelworks.

Water quality in the Inner Harbour has been impacted by long-term industrial uses and dredging campaigns, with background studies indicating elevated levels of heavy metals and total suspended solids, exceeding guidelines for the protection of marine waters. The Inner Harbour is considered a highly to moderately disturbed ecosystem. Water temperatures in the Inner Harbour are around 0.5 to 1 degrees Celsius (°C) warmer than the Outer Harbour as discharges from the steelworks are around 6 – 7 degrees warmer than the ambient sea temperature.

The EPL requires monitoring of discharges from the 2BS drain every 8 days and at the IMED on a daily basis when its discharging during dry weather.

### Assessment method

The Proponent prepared a Water Quality Assessment (WQA) for the project, considering potential impacts against the discharge limits in the EPL, criteria developed from site-specific studies and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, 2018 (ANZG). The EPA advised the project should be considered against the ANZG 95% species protection criteria, to ensure waterway health can be maintained and improved over time. The RTS provided further consideration of the project against the ANZG criteria.

### Construction and commissioning

During the construction phase, there would be some potential for water quality impacts from the entrainment of sediments from excavations and if groundwater is intercepted. The Proponent proposes to develop a Soil and Water Management Plan and Groundwater Management Plan describing measures to minimise impacts during the construction phase.

During the commissioning phase, the blast furnace systems are filled and flushed with industrial water and some discharges with variable chemical compositions may be generated, including heavy metals such as ammonia and cyanide. The Proponent proposes to develop a Water Quality Management Plan for commissioning detailing specific controls to manage variable discharges, additional monitoring and contingency measures if discharges don't meet the water quality criteria.

### Wastewater from gas cleaning

During operations, BF6 would produce similar wastewater quantities and composition to BF5, including 30 – 45 m<sup>3</sup>/h of blow down water from the gas cleaning process. Results of sampling for PRP 182 show that discharges directly out of BF5 exceed the ANZG 95% species protection criteria for some heavy metals (chromium, copper, cyanide, lead and zinc), but there is compliance with the majority of criteria at the point of discharge into Allans Creek. This is a result of the dilution provided by the larger saltwater discharge.

### Saltwater

During operations, BF6 would discharge 26,000 cubic metres per hour (m<sup>3</sup>/h) of warmed saltwater from the saltwater cooling system. These discharges would be around 6 – 7 °C higher than the ambient sea temperature, reducing to between 0.5 - 2 °C higher at the point of discharge.

The WQA concluded this would comply with the existing EPL and site-specific trigger values but would not comply with the criteria in the ANZG. The WQA included thermal plume modeling and considered the effectiveness of mixing zones in reducing temperature within the harbour, concluding there would be no significant impacts on water quality due to the increased temperature in discharges.

The modelling showed water temperatures in the Inner Harbour would range from 1.5 °C higher in the surface layer to 0.5 °C in the mid to bottom layers. This reduced at the Outer Harbour to 0.5 °C in the surface layer to 0.2 °C in the mid to bottom layers.

### Mitigation measures

As part of PRP 182, the Proponent is developing options to improve the quality of discharges, in particular reducing the quantities of cyanide in blow down water. An ozone oxidation plant is currently the preferred option. This system would be used for the remaining years of operation of BF5 where its effectiveness would be monitored. The system would then be used for operation of BF6.

The Proponent evaluated a number of options to reduce the temperature of discharges from the saltwater cooling system, concluding there are limited viable options. Cooling water is an essential component of blast furnace operation as it protects the blast furnace shell from overheating which can cause significant damage and failure. The Proponent concluded the benefits of the saltwater cooling system outweigh the potential impacts, noting it requires no freshwater inputs, uses substantially less energy and would not adversely impact the disturbed ecosystem of Allans Creek and the Inner Harbour.

#### Department's consideration

The Department has considered the potential water quality impacts of the project in close consultation with the EPA. Following a review of the RTS, the EPA recommended conditions for the project, acknowledging there may be subsequent changes through the EPL to address the outcomes of PRP 182 and ongoing investigations into wastewater treatment options.

In relation to wastewater from gas cleaning, the Department considers that PRP 182 already addresses the heavy metals in discharges from BF5, and the findings of this program will inform the development of treatment options for BF6. The EPA's recommendations require the outcomes of PRP 182 to be adopted for BF6. This would ensure blow down water is monitored and treated to achieve the ANZG for 95% species protection.

In relation to saltwater, the potential options for reducing temperature are limited, however the Department notes these impacts are minor (between 0.5 to 1 °C increase in the Inner Harbour) and partially offset by cold water discharges from other industrial activities in the port. The receiving environment is highly disturbed from over 100 years of industrial activity and dredging with limited habitat for aquatic species. Thermal modelling concluded there would be no major losses of aquatic ecology from the Inner Harbour due to increased water temperatures.

The EPA also advised that the saltwater discharges would be considered in the context of other discharges in Port Kembla Harbour. Importantly, the Department's assessment of the AIE Gas Terminal concluded the cold water discharges from its operation would comply with the criteria while BlueScope continues to discharge warm water into the harbour. The EPA advised it would approach the management of this issue at a harbour-wide level, noting there is a verification monitoring program in the AIE Gas Terminal approval that would identify any adverse impacts at a harbour-wide level. The EPA may then apply further conditions through the Proponent's EPL, to manage any impacts.

