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15 December 2020

Commissioners Steve O'Connor (Panel Chair) and John Hann  
Independent Planning Commission

Via email: [ipcn@ipcn.nsw.gov.au](mailto:ipcn@ipcn.nsw.gov.au)

Thank you for the opportunity to make a submission for the Independent Planning Commission's consideration of the Dendrobium Mine Extension Project (SSD 8194) (the Project). This submission is an update on the earlier submission BlueScope made.

BlueScope endorses the NSW Department of Planning, Industry and Environment's belief that the Project's benefits significantly outweigh its residual costs, and that it is in the public interest and is approvable, subject to certain conditions (Assessment Report, xvii).

BlueScope is not seeking to address a range of aspects of the Project, including its environmental management strategy, environmental impact mitigation measures and monitoring. As steelmakers, we are not experts in mining and water catchment management. Additionally, BlueScope has not addressed a number of "what-if" scenarios raised by some other witnesses as this would require us to speculate on the commercial interest of others and on various planning and development decisions by state and federal regulators.

The purpose of BlueScope's submission is to firstly emphasise to the Independent Planning Commission, and the state of NSW, the critical importance of a continuation of mining in the Southern Coalfield of NSW for the ongoing production of iron and steel at the Port Kembla Steelworks. Metallurgical coal supplies for BlueScope are reliant upon an ongoing commercially viable coal mining sector in the Southern Coalfield. BlueScope understands that export sales are critical to the mining operations remaining commercially viable. Further, local supplies of metallurgical coal are vital for the continuing economic health of the Illawarra region and NSW at large, including the 4,500 direct jobs and contractors, supporting around 8,900 jobs that rely on Port Kembla Steelworks, the largest steel production facility in Australia.

This importance has only been enhanced as the production of domestic steel has become a critical part of:

- a) The development of sustainable and secure supply chains post the COVID pandemic; and
- b) the significant step up in investment in renewable energy projects across NSW because of recently announced NSW Government policies.

The second purpose of this submission is to emphasis the important role of the Dendrobium Mine, operated by South32, as one key mine that supplies metallurgical coal for steelmaking at Port Kembla.

Currently, there is no economically viable, commercial-scale alternative to the use of metallurgical coal in the blast furnace method of steelmaking, which is employed at Port Kembla Steelworks. The Project would provide a local and continued supply of metallurgical coal to the Steelworks, allowing BlueScope to continue to generate at least \$6.5 billion in regional economic output for the Illawarra region.

BlueScope is reducing its emissions and supporting the development of alternatives to the use of coke in the production of iron and steel. However, the production of virgin iron units manufactured using coke from metallurgical coal can be expected to continue to be the predominant method of making iron and steel in Australia for the foreseeable future.

## Importance of Domestic Steel Production for Renewable Energy Projects and Secure Supply Chains

The NSW Government has announced its 20-year *Electricity Infrastructure Roadmap* to deliver three Renewable Energy Zones (REZ) across regional NSW. As part of the announcement the Government committed to maximising local manufacturing involvement<sup>1</sup>. Specific mention was made of the importance of steel in delivering the three REZs. There is the potential for more than 650,000 tonnes of domestically produced steel to be transformed by NSW manufacturers into components for wind towers, solar farms and pumped hydro renewable energy projects and the required transmission infrastructure delivering local employment and economic development across the state. Much of this steel can be expected to be sourced from the Port Kembla Steelworks.

Currently much of the steel for renewable energy projects is imported, including as pre-fabricated finished goods meaning little positive economic impact for local communities and NSW. For example, the overwhelming majority of machinery and plant for wind farm projects is imported.

