11 February 2022

Daniel Westerman
Chief Executive Officer
Australian Energy Market Operator

Submitted via email: ISP@aemo.com.au

Dear Mr Westerman,

2022 Draft Integrated System Plan

A proudly Australian company with balance sheet strength, Fortescue Metals Group (Fortescue) is a global leader in large-scale, ultra-efficient and highly complex developments with a proven track record in developing and operating assets in remote and isolated locations. Fortescue has a strong focus on decarbonisation, evidenced by its industry leading target to achieve carbon neutrality by 2030.

Through its subsidiary, Fortescue Future Industries (FFI), we are establishing a global portfolio of green hydrogen production and manufacturing projects and operations that will position us at the forefront of the global green hydrogen industry. FFI has a strong focus on the National Electricity Market (NEM) states as we look to develop green hydrogen projects across Australia. A strong transmission system will be critical to achieving a successful green hydrogen industry as Australia transitions to a renewable superpower.

FFI welcomes the opportunity to provide comment on the 2022 Draft Integrated System Plan (ISP). FFI supports the development of the ISP by the Australian Energy Market Operator (AEMO) as the guiding document for the system developments required to decarbonise the NEM. Decarbonising the electricity system is a critical first step in Australia's pathway to its long-term emission reduction goals, and also underpins a stronger transition to providing green hydrogen exports.

The 2022 draft ISP is a dramatic step forward and FFI commend AEMO for their efforts in producing such a detailed planning document with considerations for various scenarios that may eventuate. In particular, the level of consultation undertaken by AEMO to formulate the ISP was industry leading and will hopefully continue. We are pleased to see the ISP's recognition of an accelerating pace of change with the selection of the *Step Change* scenario as the most likely scenario.

FFI is also welcomes the inclusion and detailed modelling of the *Hydrogen Superpower* scenario to ensure the pathway to Australia becoming a renewable energy superpower is there to be taken, should it eventuate. This scenario somewhat reflects the scale and ambition that FFI hopes to achieve through our hydrogen developments across the NEM. FFI is moving rapidly to explore and

subsequently secure project development approvals on a number of multi gigawatt (GW) scale projects to produce green hydrogen and green ammonia across Australia. Our development plans are scaled to match our ambitious decarbonisation and green hydrogen production goals to;

- Globally achieve 15,000,000 tonnes of annual green hydrogen production by 2030
- Decarbonise Fortescue Metals Group by achieving net-zero in our operations and scope 2 emissions by 2030
- Assist our customers to decarbonise by achieving net-zero in our scope 3 emissions by 2040

A decarbonised NEM is critical to our efforts to achieve our goals and build a hydrogen industry in Australia that will contribute to our net-zero economy. The Clean Energy Regulator (CER) and Department of Industries, Science, Energy and Resources (DISER) are currently working on a program to certify the emissions profile of hydrogen created through various technologies. In part, the need for this program is due to the emissions profile of the grid and the inability to physically control the source of electrons used to power an electrolyser and the fluctuating emissions profile of the grid throughout the day. If the ISP blueprint is realised, this concern becomes easier to manage.

The remainder of our submission will raise high level points for AEMO to consider.

Hydrogen Superpower

FFI would encourage AEMO to continue to build on the hydrogen superpower scenario in future editions of the ISP, to ensure it remains robust and accurately reflects the ambitions of industry and government. It is an important step forward for the ISP to account for scenarios that continue Australia's economic strength as we transition away from a fossil-based economy. With this in mind, we would suggest that over time, the hydrogen superpower may prove more likely, similar to how the step change scenario has replaced the central scenario in this ISP. In fact, it is increasingly likely that at least a few large projects will be well-underway by the time the 2024 ISP is released.

FFI and its competitors are working to timescales that align more closely with early large scale hydrogen commencing operation from the mid-2020s and the industry becoming well established by 2030. This is in contrast to the slower uptake projected in the Hydrogen Superpower scenario. We would be pleased to provide a confidential briefing to the AEMO ISP team on FFIs project plans to better inform the hydrogen superpower scenario ahead of the 2024 ISP development.

Storage projections

FFI suggest that the level of distributed storage that is projected may be quite high when compared to the utility scale storage in the step change scenario. With the current policy settings, it is hard to understand how such a level of distributed storage will eventuate when utility scale storage is already seeing increased levels of investment and the policies to encourage distributed

storage are limited across the states. We suggest that these projections are reconsidered, or at least tested as sensitivities, in the final ISP.

Electrolyser impact

FFI suggest the ISP begin to consider the impacts of massive scale investment in flexible hydrogen electrolysers on the need for investment in areas such as transmission and utility scale battery storage. Once the system reaches high penetrations of zero marginal cost renewable energy, and the opportunity costs for electrolyser flexibility reduce, we may begin to see GW scale electrolyser facilities being used to balance the system and provide system services such as frequency response. While this will be a useful tool for AEMO to manage the system, the impact on shorter-term storage investment may need to be considered through the ISP as this may have an impact on revenues these technologies can achieve.

Similarly, the impact on the need for transmission developments may change as a result of massive load growth in certain areas. The development of these GW scale load centres will be highly resource and infrastructure location dependent limiting the ability to locate them in areas that most benefit the grid. Huge load growth in certain states may influence the transmission planning required to support reliability in those and neighbouring states. AEMO will need to be aware of these projects as soon as possible to ensure they are considered well in advance in planning documents like the ISP.

Thank you for the opportunity to comment on this consultation. As mentioned above, we would be pleased to provide a briefing to the ISP team on FFI's project plans if this would be of value. If you would like to discuss any of the issues raised in this submission or to arrange a briefing, please contact tom.parkinson@fmgl.com.au or myself on the below details.

Yours sincerely

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