Overall, the Department's assessment concludes that the water quality impacts of the project would be similar to the existing impacts, with some improvements in the quality of discharges expected as treatment systems and best available techniques are designed and installed. To ensure that water quality is adequately managed, the Department has recommended a range of strict conditions that will align with the EPL, based on advice from the EPA:

- Design – the wastewater treatment system would be reviewed by the EPA and approved by the Planning Secretary prior to its installation and before BF6 can commence operating.
- Performance criteria – the project should meet the ANZG 95% species protection criteria, and where this criteria cannot be achieved, a wastewater management system or best available techniques be implemented with the aim of achieving the criteria.
- Monitoring and verification – to confirm the predictions once operational and identify any contingency measures that could be implemented to address any unacceptable impacts.

With these conditions in place, the Department considers the wastewater discharges from BF6 would be adequately managed to meet water quality performance outcomes.

## 6.2 Air Quality

### Background

Construction works, commissioning and operation of BF6 would generate air emissions, with the primary pollutants including particulates (TSP and PM<sub>10</sub>), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>) and odour [hydrogen sulfide (H<sub>2</sub>S)]. These pollutants have the potential to impact on human health and the environment if not minimised and appropriately managed.

### Assessment method

The Proponent prepared a detailed air quality impact assessment (AQIA), reviewing data from the previous operation of BF6, the existing emissions from BF5, emissions from the steelworks as a whole and contributions from other sources in the area. The AQIA compared predicted emissions with several criteria including:

1. NSW criteria including:
  - a. impact assessment criteria set out in the Approved Methods for Modelling and Assessment of Air Pollutants in NSW, 2016, for assessing impacts at sensitive receivers off site
  - b. emission limits set out in the Protection of the Environment Operations (Clean Air Regulation) 2021 (POEO Clean Air Regulation), for emissions from the stacks associated with BF6
2. National criteria – set out in the National Environment Protection (Ambient Air Quality) Measure 2021
3. European criteria – set out in the European Union Best Available Techniques Reference Document for Iron and Steel Production Industrial Emissions Directive.

### Construction and commissioning

Particulates (TSP and PM<sub>10</sub>) are the primary air pollutants generated during construction, with heavy demolition, blasting and rock breaking the most likely to generate dust. Most construction activities would be undertaken in and around the blast furnace, which is located over 1 km from the nearest residences.

The AQIA concluded construction dust impacts would be minor given the distance to sensitive receivers and could be adequately managed via a construction dust management plan, including controls to limit excessive dust generation.

The commissioning phase would take several months, with each system tested and progressively ramped-up to full scale production. The key pollutants during commissioning include carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), hydrogen (H<sub>2</sub>) and particulates. Some emission controls would not be in place during commissioning as manual intervention is required to test the systems. Emissions may be higher during this short period as dedusting systems are operating with a reduced effective capacity. Gases would not be captured and reused, as specific compositions must be achieved before gases can be safely reused in other processes.

The AQIA concluded the commissioning phase would present a low risk of off site impacts given the short duration and distance to receivers. There would be some visible plumes (like smoke) during this

phase, with the Proponent proposing to notify surrounding residences, prior to commencing commissioning.

### Operation

Air emissions from operation of the blast furnace are well understood given BF5 is currently operating and BF6 previously operated for 15 years. The AQIA modelled air emissions from over 100 sources for comparison with relevant criteria and also included a comparison of existing emissions (BF5 operating) with future emissions (BF6 operating). The assessment was conservative, with possible double-counting of emissions (as background levels include operation of BF5).

Key conclusions from the AQIA include:

- Particulates – cumulative emissions, including operation of BF6, would comply with the impact assessment criteria for TSP. One minor exceedance of the 24-hour PM<sub>10</sub> criteria was predicted at residences to the north and west for one 24-hour period each year. Further analysis indicated background levels contributed over 90% of the total, indicating the blast furnace makes a minimal contribution to particulate levels.
- Nitrogen dioxide and sulphur dioxide – the project would comply with the impact assessment criteria at all residential receivers when considered cumulatively with all other emission sources.

The 1-hour SO<sub>2</sub> criteria in the more stringent National Environment Protection Measure (NEPM) would be exceeded for four, 1-hour periods, annually at residences to the south. This criteria is approximately half of the NSW impact assessment criteria. Further analysis indicated the contribution from BF6 is well below both NSW and National criteria, indicating other sources at the steelworks are the primary contributors to the predicted exceedance.

- Hydrogen sulphide – a minor exceedance of the 1-second H<sub>2</sub>S criteria would occur for 53 hours per year at receivers to the south. The impact assessment criteria allow for a 1-hour exceedance for 88 hours per year, indicating the project would comply with the criteria.

The AQIA also found that the project would comply with the emission limits set out in the POEO Clean Air Regulation. In addition, the air quality modelling was conservative and did not account for the new air emission controls proposed for BF6. These include:

- a condensing unit on the slag granulating operations, reducing H<sub>2</sub>S generation
- a stove waste gas heat recovery unit, which reduces the amount of coke ovens gas needed to heat the stoves, reducing SO<sub>2</sub> emissions
- a new, more efficient burner, reducing CO and NO<sub>x</sub> emissions
- a second dedusting hood to reduce particulate and gaseous emissions

The reductions that would be achieved by these controls has not been quantified, as further detailed design is required. The Proponent has committed to verifying the effectiveness of these systems in reducing emissions, through post-commissioning monitoring.

### Department's consideration

The Department has considered the AQIA, advice from the EPA, clarifications provided in the RTS and the public submissions that raised dust and air pollution as a concern. The AQIA was supported by

measurement data from BF5 and the previous operation of BF6, providing a high level of confidence in the predictions.