**Table One: Use of Steel in Wind Farms**

Project	Size	Tower Supply	Value of fabrication + steel supply
<b>Boco Rock Wind Farm</b>	113 MW 67 Turbines	100% unknown offshore fabricator. Tower components transported from the Port of Eden	6.8kt steel
<b>Crookwell 2 Wind Farm</b>	95 MW 28 Turbines	100% unknown offshore fabricator	5.7kt steel
<b>Sapphire Wind Farm</b>	270 MW 75 Turbines	Offshore fabricator. Named in Anti-Dumping Case.	16.2kt steel
<b>Silverton Wind Farm</b>	200 MW 58 Turbines	Manufactured in Vietnam	12kt steel
<b>Bodangora Wind Farm</b>	113 MW 33 Turbines	100% unknown offshore fabricator. Base plates supplied by BlueScope (225t)	6.8kt steel
<b>Taralga Wind Farm</b>	107 MW 58 Turbines	BlueScope supply. Fabricated domestically by Keppel Prince from Portland, VIC	6.5kt steel
<b>White Rock Wind Farm</b>	175 MW 70 Turbines	BlueScope (5,300t). Keppel Prince did 2 sections on 5 section towers. Balance imported.	10.5kt steel

(Source: BlueScope data)

However, Australian manufacturers, such as Keppel Prince based in Portland Victoria, can compete using domestically produced steel plate. A typical individual wind tower can include up to 300 tonnes of steel plate. Other opportunities include steel pilings and componentry for solar farms and monopoles for transmission infrastructure.

Given the size of the opportunity, BlueScope has announced a \$20 million investment in the BlueScope Renewable Manufacturing Zone (BRMZ). The plan is to support the NSW Government's *Electricity Infrastructure Roadmap* by offering half of the \$20M incentive program to companies who want to build manufacturing capability in NSW, especially in the fast-growing renewable energy sector. The other half will be invested by BlueScope directly at the Steelworks, to tool up the facilities in preparation for this exciting growth opportunity.

There are a range of incentives BlueScope will consider including; co-investment in start-ups, joint R&D pilot programs, office rental accommodation, leases for manufacturing sites, warehousing and

<sup>1</sup> Available at <https://energy.nsw.gov.au/manufacturing-renewables-taskforce-boost-regional-jobs-and-local-industry>

logistics facilities, and access to professional technical expertise from within BlueScope and, external organisations such as the University of Wollongong and other Universities across NSW.

Additionally, the COVID pandemic has revealed the importance of ensuring resilient supply chains for economic wellbeing and national security. Steel is one foundation of the Federal Government's Modern Manufacturing Initiative to support local manufacturers become more competitive, resilient, and able to scale-up to take on the world<sup>2</sup>.

But the bottom line is that to maximise these opportunities, to supply the local steel manufacturing supply chain, production of iron and steel from the Port Kembla Steelworks must be ongoing and that implies continued access to coking coal from the Southern Coalfields.

### **BlueScope's Economic Impact in the Illawarra Region, NSW and Australia**

In the Illawarra, BlueScope's impact is striking. The Port Kembla Steelworks and Springhill Works together employ approximately 4,500 people directly plus contractors and are responsible for supporting 8,900 jobs in the Illawarra region. BlueScope's effect represents 10% of jobs in the region (8,900), 11% of Gross Regional Product (\$1.6 billion) and 24% of the region's total output (\$6.5 billion).

In NSW, BlueScope accounts for almost 1% of Gross State Product (\$4 billion) and 0.6% of FTE jobs (19,200).

BlueScope's effect on the nation is sizable, representing 0.4% of Gross Domestic Product and Household Income, whilst supporting 33,641 FTE jobs across the country.

### **About BlueScope Steel**

BlueScope is Australia's largest steel manufacturer and the only flat steel producer. BlueScope employs 6,100 people in Australian regions and cities to supply our nationwide customers in the building and construction, manufacturing, transport, and agriculture sectors. BlueScope also exports steel products and is a global leader in premium coated and painted steel products, operating in 18 countries.

Steel is a fundamental building block of any modern society and a domestic steel manufacturing capability is a critical and strategically valuable asset for Australia's future economic security and prosperity.

Keeping production costs at globally competitive levels is critical to the viability of the highly trade-exposed Australian steel industry, which accounts for only 0.3 percent of global steel capacity. The local industry operates under very low tariffs and non-tariff barriers and faces intense competition as excess global steelmaking capacity has led to the dumping of foreign-made steel into the Australian market. The Australian steel industry also exports approximately 700,000 – 800,000 tonnes of steel products each year, to a diverse range of markets including Asia and North America.

