

**16 February 2024**

**Mr Daniel Westerman  
Chief Executive Officer  
Australian Energy Market Operator**

Dear Mr Westerman

### **Draft 2024 Integrated System Plan for the National Electricity Market**

A proud Australian company with balance sheet strength, 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 real-zero carbon emissions across our terrestrial mining operations by 2030.

Through our business unit, Fortescue Energy, we are establishing a global portfolio of renewable energy, green hydrogen and derivatives, battery system and green technology projects and operations that are at the forefront of the global energy transition.

Fortescue welcomes the opportunity to provide comment on the Draft 2024 Integrated System Plan (ISP) for the National Electricity Market (NEM). Fortescue strongly supports the continued development of the ISP noting its importance in planning the decarbonisation of the NEM and as a blueprint for Australia's pathway to long-term national emission reduction goals. We also believe it helps underpin the commercial transition to cleaner fuels, particularly green hydrogen and its derivatives, as both a domestic and export clean fuel commodity to replace fossil fuels.

Fortescue commends the Australian Energy Market Operator (AEMO) for their comprehensive draft plan, which meticulously considers diverse potential future scenarios, and represents a significant leap towards securing a reliable and affordable energy future for Australia. Securing Australia's low-cost energy future will help protect NEM-connected consumers and industry, and therefore our economy, from price shocks in the international fossil fuel market that have been experienced over the past two years and with a high likelihood of continuing due to the increasingly uncertain geopolitical landscape impacting energy markets and trade.

We particularly commend AEMO's extensive industry consultation process conducted to develop this draft ISP and encourage this to continue for future iterations. Moreover, we are pleased with the ISP's acknowledgment of the rapidly evolving policy landscape, the removal of the 'Slow Change Scenario' and selection of the 'Step Change Scenario' as being most likely.



## Scenarios

Fortescue welcome the continued progress on the development of the Green Energy Exports (previously Hydrogen Superpower) scenario that models in detail the necessary infrastructure for Australia to achieve its ambition to become a renewable energy superpower. Fortescue believes this scenario can become a reality, and with strong international demand for future green fuels and Australia's renewables comparative advantages, the ability of our energy system to develop quickly enough to achieve the scale projected in this scenario, must be a focal point for policy.

Fortescue believes that, at a minimum, our economy and energy system will end up progressing to a point somewhere between the currently modelled 'Step Change' and 'Green Energy Exports' scenarios, as both industry and governments increase their ambition and their support to decarbonise, develop domestic green industries and green energy exports. AEMO's modelling expects that by 2030 across the 'Step Change' Scenario, there is expected to be 142,000 tonnes of hydrogen produced for domestic consumption and 43,000 tonnes produced for export via NEM connected electrolysis. By 2050 these numbers only increase modestly with 529,000 tonnes produced for domestic consumption and 216,000 tonnes produced for export via NEM connected electrolysis.

These assumed figures for the 2030 'Step Change Scenario' would represent only slightly more than the current Commonwealth's *Hydrogen Headstart* program's target of 1GW of electrolysis by 2030. We accept that perhaps all, some or even none of *Headstart's* supported electrolysis may be NEM connected. However, it would also assume that if it is NEM connected, there is no further hydrogen industry development beyond what is currently supported and targeted by *Headstart*, nor any further support to be announced by the Commonwealth or states. This is not Fortescue's view of the expected development of the green hydrogen industry in Australia.

The 'Green Energy Export' scenario represents a major increase in production, roughly quadrupling the 'Step Change' domestic production to 1.8mtpa and a vast increase in the hydrogen export to 8mtpa by 2050. This level of export will require a massive increase in the investment occurring in our energy system and would require orchestrated efforts across Commonwealth, state and territory governments and industry to achieve. While the current thinking by AEMO considers the likelihood of this scenario to be 15%, it also considers the Step Change scenario likelihood to be 43% (with Progressive Change 42%). The only certainty that can be drawn from this is that, as with all forecasts, they are likely to be wrong, and our energy system will probably end up somewhere between the three. Given the proposed pipeline of announced green hydrogen projects in Australia, Fortescue expects Australia to progress towards an increasing level of green exports.

Fortescue suggests that in future iterations of the ISP, AEMO considers the development of a fourth scenario or sensitivity that looks at what the future system needs are for a scenario between 'Step Change' and 'Green Energy Exports'. This would give governments and industry a clear indication of what developments may be needed as progress oscillates above and below the 'Step Change' scenario.



## **Efficient integration of electrolysis**

Whether a 'Step Change', 'Green Energy Exports' or 'somewhere-in-between' scenario is met, over the coming 25 years it is clear that significant new loads will be connected to the NEM, with a majority of this load coming through electrolysis for green hydrogen production. By 2050, we expect that electrolysis will be the biggest (or one of the biggest) single technology loads on the system. AEMO should begin to consider how to integrate these technologies efficiently to benefit consumers and the market and network's stable operation. Using the AEMO modelling numbers for the 'Step Change' scenario by 2050 there will be approximately 6GW of electrolysis connected to the NEM and under 'Green Energy Exports', there could be 77GW operating. This is a massive resource available to AEMO to contribute to system and market balance and a more efficient utilisation of energy across the intraday renewable energy variance.

Fortescue suggests that AEMO begins to model the integration of these projects and how they can be viewed as an opportunity for the power system, in both the operation of the market and the broader system planning undertaken by AEMO. Electrolysis will begin to be added to the grid in the next few years, which means planning for this must commence now as necessary reforms/changes to the National Energy Rules (NER) by the Regulator require long lead times to progress through to completion.

For example, electrolysers draw considerable power from the grid but operate somewhat differently to traditional inflexible loads. The Australian energy markets are not well equipped to leverage the opportunities these new assets will bring. In a marginal price energy market, demand response often brings benefits to broader consumer price reductions that are not captured by a spot price. For loads with primary markets outside the energy market, this becomes a difficult trade off to manage when competing on the same basis as generators and not properly incentivised to respond against lost opportunity in their primary markets (e.g. hydrogen production).

## **Planning for renewable gas generation**

The 2024 Draft ISP notes that several gigawatts of new gas generation will be needed to provide seasonal support to the system built on renewables and storage and notes that in the future these generators may transition to run on renewable gasses like hydrogen. Fortescue supports this recognition and encourages AEMO to begin considering the least cost way to build the required infrastructure to enable this to occur. For example, these generators will require pipelines for transporting gas to be used and these new pipelines should be hydrogen ready. Further, it may be practical to consider the most efficient delivery of hydrogen for these projects and assess if it may be cheaper to encourage onsite production leveraging the strong grid connection these generators will need.

Thank you for the opportunity to comment on this consultation. If you would like to discuss any of the issues raised in this submission, please contact [tom.parkinson@fortescue.com](mailto:tom.parkinson@fortescue.com) or myself on the below details.



Yours sincerely

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**FORTESCUE ENERGY**