After reviewing the RTS, the EPA provided recommended conditions, including air emission limits for the BF6 stacks, a commissioning management plan and an air quality verification program. The EPA also requested quantification of the emissions reductions that would be achieved on the stove waste gas heat recovery system and the condensing unit on the slag granulators. The EPA requested this information prior to construction.

The Proponent is also required to develop a monitoring program to verify the emissions once the additional controls have been installed and BF6 is operating. The monitoring program would be reviewed by the EPA and approved by the Planning Secretary. Once verification monitoring has been undertaken, the Proponent would provide a report detailing compliance with the air emission limits and outlining any contingency measures to be implemented if the limits are not being met. The program would also establish emission limits for the new stove waste gas stack, in consultation with the EPA. With these conditions in place, the Department considers the air emissions from BF6 would be adequately managed.

Operation of BF6, when considered cumulatively with the steelworks and other industrial sources in the area, would comply with the impact assessment criteria at all residential receivers, except for a minor exceedance of 24-hour PM<sub>10</sub>, which is primarily due to high background levels. This exceedance may not eventuate given the level of conservatism built into the modelling and given the new emission controls were not included in the modelling. The Proponent has proposed a range of upgrades to BF6 to reduce emissions from key processes. With these controls in place, emissions from the project would largely be the same as the existing steelworks operation, with some reductions likely. Reduced emissions could only be accurately quantified once detailed design has been completed. The EPA proposed conditions to ensure emissions from the operation of BF6 would comply with or be less than the POEO Clean Air Regulation.

The Department's assessment concludes the project would not result in adverse air quality impacts at surrounding sensitive receivers.

### **6.3 Greenhouse Gas Emissions**

#### **Background**

Operation of BF6 would generate greenhouse gas (GHG) emissions from the use of coal in the iron and steelmaking process. Emission types include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and sulfur hexafluoride (SF<sub>6</sub>). Emissions would be similar in composition and quantity to the existing operation of BF5, with some improvements due to the upgraded technology proposed on BF6.

GHG emissions and the resulting impacts on climate change was raised as a key concern in submissions objecting to the development. Submissions raised concerns about 'locking in' a level of GHG emissions by using old blast furnace technology, which is at odds with Australia's commitments to achieve net-zero emissions by 2050. Submitters recommended urgent adoption of green steel making methods, increased recycling of scrap steel and use of renewable energy sources. Concerns were also raised about the use of coal from mines under the Sydney drinking water catchment, noting these mines have adverse impacts on waterways, vegetation and land subsidence.

### Assessment method

The Proponent prepared a GHG assessment which provided information on BlueScope's long-term transition to low emissions steelmaking, detailed annual GHG emissions from existing operations and predicted emission reductions from new technologies on BF6. At the request of the Department, the Proponent also provided details of the GHG reporting obligations under Commonwealth legislation and the company's public commitments to GHG reductions.

### Steelworks emissions

The Proponent reports its annual GHG emissions in accordance with the *National Greenhouse and Energy Reporting Act 2007*. Due to the integrated nature of the steelworks, it is difficult to calculate emissions from individual components, so emissions are reported for the whole facility.

In 2021, the steelworks emitted 6,868,848 tonnes of carbon dioxide equivalent (tCO<sub>2-e</sub>), which is 1.4 % of Australia's total emissions and 5% of NSW emissions. The change from using BF5 to BF6 would not significantly change the total emissions or intensity from the steelworks. The key emission reductions from new technology on BF6 include:

- 11,000 tCO<sub>2-e</sub> per year from a top gas recovery turbine which uses pressure and thermal energy from the blast furnace to offset electricity input
- 11,000 tCO<sub>2-e</sub> per year from a hot blast waste gas heat recovery unit, which offsets fuel consumption
- 150,000 tCO<sub>2-e</sub> per year from the installation of dual lance tuyeres which would enable future reuse of coke ovens gas and hydrogen gas

Other emissions reductions inherent in the steelmaking process include:

- the use of blast furnace slag in cement production offsets more than 400,000 tCO<sub>2-e</sub> per year by replacing raw materials that would otherwise be needed to make cement
- scrap steel makes up approximately 25% of the steel produced on site.

### Transition to low emissions steelmaking

BlueScope's parent company has set a goal of achieving net zero emissions across its global operations by 2050. This is consistent with the Australian Government's commitment under the Paris Agreement. BlueScope is also part of the Australian Government's safeguard mechanism which establishes a baseline for Scope 1 GHG emissions from BlueScope's operations, to limit any increases above the agreed baseline.

Currently, 73% of the world's iron production for steelmaking is via blast furnace technology, which is carbon intensive. Global steel manufacturers, including BlueScope, are working to establish new technologies at a commercially viable scale that will enable the production of steel with low to zero emissions. Projects currently being pursued by the Proponent for the Port Kembla steelworks include:

1. Low emissions iron production: this requires renewable hydrogen, an iron melter and renewable electricity
2. A pilot renewable hydrogen electrolyser: this plant would enable the Proponent to test the use of hydrogen to fire BF6
3. Development of a 'hydrogen hub': this would include hydrogen supply to vehicle fleets and renewable energy supply

4. Development of a 'renewable manufacturing zone' at the steelworks: this would include production of wind towers and steel for solar farms and pumped hydro-electric projects
5. Solar power purchasing agreements: this would provide 20% of the steelworks electricity consumption from renewable sources.

