Star of the South

Submission: Draft IASR 2023

15th February 2023

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Star of the South is Australia's most advanced offshore wind project. It has the potential to power nearly 20 per cent of Victoria's electricity needs while creating thousands of jobs and long-term investment in the Gippsland region. It is backed by Copenhagen Infrastructure Partners (CIP), one of the world's largest clean energy investors, and Cbus super, a leading Australian Industry Super fund. The project is currently in the development phase, seeking approvals to start construction around the middle of the decade to generate power by 2030, supporting the energy and jobs transition as further Latrobe Valley coal power stations retire from 2028.

Star of the South would like to acknowledge The Australian Energy Market Operator (**AEMO**) for their work on the ISP to date and welcome the opportunity to make a submission on AEMO's 2023 Draft Inputs, Assumptions & Scenarios Report (**IASR**).

Offshore wind technology inputs

Inclusion of offshore wind

Star of the South welcomes the strong inclusion of offshore wind in this iteration of the IASR and is happy to see the technology continue to feature in the list of candidate technologies. Offshore wind is a rapidly growing industry worldwide and is becoming a key resource in the ongoing global energy transition. Australia is no exception, with over 20 projects proposed around the coast and a rapidly progressing regulatory framework. The inclusion of a dedicated scenario to reflect the offshore wind targets set by the Victorian Government is a sensible approach, ensuring outcomes of the ISP are consistent with government objectives and ambition.

Density of wind farms in declaration area

Offshore windfarm density can vary to large degrees, typically determined by several factors including availability of developable area, commercial considerations, environmental considerations, and regulatory requirements. Higher density projects have commercial implications due to the increased wake losses while also impacting the ability to share the area with other users. Currently, global offshore windfarm densities typically range from 2MW/km^2 to 10MW/km^2.

Offshore wind renewable energy zone assumptions

Maximum fixed turbine depth

The current maximum fixed turbine depth assumption of 60m, while reasonable, is recommended to be increased to 70m. Monopile foundations have a maximum depth of around 60m, however other fixed technologies, such as jacket foundations, can be installed in water between 50-80m deep based on turbine technology, turbine size, foundation design and ground conditions. It is reasonable to anticipate Australian offshore wind projects using fixed foundation in waters above 60m, and to account for this a 70m baseline should be used to estimate resource limits.

Gippsland REZ

Since the release of the Draft IASR, the Australian Federal Government formally declared the area in the Bass Strait off Gippsland, refining the proposed area down following thorough consultation with industry, community and stakeholders. The updated area includes the eastern, southern and south-eastern portions of the originally proposed area, with the remaining areas excluded[1]. The changes in the declared Gippsland area should be reflected in the indicative offshore windfarm locations on the Renewable energy zone map along with in the offshore REZ resource limits for the Gippsland region.

Resource limits

The draft 2023 IASR highlights Australia's enormous potential for offshore wind generation. However, the assumptions around offshore REZ resource limits are too generous. It is unreasonable to assume 90% of a declared area can be used to host operational offshore wind farms. A variety of factors will impact the ability to develop offshore wind projects, including existing user constraints (eg fisheries, shipping), environmental considerations, defence activities, and oil & gas operations. A more appropriate and realistic level should be considered for declared offshore wind areas, which could be in the range of 60-80%. This remains substantially higher than onshore renewable resource limits, reflecting the lower number of competing land uses in an offshore environment and allowing for a practical level of offshore wind development while balancing the sharing of marine areas with existing users.

[1] Renewables | Australian Marine Spatial Information System (AMSIS) (arcgis.com)

Social licence

The ISP "*serves the regulatory purpose of identifying actionable and future ISP projects, as well as the broader purposes of informing market participants, investors, policy decision makers and consumers*". The outcomes of each ISP have impacts across the industry, informing the planning of key transmission routes, renewable generator locations and government initiatives throughout the energy transition.

Social licence concerns have grown over the years, with doubts cast over whether communities will accept the level of development needed to achieve the outcomes set out in the ISP. Transmission and generation projects across the country have already begun facing delays and increased project costs caused by social licence challenges. Star of the South supports the inclusion of a social licence constraint.

Star of the South agrees with AEMO's considerations and recommends the implementation of the proposed $0.27 million/MW increase in land use penalty factor to be applied. To implement some of AEMO's other considerations, Star of the South encourages AEMO to consider adding an alternate sensitivity where transmission costs and timelines are increased substantially to reflect difficulty in approving and developing projects due to community constraints. This could be a "worse case scenario" to help understand some of the challenges the NEM may face over the coming decade without it being implemented into the base case.