ASSESSMENT REPORT

Section 75W Modification (08_0031 MOD 2)
BlueScope Steelworks - Illawarra Gogeneration Project

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1. BACKGROUND

BlueScope Steel Limited (BlueScope) operates the Port Kembla Steelworks (Steelworks), in the Wollongong local government area (refer Figure 1).

Figure 1: *BlueScope Steelworks (Regional Context)*

The Steelworks is situated on a 742 hectare site adjacent to Port Kembla Harbour and contains industrial employment bases of regional and State significance. Iron and steel has been manufactured at the Steelworks since 1928.

The Steelworks' iron and steelmaking processes result in the generation of combustible by-product gases, including blast furnace gas (BFG) and coke oven gas (COG), which currently satisfy approximately 15 percent of the Steelworks' power needs, and Basic Oxygen Steelmaking (BOS) off-gas, which is currently flared to atmosphere. The Steelworks currently generates greenhouse gas emissions in the order of 3.3 million tonnes (t) of carbon dioxide (equivalent) per year.

In August 2002, Wollongong City Council (Council) approved the Illawarra Cogeneration Project (ICP), within the Steelworks, under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The $1.2 billion project intended to capture much of the

Steelworks by-product gases for steam production, enabling it to become self sufficient in its electricity needs, and in the process, abating over 1 million t of CO_2 each year.

The key components of the approved ICP include (refer Figure 2):

- a 225 MW condensing steam turbine generator;
- three boilers generating 1,100 t per hour of steam;
- a substation; and
- a BOS Off-Gas collection system.

In 2008, BlueScope sought to modify its consent for the ICP. The proposal involved:

- installing three boilers instead of four;
- adopting a saltwater cooling system for the ICP plant using seawater from Port Kembla Harbour to reduce reliance on fresh and recycled water supplies;
- changing the location and size of the proposed LDG holder; and
- changing the layout, configuration and footprint of the ICP project as a result of the above changes.

Due to the scale of the proposed changes to the cooling system and the complexity of the ICP Project, the then Minister for Planning decided that the ICP should be treated as an approval under Part 3A of the EP&A Act, thus enabling the consent to be modified under Section 75W of the EP&A Act.

The modification was approved by the then Minister in December 2008. However, the ICP plant remains substantially unconstructed. This has been a direct consequence of the 2009 global economic crisis.

In April 2009, BlueScope decided to defer the commencement of the major part of the ICP Project and move towards a staged implementation. This means implementing a lower cost interim solution as the next stage, in order to address operational needs until the major part of the ICP Project can be restarted when business conditions are more favourable. The timing for recommencement of the ICP Project is unknown at this stage although the deferred period is estimated at between 2 - 4 years.

The interim project would involve progressing a limited number of critical elements from the ICP Project in addition to the installation of two natural gas-fired "package" boilers. The two package boilers would replace two of the oldest boilers which supply steam within the steelworks. These boilers need to be replaced as they are reaching the end of their design life and present a safety risk. As the replacement of the two older boilers was not included in the 2008 modification, BlueScope is now seeking a second modification to its development consent for the ICP.

2. PROPOSED MODIFICATION

BlueScope proposes to modify the existing approval (MP 08_0031 MOD 1) by installing two natural gas fired package boilers to replace two of the oldest boilers (no. B21 and B22). These new boilers would act as back-up steam sources until all existing boilers are replaced by the proposed ICP boilers.

The boilers generate steam within No. 2 Blower Station (refer Figure 2) for various steam driven machines on site, including 'blowers' that feed the compressed air or 'blast' to the Blast Furnaces, compressors and pumps.

The new natural gas fired boilers would have the capacity to produce 90 t per hour of high pressure steam (the same as the existing boilers to be replaced). They are known as package boilers as they would be delivered to the site as a complete package, with limited on site assembly required.