The Proponent highlighted the need for continued steelmaking using the relined blast furnace, to fund the transition to low emissions steelmaking over the long term. The transition would take time as projects need to proceed from pilot phase through to commercial full scale production, while ensuring continued supply of steel. The Proponent has committed to transition to low emissions steelmaking at Port Kembla by 2050. The Proponent has also set an interim target to achieve a 12% improvement in Scope 1 and 2 GHG emissions intensity by 2030 for steelmaking. The Proponent's progress toward these targets are reported annually through its public Climate Action Report.

#### Department's consideration

The Department has considered the issues raised in public submissions and the GHG assessment in the context of the existing steelworks operation, the proposed transition to low emissions steelmaking and total NSW and Australian emissions.

The change from operating BF5 to BF6 would not significantly change the existing GHG emissions from the site. There would be a reduction of around 172,000 tCO<sub>2-e</sub> per year from the technology improvements that would be installed on BF6, representing a 2.5% reduction in emissions.

The Department understands there is limited scope to reduce emissions further from the blast furnace without a large-scale hydrogen plant to provide the substantial energy requirements, or a fundamental change in the way steel is made on site, such as the use of an iron melter or electric arc furnace using renewable energy. The Proponent is pursuing multiple alternatives, with the aim of achieving low emissions steelmaking at a commercial scale by 2050.

The Proponent has confirmed that BF6 would have infrastructure capable of using hydrogen from the proposed pilot plant, which is in the early stages of the planning process. It is predicted the pilot hydrogen plant could reduce emissions by a further 12,000 tCO<sub>2-e</sub> per year and provide the information required to up-scale the hydrogen plant to provide further reductions in the future. The Department acknowledges the development and use of hydrogen is new both in Australia and internationally, and the ramp up of production to the level required to fire the blast furnace would take some time to achieve.

The steelworks is the largest manufacturing facility in Australia with its contribution to Australian emissions (1.4%) reflecting this. Steel is currently a carbon intensive material to produce and significant levels of investment and long-term planning are needed to transition to low carbon manufacturing processes. Steel is one of the most commonly used construction materials in the world, it is recyclable and it is a critical material for renewable energy projects such as wind, solar and hydro-electric systems. The project would ensure steelmaking can continue while alternative processes are developed to a commercially viable scale as part of Australia's transition to net zero emissions by 2050.

The Department has recommended the Proponent implement best practice measures to reduce the greenhouse gas emissions from the project and provide reports every three years on the progress of implementing abatement technologies to reduce emissions.

Several public submissions raised concerns about the impacts of using coal from mines under the Sydney drinking water catchment in the Illawarra. The Department notes the consideration of these

impacts is subject to separate assessment and approvals processes and does not form part of this SSI application. A recent decision by South 32 to withdraw a planning application to extend the Dendrobium mine in the Illawarra means the Proponent will need to source coal from other mines in the future to supply the blast furnace. The Department understands the Proponent is preparing for a transition to alternative coal supplies through the proposed upgrade to ship berths at the steelworks to enable an increase in coal imports. The upgrade of the ship berths is a separate SSI application for which SEARs were issued in March 2022 and the Proponent is currently preparing an EIS for the project. The Department's assessment concludes the GHG emissions from the project are consistent with the existing operations and the Proponent is pursuing alternative low emissions steelmaking processes to substantially reduce emissions by 2050.

## **6.4 Social and Economic**

### Background

The steelworks is the largest manufacturing facility in Australia and produces 3 million tonnes of steel per annum with around 2.2 million tonnes sold in the Australian domestic market. The steelworks directly employs 4,500 people and is estimated to support a total of 10,000 jobs in the Illawarra region. The steelworks injects around \$10 billion annually into the NSW economy.

### Assessment method

The Proponent prepared a social impact assessment for the project in accordance with the Department's *Social Impact Assessment Guideline – State significant projects, 2021*. The assessment included wide consultation with stakeholder groups in the region and consideration of the social and economic impacts and benefits during construction and operation.

### Construction

The construction phase would last for 3 years and would have minor amenity impacts on residential areas. The location of BF6 within the steelworks means there is good separation distances from residences, limiting the potential for adverse noise and dust impacts. Traffic impacts would also be minor in the context of existing traffic movements on the local road network. The construction phase would have considerable economic benefits through the creation of between 250 and 1,000 construction jobs. The Proponent would develop a contracting and procurement strategy to maximise the use of local workers to ensure the benefits of the project flow through to the local economy.

### Operation

Operation of the project would generate wastewater discharges, particulate and gaseous emissions and greenhouse gases, however these would be similar or slightly better than the existing operation of BF5. These emissions would comply with relevant criteria and would not cause adverse amenity impacts on residential areas.

The project would make a significant economic contribution to the region and NSW, generating around \$6.5 billion, or 24% of regional economic output per year. Continued steelmaking would retain 4,500 direct jobs and 10,000 indirect jobs. Public submissions on the project were strongly supportive (416 submissions), recognising the economic and employment benefits to local people and the broader region. The Proponent would also continue to invest in community partnership programs and provide sponsorships to local organisations.

### Department's consideration

The blast furnace is a critical piece of infrastructure in steelmaking and the relining project would ensure continued domestic production of steel beyond 2026 when BF5 ceases operation. This would ensure supply chain security for construction projects in NSW and around Australia.

Construction of the project would generate at least 250 jobs for local workers and invest \$789 million in the region over a 3 year period. Operation of BF6 would secure employment for the existing workforce of 4,500 people and contribute to the economic growth of the Illawarra region. The Proponent is also investing in alternative technologies, such as hydrogen and a renewable manufacturing zone, to ensure a long-term and sustainable transition to low emissions steelmaking in the region.

