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AEMO DRAFT ISP 2024

BlueScope welcomes the opportunity to make a submission on the AEMO Draft 2024 ISP. This submission (1) outlines BlueScope's electricity needs now and in its pursuit of its 2050 net zero goal; and (2) proposes refinements to the ISP to better capture the emerging electricity needs of large, concentrated industrial loads in the NEM.

About BlueScope

BlueScope is **Australia's largest steel manufacturer** and its only flat steel producer. We **employ around 7,000 Australians** at more than 100 sites across the country, supplying 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, manufacturing in 16 countries. Globally, **BlueScope employs around 16,500 people in New Zealand, the Pacific Islands, Asia, and the USA.**

In the Illawarra region of NSW, BlueScope employs approximately **3,500 people directly** and is responsible for approximately **9,000 direct and indirect** jobs in total including contractors and suppliers. BlueScope is the largest energy user in the Illawarra and one of the largest users in NSW, consuming over **1,000 GWh** of electricity per annum at its Port Kembla Steelworks and Springhill Works to support ironmaking, steel making and downstream activities such as the operation of its metal coating and paint lines.

Iron and steelmaking transformation will materially increase our energy needs

BlueScope has set **greenhouse gas (GHG) emissions intensity reduction targets¹** and a **2050 net zero goal** that is dependent on several enablers including access to **affordable, firming renewable energy²**.

As BlueScope progresses its decarbonisation pathway, we have invested considerable resources in a comprehensive technology, locational and economic study to evaluate the most likely decarbonisation project options for low emissions ironmaking in Australia, including a focus on the necessary enablers. While this study is in its early stages, work undertaken to date indicates that the most prospective technology for decarbonising iron and steelmaking is currently considered to be a **direct reduced iron (DRI) process**, initially using natural gas as a transition fuel until green hydrogen becomes commercially available.

The emissions reduction potential of the DRI process is significant; BlueScope would be able to reduce its Scope 1 emissions intensity by up to 60% using natural gas and, assuming a green hydrogen pathway, 85% using green hydrogen (from FY23 levels), equivalent to a reduction of more than **3.6mtpa** and **5.2mtpa** of CO₂-e respectively.

Delivering lower emissions iron and steelmaking ensures that **Australia maintains sovereign iron and steelmaking capability into the future. This is important in economic terms for productivity, balance of trade, direct and indirect employment, but also to enhance Australia's supply security for a strategic commodity that is fundamental to the energy transition.** Finally, it aligns with the new greenhouse gas emissions reduction objective in the National Electricity Objective (NEO).

¹ BlueScope has set a 12 per cent Scope 1 and 2 GHG emissions intensity reduction target across our steelmaking activities by 2030, relative to 2018. For non-steelmaking a 30 per cent Scope 1 and 2 GHG emissions intensity reduction by 2030, relative to 2018.

² In addition to affordable, firming renewable energy BlueScope's 2050 goal of pursuing net zero GHG emissions across all our operations will be dependent on other enablers including technology evolution, raw materials supply and hydrogen availability, with policy support across all enablers.

While any investment decision concerning the adoption of a DRI process is still some time away, activities to advance steel decarbonisation are underway. BlueScope recently announced that it has partnered with Rio Tinto and BHP on investigating the development of the country's first ironmaking electric smelting furnace (ESF) pilot plant. The parties will explore pre-feasibility works to develop and potentially invest in a pilot facility, which would aim to demonstrate the potential of using of Pilbara ores in conjunction with renewable power in a DRI process to produce molten iron. The location of the pilot facility is subject to consideration of several key factors including the availability of transmission infrastructure and a facility could be commissioned as early as 2027. This project is significant on a global scale and aligns with BlueScope's goal of remaining a vibrant, modern steelmaker into the future.

Observations on the Draft 2024 ISP

The Draft 2024 ISP Step Change scenario does not adequately reflect BlueScope's electrification needs.

Under all scenarios examined in its DRI options study BlueScope requires substantially greater volumes of firmed renewable electricity at the Port Kembla Steelworks. Using natural gas in a DRI plant would require 1,800-2,400GWh pa from around 2032, increasing to 11,000-16,000GWh pa from 2040³ onwards using green hydrogen.

This first stage represents up to half of all NSW business electrification of 5,323 GWh in the *Step Change* scenario and if BlueScope is to move to green hydrogen to realise its net zero plan it alone will require more than the 5,342 GWh of business electrification and 6,663 GWh of domestic hydrogen production combined⁴. Only the *Green Energy Export* scenario (which by design is focused on export requirements not domestic needs) would service BlueScope's needs but not provide significant spare capacity for the electrification of any other energy intensive business in NSW or the development of green hydrogen production capacity.