BlueScope's goal is to have sustainable businesses in Australia that generate sufficient cash flow and return for investors to support reinvestment in them. In an open market with low trade barriers, the only way to achieve this goal is to have a cost structure that is competitive with imported steel and competitors in major export markets.

### **BlueScope's Commitment to Sustainability**

BlueScope believes that sustainability is integral to the long-term growth of the company, and that steel plays a critical role in supporting sustainable local communities and a sustainable society. To this end, BlueScope and its coal supplier, South32, seek a regulatory and licensing regime that is stable and

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<sup>2</sup> Available at <https://www.minister.industry.gov.au/ministers/karenandrews/media-releases/transforming-australian-manufacturing-rebuild-our-economy>

predictable, and promotes the safe and sustainable operation of the Dendrobium Mine according to proven scientific findings.

The company takes a no regrets, lifecycle approach, seeking to improve the performance of its products over their entire lifecycles, with a focus on the four principles of a circular economy: reduce, reuse, remanufacture and recycle.

BlueScope supports the Paris climate change agreement and the individually determined national targets of the countries in which it operates. The company believes that climate change presents both risks and opportunities for its operations and stakeholders. It recognises that investors, customers and the communities in which it operates are increasingly demanding that the company disclose these risks and opportunities and take action to improve its greenhouse gas emissions and energy efficiency.

Accordingly, the company publicly reports in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), has set targets to reduce its emissions, and is developing a climate change strategy that is integrated with its corporate strategy.

Since 2005, BlueScope has reduced its global emissions by approximately 30 per cent, with an approximate 40 per cent reduction at our Australian operations – partly due to the closure of a blast furnace at Port Kembla Steelworks in 2011.

The company's current target is to achieve a 12 per cent reduction in the GHG emissions intensity of its three global steelmaking sites (Port Kembla Steelworks; North Star mini mill in US; New Zealand Steel) by 2030.

In FY2019, our GHG intensity fell 1.2 per cent compared to FY2018. Our performance in FY2020 was impacted by the government mandated shutdown of steelmaking operations in New Zealand, contributing to a 1.2 per cent increase in emissions intensity on FY2019. Scope 1 and 2 absolute GHG emissions reduced by 119,000 tCO<sub>2</sub>-e; however, energy intensity per tonne of steel increased from 17.1 to 17.5 GJ/t compared to the prior period. This illustrates the impact of a reduction in raw steel production while keeping plant and machinery running at the minimum level required during shutdown periods.

The company is working on a long-term target, which is being developed in line with our climate change strategy and considering likely timelines for the commercialisation of breakthrough technology.

In June this year, BlueScope became a founding member of the Net Zero Steel Pathway Methodology Project, along with Tata Steel, ArcelorMittal and Liberty Steel Group. The initiative seeks “to establish recognised methodological guidance on the net zero transition pathway for all steelmaking, for the use by policymakers, organisations, investors, customers and civil society, taking into account the views and needs of relevant stakeholders.”<sup>3</sup>

In 2018 the company embarked on a seven year, 233,000MWh per annum renewable Power Purchasing Agreement, for a new 500,000 panel solar farm at Finley in NSW. This project is online and currently contributing to the decarbonisation of the electricity grid by an estimated 300,000 tonnes CO<sub>2</sub>-e per annum.

BlueScope is also implementing a pipeline of energy efficiency projects. In FY2018 BlueScope completed some 71 projects, from a pipeline of 111. Examples of recent projects include:

- A self-generation upgrade at Port Kembla using recovered output gas to generate electricity (No.22 Turbo Alternator project), which reduced electricity grid demand by 7%, equivalent to 46,000t CO<sub>2</sub>-e p.a.
- Upgrades to LED lighting across BlueScope's global footprint in sites ranging from large scale manufacturing facilities to small processing and warehousing locations, reducing both energy costs and scope 2 emissions.

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<sup>3</sup> BlueScope *Sustainability Report 2019-20* pg.45 <https://s3-ap-southeast-2.amazonaws.com/bluescope-corporate-umbraco-media/media/2915/bsl-2020-sustainability-report.pdf>

Many of BlueScope's products are registered under the Australian environmental product declaration program, which provides detailed information about their environmental performance, can assist in determining the environmental impact of buildings and infrastructure that use these products, and can help earn points for Green Star building projects.