The Department acknowledges the concerns raised in public submissions about the impacts of using coal in the blast furnace that is sourced from under the Sydney drinking water catchment. The impacts of these coal mining operations are assessed and regulated separately to this application, as are the other raw material inputs such as iron ore.

The Department reviewed the Proponent's social and economic assessment and concluded the project would make a substantial social and economic contribution to the Illawarra region and support the growth of the NSW economy.

## 6.5 Other Issues

The Department's assessment of other issues is provided in **Table 4**.

**Table 4 | Assessment of Other Issues**

Findings	Recommendations
<b>Hazards and Risk</b>	
<ul style="list-style-type: none"><li>The use of explosives for blasting the furnace lining triggers the thresholds in the Resilience and Hazards SEPP, requiring a Preliminary Hazard Analysis (PHA).</li><li>The Proponent provided a PHA including comprehensive hazard identification to demonstrate the project does not pose a significant off site risk.</li><li>The key hazards with the potential for off- site risks include fire and explosion from the natural gas supply and self-generated gas, explosion of molten metal and water, discharge of toxic dust and fumes and the use of explosives.</li><li>The detailed analysis concluded the project would not have an off-site impact and would comply with the risk criteria in the Department's Hazardous Industry Planning and Advisory Paper No. 4 (HIPAP 4). The PHA recommended controls to minimise risks, including inspection and maintenance regimes for gas distribution networks, controlled use of water around furnace areas and storage of explosives at least 90 m from the site boundary.</li><li>The Department's hazards specialists reviewed the PHA and requested some clarifications on escalation risks to other infrastructure, process flow details and the failure frequencies used in the risk calculations.</li><li>Following review of the RTS, the Department's hazards specialists were satisfied with the clarifications and noted the risk analysis was appropriately conservative</li></ul>	<p>Require the Proponent to:</p> <ul style="list-style-type: none"><li>prepare pre-construction and pre-commissioning safety studies</li><li>provide pre-start up and post-start up compliance reports</li><li>conduct regular hazard audits</li><li>store all chemicals, fuels and oils in accordance with relevant standards.</li></ul>

## Findings

## Recommendations

and complies with HIPAP 4. The Department recommends conditions to ensure continual safe operation of BF6 including pre-construction and pre-commissioning safety studies and a regular hazard audit.

- The Department's assessment concludes construction and operation of the project would comply with the relevant land use safety criteria.

## Traffic

- During construction, there would be an estimated 300 light vehicles per day (vpd) and between 50 – 100 trucks per day accessing the site. Around 95% of vehicle movements would be via the Cringila Car Park Access Road. The traffic volumes are worst-case and account for increases in the workforce if scheduling requires the work to be finished in a shorter timeframe.
  - The Proponent's traffic impact assessment (TIA) concluded the project would have negligible impacts on local and regional roads. A total of 570 car parking spaces are available on the site, and this would adequately accommodate the construction workforce of 250, with overflow parking available if required.
  - Some over-size over-mass (OSOM) vehicles would be used to deliver plant to the site, and these would require permits from TfNSW. The use of these vehicles would be intermittent and would not impact on intersection performance.
  - The Proponent proposes to develop a construction traffic management plan to minimise any disruptions during the construction period.
  - TfNSW reviewed the TIA and recommended conditions for parking and the use of OSOM vehicles. Council recommended the project comply with relevant Australian Standards for vehicle access.
  - The Department reviewed the TIA and advice from TfNSW and concluded the project would have minimal impact on the local and regional road network and parking needs would be accommodated on the site.
  - The Department's assessment concludes the project would have negligible traffic impacts.
- Require the Proponent to:
- prepare a Construction Traffic Management Plan and implement the plan for the duration of construction.

## Noise and Vibration

- The Proponent prepared a noise and vibration assessment (NVA) which noted:
    - noise from operation of BF5 would be replaced by noise from BF6
    - the EPA's Noise Policy for Industry, 2017 requires noise from new equipment on existing industrial sites to be 10 decibels (10 dB) lower than existing industrial noise levels
    - the Proponent requests approval for 24-hour construction to enable certain works to be scheduled when there are minimal staff on site. The majority of construction works would be during standard working hours.
- Require the Proponent to:
- comply with noise limits and vibration standards
  - comply specific working hours
  - conduct blasting between 9 am and 5

## Findings

## Recommendations

### Noise

- The NVA modelled all construction noise sources and concluded the majority of works would be below the noise management levels in the Interim Construction Noise Guideline (ICNG), except for rock breaking and piling, if they are undertaken outside of standard working hours. The Proponent has committed to limiting these works to standard hours and implementing a construction noise and vibration management plan.
- The NVA concluded BF6 operation would comply with the criteria of 10 dB below existing site noise levels for 24-hour operations and would be below sleep disturbance criteria.
- During commissioning, there would be infrequent releases from the furnace top bleeder valves that would be audible at residences at around 85 dBA. There are limited options to mitigate this noise, so the Proponent would notify residences prior to commissioning.

- pm and undertake monitoring
- conduct monitoring in accordance with the EPL.

### Vibration

- The NVA concluded vibration impacts from heavy equipment used for construction could be managed by maintaining safe working distances from sensitive receivers.
- Ground vibration and airblast overpressure impacts from blasting inside the furnace (10 small blasts over a 10 day period) would be well below relevant limits. This was confirmed during monitoring of similar blasting in 2009, which confirmed there were no discernible impacts at sensitive receivers. The Proponent requested blasting be conducted between 6 am to 8 pm when there are minimal staff on site.