The key difference between the proposed boilers and the approved ICP boilers is the package boilers would not be able to utilise the steelwork's by-product gases. Package Boilers capable

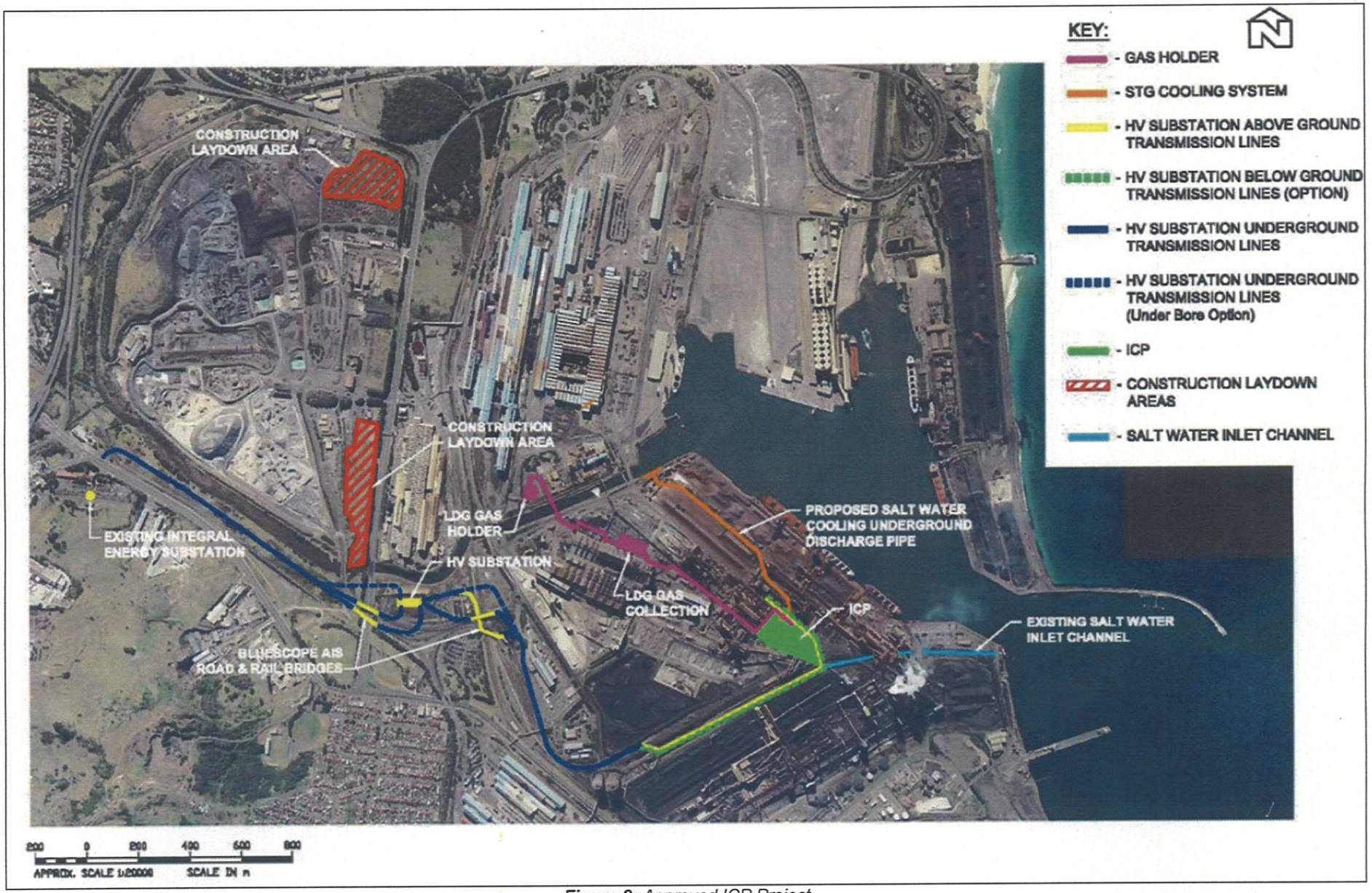

Figure 2: *Approved ICP Project*

of firing the steelworks by-product gases are not commercially available in the capacity required. As a consequence, the new boilers would be expensive to run (using purchased natural gas) and would not achieve the same greenhouse benefits in the short term. BlueScope expect the package boilers to operate at or near their "Maximum Rated Capacity" (MRC) only when one of the three remaining boilers (boilers 23, 24 and 25), is out of service for scheduled maintenance.

Having the two new boilers (rather than one large boiler) provides BlueScope with operational flexibility, security and safety for site personnel.

The capital investment value of the proposal is $50 million, and the engineering and installation of the package boilers would employ approximately 100 people over and estimated period of 18 months. The package boilers would remain in use during the roll-out of the ICP Project.