### **Efficiency of Operations at Port Kembla and the Need for Metallurgical Coal**

Coal remains one of a small group of raw materials – along with iron ore and fluxes – that are still essential ingredients in the manufacture of commercial quantities of virgin iron and steel.

Based on its properties, a coal can be classified by rank, from lowest to highest, with lower rank coals containing less carbon, more moisture and having lower calorific values. In general terms, based on rank, coal can be classified as either thermal coal or metallurgical coal.

Thermal coal is primarily used in power generation or cement manufacture.

Metallurgical coals are primarily used in the production of iron and steel and can be grouped into four classes as follows:

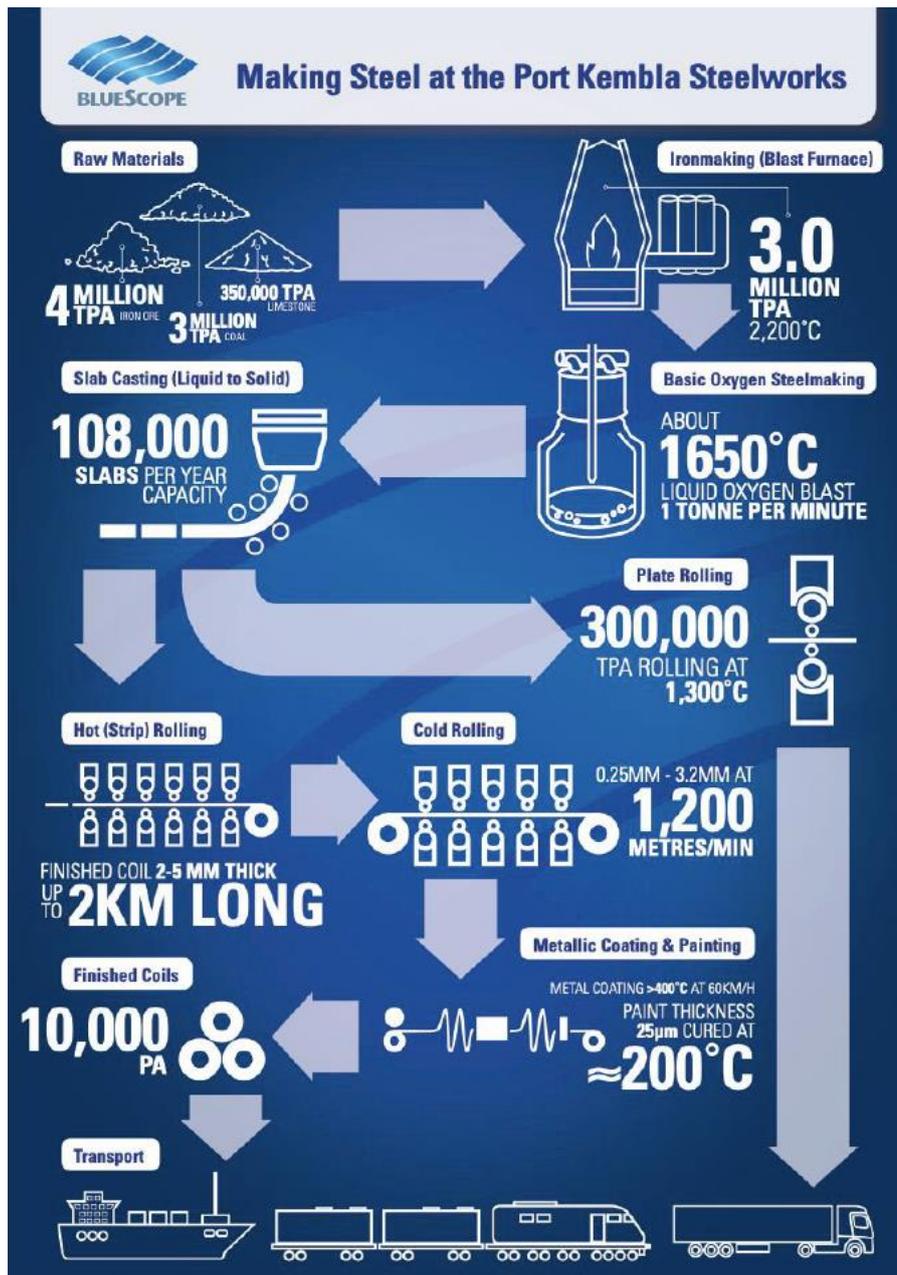
- **Hard coking coal (HCC)** – Has a very high level of carbon and forms stronger coke. Coke strength is essential for efficient blast furnace operation.
- **Semi-hard coking coal (SHCC)** – High levels of carbon, but not as high as HCC. Not as competent in making stronger coke. May have higher levels of impurities.
- **Semi-soft coking coal (SSCC)** – May be used in the coke blend, although only in limited quantities and subject to the coke making technology and the quality of the other coals being used in the blend.
- **PCI coal** – Limited coking coal characteristics. Used primarily for its energy/combustion value and injected into the blast furnace.