### Consideration

- Noise and vibration were not raised as an issue in public submissions and the EPA advised the site has historically received very few noise complaints.
- Noise and vibration during construction would meet relevant levels for the majority of works and predicted exceedances can be managed by limiting certain works to standard hours and maintaining safe working distances.
- The EPA recommended standard construction working hours be applied, except for works that would comply with the ICNG noise management levels, which can be conducted outside these hours. The EPA also recommended limited hours for blasting, from 9 am to 5 pm, unless monitoring of the first two blast events confirms the impacts are not discernible off site, then extended hours may apply.
- The assessment of operational noise concluded there would be no increase in noise from the steelworks due to operation of BF6.
- The EPA recommended noise limits consistent with the limits in the existing EPL for the steelworks. The Department has included these recommendations to ensure noise from the steelworks would not impact residential receivers.

## Findings

## Recommendations

- The Department's assessment concludes the potential for noise and vibration impacts from the project are low and recommends conditions including noise limits, vibration standards, hours of work and compliance with the EPL.

### Soils, Groundwater and Contamination

- There are known areas of soil contamination and a groundwater plume on site. The Proponent undertakes regular monitoring of the contamination and reporting to the EPA. 

Require the Proponent to:

  - prepare an unexpected finds procedure to manage any contamination encountered during excavations.
- The project will involve some soil excavation which has the potential to expose contaminants. The Proponent anticipates the likelihood and potential impacts would be minimal and proposes to prepare an unexpected finds procedure to manage any contaminated material that may be encountered. The Proponent would also prepare an erosion and sediment control plan to minimise the movement of soils during construction.
  - obtain relevant water licences.
- The EPA did not raise any concerns regarding soils, groundwater or contamination. The DPE Water Group advised of the need for a water access licence if excavations result in significant groundwater take.
- The Department considers the Proponent's proposed measures are appropriate for managing potential contamination as most work would be undertaken on existing hardstand areas and excavations would be limited. The Department's assessment concludes the site is suitable for continued industrial use, and any contamination can be appropriately managed through an unexpected finds procedure.
  - implement measures to manage acid sulfate soils.

### Waste Management

- Relining the blast furnace requires removal of the material that builds up on the lining and the refractories which contain a range of heavy metals. The material would be stockpiled in the construction laydown areas, then classified and either reused in the blast furnace and sintering processes or disposed off-site. 

Require the Proponent to meet statutory requirements for storage, handling and treatment of waste.
- The Proponent proposes to develop a waste management plan for the construction phase detailing waste sorting, testing, recycling and disposal procedures.
- Operation of the blast furnace generates slag, which is blended to create rock slag and granulated slag for reused in road base and cement production. The recovery and sale of blast furnace slag is undertaken in accordance with the EPL and the EPA's Resource Recovery Order for Blast Furnace Slag and would continue when BF6 is operational.
- The Department notes the Proponent has existing systems in place for managing construction and operational waste including the recycling and beneficial reuse of slag.

## Findings

## Recommendations

- The Department's assessment concludes that waste from the project would be appropriately minimised and managed.

## Heritage

- No listed items of historic heritage are located on the site.
- Heritage Council of NSW reviewed the EIS and had no comments.
- The Department considers an unexpected finds protocol is adequate for managing any potential heritage impacts.
- The steelworks site has been subject to dredging and reclamation works and there are no recorded Aboriginal sites in the area. The project would have minimal impact as the only excavation works would be limited to piling into bedrock.
- Heritage NSW recommended the Proponent provide information about its consultation with the Aboriginal community about the site's cultural heritage.
- The Proponent provided details of consultation in the RTS and Heritage NSW advised the consultation was satisfactory and demonstrated sustained engagement and active involvement with the Aboriginal community.
- The Department's assessment concludes the project would have negligible impacts on Aboriginal and non-Aboriginal heritage.

Require the Proponent to implement an unexpected finds procedure to manage historic and Aboriginal heritage.

## Biodiversity

- On 5 August 2021, the Environment Agency Head and Planning Agency Head concluded the project is not likely to have any significant impact on biodiversity values and granted a BDAR waiver.
- The EIS noted there is a known population of the Green and Golden Bell Frog (listed on the BC Act and EPBC Act) on the broader steelworks site, around 1.4 km from the blast furnace. The project is unlikely to impact this species, however BlueScope proposes to implement measures detailed in its Green and Golden Bell Frog management plan throughout construction to minimise any potential impacts.
- The Department's assessment concludes the project is unlikely to impact on biodiversity values as the site is highly industrialised with no vegetation removal required.

Require the Proponent to implement relevant measures from BlueScope's Green and Golden Bell Frog management plan for the duration of construction.

## 7 Evaluation

The Department's assessment of the application has fully considered all relevant matters under the EP&A Act and the policies and guidelines applicable to the project.

The Minister declared the project to be Critical state significant infrastructure due to the substantial contribution of the steelworks to the NSW economy and the number of jobs it provides in the Illawarra region.

The relining of BF6 would ensure the on-going economic viability of the steelworks and retain 4,500 direct jobs. The project has a capital investment value of \$789 million and would generate up to 1,000 construction jobs.

The project would refurbish an existing piece of infrastructure on an industrial site that has been used for steelmaking for 100 years. BF6 is strategically located adjacent to the Port Kembla Inner Harbour where existing infrastructure is in place for steelmaking and there is an established industrial workforce. The project is consistent with strategic planning for the Illawarra, which acknowledges the economic importance of industry around the Port Kembla harbour in sustaining and growing the region.

The impacts of the project are similar to the existing operations using BF5, with some improvements in water quality, air and greenhouse gas emissions due to new technology being installed on BF6. The relining and operation of BF6 is critical for ensuring continued production of steel once BF5 is decommissioned and would enable the Proponent to fund a transition to low to zero emissions steelmaking by 2050.