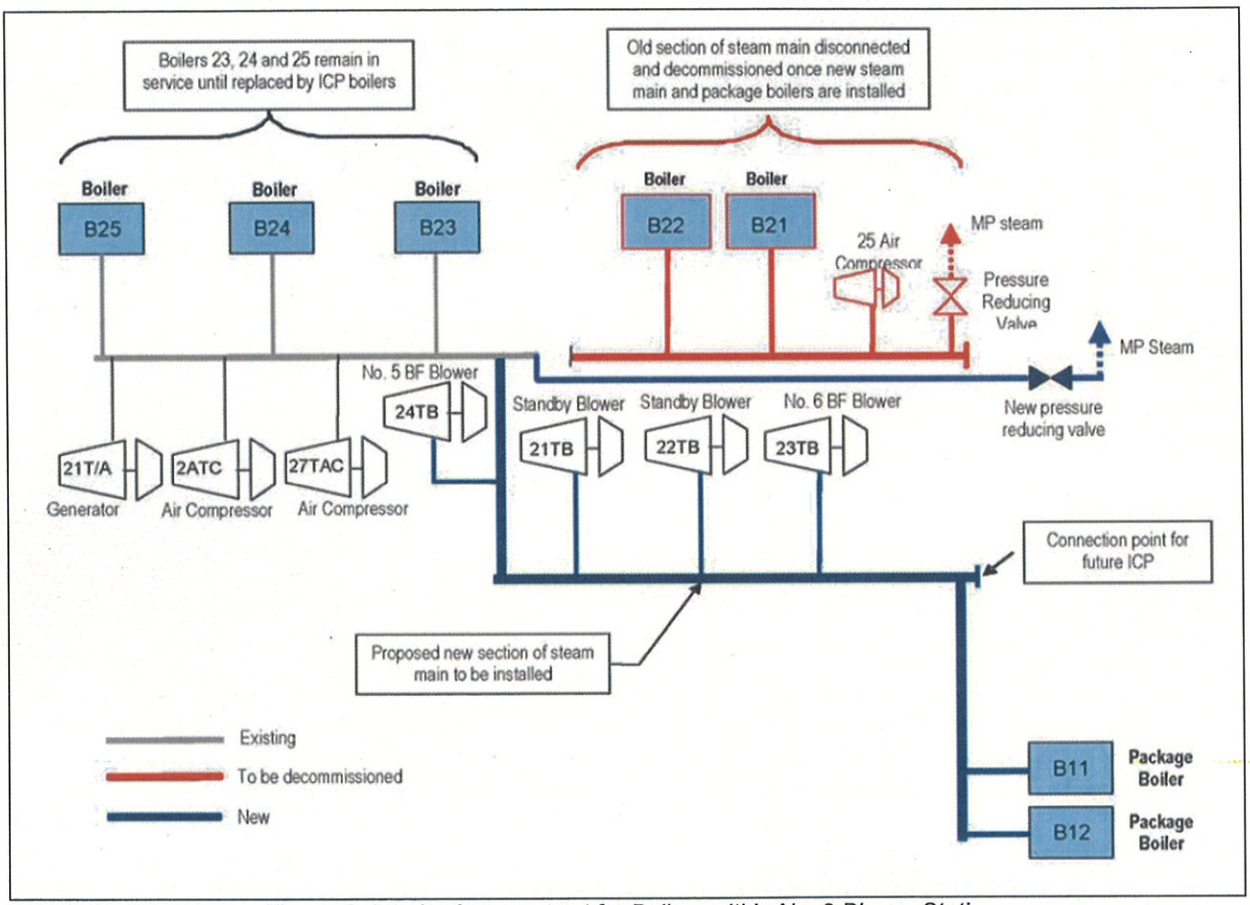

Figure 3: *Interim Arrangement for Boilers within No. 2 Blower Station*

3. STATUTORY CONTEXT

Approval Authority

On 30 November 2007, under subclause (8) of the *EP&A Regulation* (before its substitution), the then Minister for Planning granted approval for the cogeneration plant to be treated as an approval under Part 3A of the EP&A Act so that the consent could be modified under Section 75W of the EP&A Act. This decision made the Minister, as opposed to Wollongong Council, the approval authority for the proposed modification to the development consent. This decision continues to apply under the amended clause 8(J)(8A). Therefore, the Minister is the approval authority for the proposed modification.