The different mines across the Southern Coalfield produce different grades of metallurgical coal, of different calorific values, which BlueScope combines to produce the required blend for the operation of the blast furnace to make raw iron. One tonne of coal is not always directly substitutional for some other tonne of coal. The nature of BlueScope's coal blend is of critical commercial importance in ensuring that the Port Kembla Steelworks remains globally cost competitive and is therefore commercial-in-confidence.

BlueScope purchases almost 3 million tonnes of metallurgical coal per annum (as per Diagram One), with the mix between suppliers reflecting the different classes and calorific values. BlueScope also purchases from different suppliers to help ensure that competitive and alternative suppliers remain in the market. BlueScope notes with concern the recent announcement that the Metropolitan Mine will be placed into care and maintenance mode until at least March 2021. For these various reasons, BlueScope is in commercial discussions with current and alternative potential suppliers to ensure ongoing supply of the equivalent coal quality blend is maintained.

The diagram below depicts how steel is made at the Port Kembla Steelworks. The pathway from raw materials to finished steel products involves many processes. BlueScope's processes are guided by the BlueScope Australia and New Zealand Manufacturing Quality Policy, which reflects the company's commitment to continual improvement.

Diagram One: Steel making at the Port Kembla Steelworks



(Source: BlueScope)

BlueScope, like all other coke manufacturers, seeks to optimise the blend of coals it uses to reduce its manufacturing costs and remain internationally competitive. However, there are technical limits to the extent of this substitution, as a proportion of higher quality coals are needed to ensure efficient blast furnace performance and iron production.

### Other Possible Options for Producing Virgin Iron and Steel?

There is research & development being undertaken worldwide to find a way to manufacture virgin iron without coal, but there is yet to be a commercially viable breakthrough. That is because the carbon in the coal is the essential ingredient in the chemical reaction to extract iron from iron ore. While steel can be manufactured from scrap via the electric arc furnace (EAF) process, global demand for steel is growing, meaning there is not enough scrap worldwide to meet demand solely from the EAF route. Virgin iron still needs to be manufactured from iron ore and metallurgical coal in the short to medium term.

The research and development timeline for alternatives to coking coal is directly relevant to BlueScope, this inquiry by the Independent Planning Commission and the future of steel making. Currently BlueScope is examining whether to reline one operational blast furnace at Port Kembla Steelworks (No.5 Blast Furnace). A blast furnace reline is an opportunity to install newer technology and processes to improve the efficiency and environmental impact of the iron making process. Another key consideration is security of supply of raw materials and of markets. Once relined and commissioned a blast furnace can be expected to continually operate for over a decade.

The current campaign for BlueScope's No.5 Blast Furnace will conclude sometime before 2030. Given the large capital investment that would be required if a decision is made to reline the blast furnace (the last reline in 2009 cost \$370 million), long lead times for ordering key equipment, and regulatory approvals, planning is currently underway to determine the future operating configuration of the Steelworks.

This planning includes actively exploring the various potential decarbonisation technologies to understand the scale of emissions reduction they are likely to deliver, potential costs and timeframes for implementation, and some of the barriers and enablers to implementation.