Most submissions (416) supported the project, with 21 objecting and 8 providing comments. Submissions supporting the project noted the economic and employment benefits to local people and the need for domestic steel production. Submissions objecting raised concerns about locking in greenhouse gas emissions and the need to adopt low emissions steelmaking technologies. Wollongong City Council provided a submission supporting the project.

The key assessment issues relate to water quality, air quality, greenhouse gas emissions, social and economic. The Department worked closely with the EPA to develop conditions for the management of wastewater and air emissions.

The Department's assessment concluded the wastewater discharges from the project would be adequately managed, with the installation of a wastewater treatment system to reduce heavy metals in the blow down water discharges. This system would be installed prior to operation of BF6 and its effectiveness would be verified through monitoring. Operation of BF6 would generate similar air emissions to the existing operation, with some improvements expected from the slag handling process and the new waste gas heat recovery system. The Department's assessment concluded the project would not result in adverse air quality impacts at sensitive receivers.

The GHG emissions of the project were a key concern in public submissions with many requesting urgent adoption of green steel making methods to reduce emissions. The Department's assessment concluded the project would result in a 2.5% reduction in GHG emissions compared to the existing operations, and the Proponent is pursuing a number of projects to transition to low to zero emissions steelmaking by 2050, consistent with the Australian Government's commitments via the Paris Agreement. The Department notes the transition to low emissions steelmaking will take some time as alternative technologies need further development before they will be commercially viable. The

Proponent has committed to this transition, but full-scale production of low emissions steel is a long-term project that cannot be feasibly implemented in the immediate term. The Department has recommended the Proponent implement best practice measures to reduce the greenhouse gas emissions from the project and provide reports every three years on the progress of implementing abatement technologies to reduce emissions.

Based on its assessment, the Department has concluded that the project:

- is critical to the State for economic and employment reasons
- would ensure supply chain security for steel for nation building projects
- is consistent with strategic planning for the Illawarra region
- would invest \$789 million in the Wollongong local government area
- would retain 4,500 direct jobs and support a total of 10,000 jobs in the Illawarra region
- would comply with relevant environmental performance criteria for wastewater discharges and air emissions.

Consequently, the Department considers the project is in the public interest and should be approved, subject to conditions.

## 8 Recommendation

It is recommended that the Minister for Planning:

- **considers** the findings and recommendations of this report
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant approval to the application
- **agrees** with the key reasons for approval listed in the notice of decision
- **grants approval** for the application in respect of SSI-22545215, subject to the conditions in the attached project approval (**Appendix D**)
- **signs** the attached project approval and recommended conditions of approval (see **Appendix D**).

**Recommended by:**



14.09.22

**Chris Ritchie**  
Director  
Industry Assessments

**Recommended by:**



16/09/2022

**Clay Preshaw**  
Executive Director  
Energy, Resource and Industry Assessments

**Recommended by:**



16/09/2022

**David Gainsford**  
Deputy Secretary  
Development Assessment

# Appendices

## Appendix A – List of Documents

The Department has relied upon the following key documents during its assessment of the project:

### Environmental Impact Statement

- Blast Furnace No.6 Reline Project Environmental Impact Statement prepared by GHD dated 7 March 2022

### Submissions

- All submissions received from the public and special interest groups and advice received from government authorities

### Response to Submissions

- Blast Furnace No.6 Reline Project Response to Submissions prepared by GHD dated 6 July 2022

All documents relied upon by the Department during its assessment of the application may be viewed at: <https://www.planningportal.nsw.gov.au/major-projects/projects/blast-furnace-6-reline>

## Appendix B – Considerations of the Objects of the EP&A Act

**Table 5 |** Consideration of the Project against the relevant Objects of the EP&A Act

Object	Consideration
a) <i>to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,</i>	The project would promote the social and economic welfare of the Illawarra community through a capital investment of \$789 million, creation of up to 1,000 construction jobs, and retention of 4,500 direct jobs and 10,000 indirect jobs.
b) <i>to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,</i>	The Department considers the project can be carried out in a manner that is consistent with the principles of ecologically sustainable development. The Department's assessment has sought to integrate all significant environmental, social and economic considerations.  The project incorporates ecologically sustainable development design measures through the addition of gas and waste heat recovery systems to reduce emissions and energy consumption.
c) <i>to promote the orderly and economic use and development of land,</i>	The project would ensure the orderly and economic use of land by refurbishing an existing industrial facility to enable its continued industrial use. The site has operated as a steelworks for nearly 100 years and continued steelmaking on the site is consistent with the historical land use and industrial zoning.
e) <i>to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities,</i>	The project would not impact on threatened species or ecological communities, with no vegetation clearing required. Measures would be implemented to ensure no impacts on the Green and Golden Bell Frog population located 1.4 km north of the project site.
f) <i>to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),</i>	The project would not impact on built or cultural heritage. The Proponent consulted the Aboriginal community about cultural heritage during the preparation of the EIS.
g) <i>to promote good design and amenity of the built environment,</i>	The relining project includes gas and waste heat recovery systems that would improve the amenity of the built environment by reducing emissions and energy consumption.
i) <i>to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State</i>	The Department has assessed the project in consultation with Council and other government agencies, incorporating the recommendations into the conditions of approval.
j) <i>to provide increased opportunity for community participation in environmental planning and assessment.</i>	The application was publicly exhibited for 28 days providing opportunity for public participation in the assessment process. All project documents, including the EIS and RTS were made available on the Department's website. The Proponent also consulted with the community throughout the preparation of the EIS, including regular briefings at BlueScope's Community Consultative Committee.