Nevertheless, Clause 8J(8) stipulates that the development consent, if so modified, does not become an approval under Part 3A of the Act.

On 25 January 2010, the Minister delegated his powers and functions as an approval authority to modify certain project approvals under section 75W of the EP&A Act to the Executive Director, Major Projects Assessment. This modification application meets the terms of this delegation. Under these circumstances, the Executive Director, Major Projects Assessment may determine the application under delegated authority.

The Department notes that:

- the proposed modification does not seek approval for a new and different development and would not change the essential function of the ICP for which consent was originally granted,
- a small increase to the NO_x and greenhouse gas emissions from the site are expected due to the increased consumption of natural gas; and
- BlueScope intends to implement the major component of the ICP within two to four years.

Exhibition and Notification

Under Section 75W of the EP&A Act, the Department is not required to notify or exhibit the application. Notwithstanding, the Department referred the application to Council and the Department of Environment, Climate Change and Water (DECCW) for comment.

Council did not respond to the Department or provide a submission on the application. DECCW did not object to the proposed modification however they requested that a number of conditions be included in the modified approval.

The Department has considered DECCW's recommended conditions and has incorporated these conditions of approval where appropriate.

4. ASSESSMENT

Air quality

The Department has assessed the EA and submission on the project and considers that the only significant issue is air quality, as the burning of natural gas within the boilers produces Nitrogen Dioxide (NO_2) or Nitric Oxide (NO) (both referred to as NO_x). All other issues are considered minor with negligible environmental impact, and are discussed briefly in Table 2.

The 2008 ICP modification application included an air quality impact assessment based on the replacement of the no. 21 and 22 boilers. A 'base case' scenario was developed which represented maximum available by-product fuel (i.e. combustible by-product gases). A number of other scenarios were also tested representing a range of fuel and equipment availability.

The assessment found that NO_x emissions would easily meet the DECCW criteria of 246ug/m^3 (1-hour maximum) for all operating scenarios tested.

The proposed package boilers would be fitted with "Low NO_x" burners to limit the generation of NO_x. Regardless, NO_x generation would vary as a result of fluctuating demand, and BlueScope has predicted that the maximum mass emission of NO_x (9.4 kg/hour) would occur when both boilers are operating at MRC, during a major-overhaul or shut down period for the other boilers. It is predicted that this would only occur for an average of 3 hours/year. The approach used is considered to be conservative as it considers the worst case potential emissions. The results of the scenario with the highest predicted emissions are outlined in Table 1. Note that the assumed background level of NO_x is 103 $\mu g/m^3$ (1-hour maximum).

Table 1: Predicted NO_x impacts from the package boilers

Scenario	Base Mass Emission (kg/hr)	Increment from Package Boiler (kg/hr)	% Increase in Mass Emissions	Modelled Max. 1-hr avg NO_2 ($\mu g/m^3$) from ICP without package boilers	Predicted Max. 1-hr avg NO_2 ($\mu g/m^3$) from ICP with package boilers	Pred Max. 1-hr avg NO_2 ($\mu g/m^3$) adding 103 background	DECC Criterion 1-hr avg NO_2 ($\mu g/m^3$)
Turbo Alternator Major Overhaul	143	9.4	6.6%	73	78	181	246

The results demonstrate that the expected NO_x emissions during worse case operating conditions would be well below the DECCW criteria (1-hour maximum).

Following consideration of the EA, DECCW has advised that the risk of significant NO_x impacts would be negligible; given that:

- the use of the package boilers is an interim measure;
- the package boilers are to replace existing boilers 21 and 22;
- the previous (2008) impact assessment for the ICP included an assessment of base-case emissions that included the no. 21 and 22 boilers;
- base case impacts were at the time predicted to be ~65% of the NO_x impact assessment criteria – including background; and
- the maximum increase in mass emissions (which would occur only for 3 hours/year) resulting from the proposed package boilers is a 6.6% increase on the base case for the existing boilers.

Nonetheless, DECCW has recommended a range of conditions in relation to air quality monitoring and discharges.

To ensure that the Minister's Approval is consistent with the ICP EPL, the Department has recommended conditions that require BlueScope to:

- comply with a set concentration limit for NO_x emissions;
- undertake air emission monitoring as required by the EPL;
- undertake an air quality verification study, which would include a comparison of monitoring results with the predictions outlined in the EA and with any limits or conditions in the EPL; and
- implement further measures should exceedances occur.