At this time, the Company's management team and Board have not made any decisions about the configuration of the Steelworks once the blast furnace comes to the end of its current campaign.

Among the technologies under investigation is the potential use of hydrogen as a replacement for, or supplement to, coal and coke as a reductant to produce iron. This has yet to be demonstrated at a commercial scale. This most likely option is at best a medium to long-term possibility for iron and steel making. Even then, the technology will require a fundamental transformation in energy generation and hydrogen supply infrastructure across Australia to enable domestic steel producers to adopt this technology.

BlueScope has calculated that producing the required amount of green hydrogen to reduce emissions from iron and steelmaking will require very significant capital investment and land. To replace just 20 per cent of the pulverised coal injection (PCI) at Port Kembla Steelworks, for example, with 'green hydrogen' (hydrogen produced by electrolysis from water, using renewable energy) would require 29 x 10MW electrolyzers, with each electrolyser having a footprint of 1000m<sup>2</sup>. They would consume 290MW of electricity (the Steelworks currently consumes an average of about 100MW). Oxygen is a by-product of the electrolysis process, providing a potential synergy for the co-location of hydrogen production and BF-BOF steel plants. Using hydrogen to replace some PCI as above would reduce GHG emissions from the Port Kembla Steelworks by just 3.7 per cent.

BlueScope has also considered natural gas Direct Reduced Iron – Electric Arc Furnace (DRI-EAF) technology. But the cost of gas and electricity on the Australian East Coast would need to be significantly reduced for DRI-EAF to be competitive even putting to one side the very substantial capital requirements. Even a halving of current gas prices would not allow a DRI-EAF plant to be cost competitive when compared to the existing BF-BOF plant.

BlueScope is currently investigating a pilot using biochar, which is essentially the potential to use charcoal produced from forestry industry waste or construction industry waste to replace PCI and other smaller carbon consumers. The current major impediment for this technology is the complete absence of a domestic supply chain and therefore its associated high cost. Currently biochar is not produced in Australia, let alone the tonnages needed if it were to have a material impact on iron and steel making at Port Kembla.

The production of virgin iron units manufactured using coke from metallurgical coal can therefore be expected to continue to be the predominant method of making iron and steel in Australia for the foreseeable future. This will not exclude BlueScope investing in adopting greenhouse gas abatement technologies to make any relined blast furnace more efficient to help the company achieve its 2030 target.

## **The Importance of Stability in Dendrobium Mine's Coal Supply**

Given the just-in-time nature of supply, and the lack of cost-effective alternative sources of supply, it is very important that BlueScope has access to the Dendrobium Mine local coal supply and that is subject to the least possible interruption.

For this reason, BlueScope works closely with its coal suppliers to understand their extraction plans, including milestones such as longwall changes and maintenance shut-downs.

Unexpected variations to licensing conditions for existing longwalls, or restrictions on future extraction plans, have the potential to interrupt coal supply, make mining less viable, and curtail investment in mines. Any of these outcomes would be of concern to BlueScope and other local stakeholders, if they threatened the viability of the Steelworks.

## **The Continuation and Optimal Use of Existing Infrastructure**

BlueScope is widely recognised as producing high quality coke due to its unique location adjacent to the Southern Coalfields; one that makes it logical and economically advantageous to use high quality coal, which in turn ensures reliable, consistent and efficient production of high-quality coke.

The Port Kembla Steelworks consumes approximately 3 million tonnes per annum of coal, of which over 80 per cent is sourced from mines in the Illawarra region. The principal Illawarra mine sources currently are the South32's (Illawarra Coal) Dendrobium and Appin mines, Peabody's Metropolitan mine, and the SIMEC Tahmoor mine. Specific details about BlueScope's coal and other raw materials supply chain is commercial in confidence.

Because of its proximity to the Southern Coalfields, BlueScope has been able to economically optimise its blend of coals while maintaining an output of coke of the required quality. In particular, the compatibility in coal properties between Dendrobium and Metropolitan coals, due in large part to them coming from adjacent locations, has facilitated a synergy within the coal blend that, in BlueScope's view, is quite unique and unable to be replicated to any meaningful extent. BlueScope is of course continually reviewing and developing our coal blends with our suppliers to ensure that iron and steel making at Port Kembla is not compromised.