The location accuracy of demand forecasts in the ISP is insufficient to plan transmission for major concentrated industrial loads. For example, the ISP currently uses the Sydney-Newcastle- Wollongong (SNW) demand region as its most granular resolution of future demand. This means the ISP is too coarse to recognise the needs of large industrial users in a specific location. For transmission development location is highly relevant. Transmission solutions for large new loads in the Hunter Valley or Port Kembla in support of industrial decarbonisation efforts could mean the difference between building Sydney Ring North or South, or both, for instance. In recognition of the location specificity of transmission development, AEMO already uses much better geographic resolution for Renewable Energy Zones (REZs) to plan transmission infrastructure for new generation.

By not identifying the specific transmission needs of the Illawarra in the ISP there is a heightened risk of delayed or compromised industrial decarbonisation in the region. The existing Illawarra transmission network has insufficient capacity to support the future electrification needs of the region, including the development of offshore wind. BlueScope and other key stakeholders are working with the NSW Government on the development of an industrial decarbonisation plan for the Illawarra with the aim of coordinating large-scale decarbonisation in the region. This plan is more likely to successfully deliver on its objectives where the needs of the region are accurately and promptly captured in transmission planning.

The Draft 2024 ISP therefore under-estimates not only the transmission needs of BlueScope but also of other large-industrial users who require significantly greater levels of electricity to decarbonise. Furthermore, large industrial users need certainty around the timely delivery of any required future transmission developments. The list of actionable and future ISP projects, in particular the Sydney Ring southern option, may be progressing at a pace that is misaligned with BlueScope's need to make long-lead time (typically 4+ years) and large scale (multi-billion dollar) investment decisions to decarbonise its manufacturing process.

BlueScope's power needs are a worked example of the typical needs of large industrial users who need to electrify their business. If the ISP 2024 is carried forward into the development and delivery plans of transmission networks in its current form, it is unclear what processes or mechanisms would deliver the emissions reductions

³ A reference to 2040 represents a potential timeline that remains uncertain. This date will remain fluid as key economic, operational and policy enablers develop.

⁴ As per Draft 2024 ISP Consumption data (business electrification and domestic hydrogen production)

obligations of very large industry in Australia. There is a rapidly emerging risk that the developing step-change decarbonisation plans of large electricity users may be delayed or compromised because new transmission capacity is not installed to connect firmed renewables or to deliver electricity to highly concentrated load centres.

Recommendation: Accelerate investigation of Sydney Ring southern options

BlueScope encourages an accelerated investigation of Sydney Ring southern options, which may have the potential to connect a diverse range of significant renewable electricity generation and offer much needed additional transmission capacity in the Illawarra. A prompt assessment of this option presents as a potential mitigation against the coincident risk of coal-fired generators closing at the same time as demand from large users increases. Promoting this option as a priority would allow the necessary studies to be completed and for timely decisions to be made on its inclusion as a discrete actionable ISP project. If this option is not investigated until the next ISP in 2026 and proves to be needed it may be too late for BlueScope to achieve its earliest feasible timeline.

Recommendation: Create the demand equivalent of REZs in future ISPs

BlueScope would welcome the opportunity to work with AEMO and other stakeholders to ensure future ISPs adequately enable the electrification of Australia's industrial base. Specifically, BlueScope recommends AEMO adopt the following three refinements to the ISP to accurately identify and deliver the transmission needs of large industrial businesses that must electrify to maintain viability and meet legislated emissions reduction targets:

1. **Define Industrial Electrification Precincts (IEPs)** to systematically plan and provide for the needs of large industrial users of energy in a well-defined geographic area. Each IEP would be the demand equivalent to AEMO's generation focused supply REZ. The IEPs will need to be geographically more specific than AEMO's current demand centres to allow for the targeted development of the required transmission, e.g. within a geographic area of a few tens of kilometres. Each IEP should be developed in close collaboration with State and Federal governments, who have already done considerable work on defining these. For example, the NSW government has already commenced the development of the Illawarra Decarbonisation Plan and has declared Port Kembla a hydrogen hub, while the Federal government has also called out Port Kembla as a potential location for its Hydrogen Headstart program.
2. **Compile electrification forecasts for each IEP** to accurately reflect the range of electrification needs and their timing to inform transmission development. Given the discrete nature of loads, this could resolve some of the uncertainty currently expressed in the different ISP scenarios. Forecasts would need to consider committed and potential electrification projects to capture developing electrification concepts with long lead times for investment decisions.
3. **Establish a new mechanism to deliver the transmission infrastructure for each IEP.** This new mechanism must give industry certainty on the scale and timing of transmission development in each IEP with sufficient lead time to enable their own (dependent) investment decisions. This mechanism will also have to adopt a fair cost and risk sharing approach. In particular, it needs to differentiate the needs of industrial users from those of residential consumers. This new or adjusted regulatory delivery mechanism may have to be developed in conjunction with the AEMC and aligned with relevant State government initiatives, whose mandate extends to the broader economic and strategic policy settings of very large industrial development and exports.

Yours sincerely



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