## Appendix C – Consideration of Community Views

Table 6 provides a summary of how the key issues raised by the community were taken into consideration.

Table 6 | Department’s Consideration of Community Views

Issue	Consideration
<p><u>Jobs</u></p> <ul style="list-style-type: none"> <li>• supports thousands of jobs</li> <li>• creates new jobs</li> <li>• uses local contractors</li> <li>• provides an economic contribution to workers with disabilities</li> </ul>	<p><u>Assessment</u></p> <ul style="list-style-type: none"> <li>• Continued steelmaking would retain 4,500 direct jobs and 10,000 indirect jobs.</li> <li>• The Proponent proposes to develop a contracting and procurement strategy to maximise local employment, continue to invest in community partnership programs and engage the community through the Community Consultative Committee.</li> <li>• The Department’s assessment concluded the project is critical for ensuring continued employment for 4,500 people and providing a total of 10,000 indirect jobs in the Illawarra region.</li> <li>• No conditions required.</li> </ul>
<p><u>Economy</u></p> <ul style="list-style-type: none"> <li>• critical for the Illawarra economy</li> <li>• directly supports local businesses</li> <li>• enables continued support for community projects</li> </ul>	<p><u>Assessment</u></p> <ul style="list-style-type: none"> <li>• The project would make a significant economic contribution to the region and NSW, generating around \$6.5 billion, or 24% of regional economic output per year.</li> <li>• The Department’s assessment concluded the project would make a substantial social and economic contribution to the Illawarra region and support the growth of the NSW economy.</li> <li>• No conditions required.</li> </ul>
<p><u>Domestic capability</u></p> <ul style="list-style-type: none"> <li>• maintain domestic steelmaking capability</li> <li>• ensure supply chain security for critical building projects</li> </ul>	<p><u>Assessment</u></p> <ul style="list-style-type: none"> <li>• The steelworks produces around 3 million tonnes of steel per year, with over 2.2 million tonnes supplied to the Australian market.</li> <li>• Continued domestic production of steel at Port Kembla is critical to supply chain security for major infrastructure projects, defence, residential and commercial building projects.</li> <li>• Maintaining domestic production is seen as even more important since the Covid-19 pandemic highlighted risks and delays in the global supply chain.</li> <li>• No conditions required.</li> </ul>
<p><u>Environmental improvements</u></p> <ul style="list-style-type: none"> <li>• \$100 million investment in new technology to improve emissions</li> </ul>	<p><u>Assessment</u></p> <ul style="list-style-type: none"> <li>• BF6 would be fitted with new technology to reduce air emissions including a waste gas heat recovery unit, condensing unit, more efficient burners and a second dedusting hood. This technology would offset energy consumption by the capture and reuse of waste heat and gas within the blast furnace and broader steelworks.</li> </ul> <p><u>Recommended Conditions</u></p> <ul style="list-style-type: none"> <li>• The Department has recommended the Proponent provide a design verification report to demonstrate the emissions reductions achieved by the new technology and implement monitoring to verify the performance of the technology when BF6 is operational.</li> </ul>

Issue	Consideration
<p><u>Greenhouse gas emissions</u></p> <ul style="list-style-type: none"> <li>locking in GHG emissions by using old blast furnace technology</li> <li>inconsistent with Australia's commitment to reduce emissions, under the Paris Agreement</li> </ul>	<p><u>Assessment</u></p> <ul style="list-style-type: none"> <li>In 2021, the steelworks emitted 6,868,848 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>-e).</li> <li>There would be a 2.5% reduction in GHG emissions from the steelworks with the operation of BF6 due to the new technology proposed.</li> <li>The Proponent is pursuing alternative steelmaking technologies involving the use of hydrogen and other renewable energy sources, an iron melter and an electric arc furnace. These low to zero emissions steelmaking technologies would not be commercially scalable until around 2050.</li> <li>The Department's assessment concluded the GHG emissions from the project would be similar to the existing operations, with limited opportunity to further reduce emissions without a fundamental change in the way steel is produced on site. The Department acknowledges the Proponent is transitioning to low to zero emissions steelmaking over the long-term, consistent with the Australian Government's commitments under the Paris Agreement.</li> </ul> <p><u>Recommended Conditions</u></p> <ul style="list-style-type: none"> <li>The Department has recommended the Proponent provide a design verification report to demonstrate the emissions reductions achieved by the new technology and implement monitoring to verify the performance of the technology when BF6 is operational.</li> <li>The Department has also recommended the Proponent implement best practice measures to minimise greenhouse gas emissions and provide reports every three years on the progress of implementing abatement technologies to reduce emissions.</li> </ul>
<p><u>Coal mining impacts</u></p> <ul style="list-style-type: none"> <li>environmental and water security impacts of using coal from underground mines in the Sydney drinking water catchment</li> </ul>	<p><u>Assessment</u></p> <ul style="list-style-type: none"> <li>The impacts of coal mining within the Sydney drinking water catchment is subject to separate assessment and approvals processes.</li> </ul> <p><u>Recommended Conditions/Response</u></p> <ul style="list-style-type: none"> <li>None required in this approval, as the impacts of coal mining projects are assessed separately.</li> </ul>

## **Appendix D – Recommended Instrument of Approval**

Refer to the “Determination” folder on the Department’s website at the link below:

<https://www.planningportal.nsw.gov.au/major-projects/projects/blast-furnace-6-reline>