The Department is satisfied that NO_x emissions from the boilers would be adequately managed to meet relevant criteria and avoid detrimental impacts on the surrounding community.

Other Issues

The Department's assessment of other minor issues is detailed in Table 2 below.

Table 2: Summary of other Issues

Issue	Assessment	Recommendation
Greenhouse Gas	• A Greenhouse Gas (GHG) assessment of the proposed package boilers predicts that GHG emissions would increase in the interim period prior to the implementation of the ICP by approximately 44,132 t CO_{2-e}/year • This represents an increase in total site emissions of approximately 0.4%; • At this stage, BlueScope intend to defer the implementation of the 'major part' of the ICP for a period of 2-4 years; • DECCW did not raise any concerns with the short-term increase in GHG emissions; • The Department considers the short term increase in GHG emissions to be insignificant given the medium to long term goals for the ICP in reducing GHG emissions from the BlueScope site by over 1 million t CO_{2-e}/year. • Nonetheless, the Department has recommended a condition requiring the Proponent to report annually on the status of the ICP Project.	The Department has recommended a condition requiring annual reporting on the status of the ICP Project.
Hazards	• The main risk associated with the use of the package boilers is a fuel explosion; • The 2008 EA included a Preliminary Hazards Analysis (PHA) which included proposed safety systems for the ICP and concluded that the package boilers for the ICP would not pose a considerable off-site risk; • The PHA stated that formal safety reviews would be undertaken during the detailed design phase; • The Department has assessed the risks associated with the Package Boilers and considers that the overall risk would not increase since two existing, and relatively old boilers would be replaced with newer ones; • The Department has recommended a condition requiring the submission of the following studies prior to commencement of construction of the 2 gas-fired package boilers: o A Construction Safety Study (CSS) prepared in accordance with the relevant guidelines; and o A Hazards and Operability Study (HAZOP) prepared in accordance with the relevant guidelines. • The Department is satisfied that this would ensure that hazards and risks are managed to acceptable levels.	The Department has recommended that a CSS and HAZOP be submitted to the Director-General prior to the commencement of construction of the package boilers.
Noise	• A full noise impact assessment (NIA) was submitted with the 2008 ICP EA which concluded that construction and operational noise would comply with the DECCW criteria; • The 2008 ICP approval included the requirement for post commissioning noise validation; • Noise impacts for the proposed modification are expected to be consistent with the 2008 ICP EA; • DECCW requested that noise from the proposed boilers is verified within three months of commissioning; • The Department has recommended that noise compliance verification for the operation of the two package boilers is undertaken.	The Department has recommended conditions requiring BlueScope to prepare a Noise Monitoring Program to validate the noise emissions in comparison with the predictions made in the EA.
Construction Soil, Air and Water	• The construction of the boilers would involve minor excavation and civil works. • The Department considers that there are existing conditions (ie Environmental Management Strategy) required under the existing Ministers approval, to ensure that BlueScope consider any control measures necessary during construction to protect nearby waterways and prevent dust pollution.	N/A

5. RECOMMENDED CONDITIONS OF APPROVAL

The Department has recommended changes to the existing approval to include the modification application within the terms of the approval. Further, a number of conditions detailed in Schedule 2 and 3 of the existing approval have been amended requiring the Applicant to submit revised plans, strategies and studies incorporating the package boilers.

6. CONCLUSION

The Department has assessed the merits of the project in accordance with the requirements in Clause 8B of the EP&A Regulation. This assessment has found that the proposed modification is unlikely to cause any significant impacts and potential impacts can be appropriately managed through the modified conditions of approval.

Consequently, the Department considers the proposed modification should be approved subject to conditions.

7. RECOMMENDATION

It is RECOMMENDED that the Executive Director, Major Projects Assessment:

- approve of the proposed modification under Section 75W of the EP&A Act; and
- sign the attached instrument (tagged A).

Chris Ritchie
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Industry Projects
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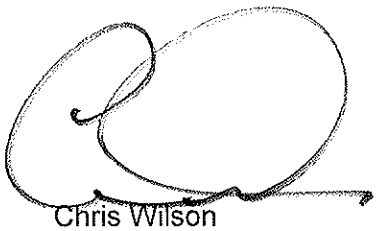

9.7.10

Chris Wilson
Executive Director
Major Projects Assessment