In addition to consuming the coke through its iron and steelmaking operations; any surplus coke is sold to export customers. This reflects the need to ensure cokemaking at the Steelworks remains of an economically efficient scale.

Coal is supplied to the Steelworks from the Southern Coalfields in a 'just-in-time' (JIT) arrangement. This coal is transported to the Steelworks in daily deliveries by truck and rail transport. Local coal supplies are supplemented by coal shipped from other regions to berths at Port Kembla adjacent to the Steelworks. These primary raw materials berths are at a high utilisation level, and any significant increase in seaborne coal imports would require very substantial capital investment to expand the facilities. BlueScope has recently estimated such investment to be at least \$150 million.

Illawarra Coal operates a coal washery within the Steelworks, with a dedicated conveyor belt system feeding two coal beds. At any one time, one of these beds is being filled with new coal supplies while the other is being run down to feed BlueScope's coke making plant, with these coal beds being built and depleted on a weekly cycle.

There are no facilities at Port Kembla Steelworks to allow BlueScope to stockpile coal sufficient to feed the coal beds, and therefore the operation of the Steelworks is reliant on uninterrupted just-in-time supplies of coal from the Southern Coalfields.

BlueScope estimates that replacing local coal supply with coal shipped from interstate (or overseas) would increase steel production costs by between \$50 million and \$100 million per annum, principally as a result of higher logistics costs.

The Port Kembla Steelworks will continue to rely on competitive sources of locally mined coal for the foreseeable future. In fact, it is not an exaggeration to say that without access to the coal supply from

the Southern Coalfields, the Steelworks would not have been built in the Illawarra region. Without this supply, steelmaking would struggle to remain viable at Port Kembla.

The importance of the local coal supply to BlueScope was also observed in the ACCC's consideration of the proposal for South32 to acquire Peabody's Metropolitan mine in 2016 (subsequently abandoned). The ACCC identified the effective existence of a "...narrower market for the supply of coking coal to Australian customers and suppliers in this market (that) may be limited to coal producers in the Illawarra".<sup>4</sup>

## Conclusion

Thank you again for the opportunity to make a submission.

In conclusion, the Project would provide a local and continued supply of metallurgical coal to the BlueScope Steelworks, allowing BlueScope to:

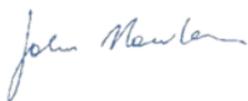
- Generate \$6.5 billion in regional economic output (24 per cent of the Illawarra's total economic output), \$1.6 billion of gross regional product (11 per cent of the Illawarra's gross regional product) and \$800 million of household income (13 per cent of total household income in the region).
- Employ 4,500 people directly (employees plus contractors) and supporting 8,900 jobs in total.
- Obtain a competitive advantage for its iron and steel manufacturing facilities, which enhances BlueScope's competitiveness against foreign steel importers and in steel export markets.
- Produce high quality coke, which in turn contributes to the manufacture of high-quality steel products.
- Develop export markets for high-quality coke.
- Avoid costly investment in berths, plant and equipment that would be required to import coal from interstate or overseas.

We would respectfully urge the Independent Planning Commission for the Project to be fully cognisant of the negative economic effects that would occur if mining at the Dendrobium Mine was ceased or made unviable by an unfavourable regulatory environment.

An ongoing supply of competitively priced metallurgical coal from the Dendrobium Mine is an essential feedstock for the Port Kembla Steelworks, thereby supporting the jobs, investment, exports and local economic activity generated by the domestic steel supply chain, including meeting the needs of a rapidly expanding renewable energy sector in NSW and Australia.

For further information, or if you have any questions, please do not hesitate to contact me on 02 4240 1802, or Manager Government Relations, David Jenkins on 03 9666 4022.

Yours sincerely



**John Nowlan**

CHIEF EXECUTIVE – AUSTRALIAN STEEL PRODUCTS

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<sup>4</sup> ACCC, 'Statement of Issues – South32 Proposed Acquisition of Metropolitan', 23 February 2017, paragraph 59.