

1 March 2021

Dr Alex Wonhas
Chief Systems Design and Engineering Officer
Australian Energy Market Operator
Via email: ISP@aemo.com.au

Dear Dr Wonhas

RE Integrated System Plan Methodology Issues Paper

TasNetworks welcomes the opportunity to respond to the Australian Energy Market Operator's (AEMO) Integrated System Plan (ISP) Methodology Issues Paper.

TasNetworks is the Transmission Network Service Provider (TNSP), Distribution Network Service Provider (DNSP) and Jurisdictional Planner in Tasmania. TasNetworks is also the proponent for Marinus Link, a new interconnector between Tasmania and Victoria. The focus in all of these roles is to deliver safe, secure and reliable electricity network services to Tasmanian and National Electricity Market (NEM) customers at the lowest sustainable prices. TasNetworks therefore supports AEMO's forecasting and planning activities in the development of the 2022 ISP and commends AEMO for producing a detailed and comprehensive ISP Methodology Issues Paper for consultation.

TasNetworks' supports Energy Networks Australia's (ENA) submission and would like to make several further comments from a Tasmanian perspective.

Capacity outlook modelling

TasNetworks broadly supports the capacity outlook modelling amendments suggested by AEMO. The better representation of firm contribution factors for short-term storage technologies and seasonal generator ratings in particular will improve the effectiveness of the model. As a general comment, TasNetworks reiterates the points raised in the Draft Inputs Assumptions and Scenarios Report submission¹, including that capacity outlook modelling should assess the impact of economic and environmental factors when assessing the risk of

¹ https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2021/iasr/submissions/tasnetworks.pdf?la=en

early generator retirements. The following comments relate to specific elements of capacity outlook modelling.

Reserve modelling - firm contribution factors for variable renewable energy (VRE)

TasNetworks agrees with the contribution factors adopted for VRE generators. As noted by AEMO, the firm contribution factors should be routinely revisited in the cases where VRE generation is concentrated in a particular renewable energy zone (REZ) or by a technology type. In addition, the contribution factors should also be reconsidered once potential future interconnectors are commissioned between regions. As demonstrated in the CSIRO GenCost² analysis, transmission expansion between regions is part of the least-cost solution for sharing resources across NEM regions.

Reserve modelling - Reserve modelling for short-term storage technologies

AEMO is proposing to explore new methodologies which generalise the reliability benefits of different storage configurations, including the possibility of adjusting the firmness of short-term storage technologies to reflect the contribution that those technologies would make across a given maximum demand period. TasNetworks supports AEMO's proposed method for adjusting the firmness of short-term storage devices as a first step. As a further modification, forecasting uncertainty for storage devices could be considered given the likelihood of the potential dispatch inaccuracies.

Hydrogen

TasNetworks supports AEMO's intent to include the impact of hydrogen production in the 2022 ISP and seeks a more detailed understanding of the methodology to determine the location and size of the electrolyser plants. We understand that AEMO recognises the limitations of the proposed approach to incorporate hydrogen as an exogenous input, and as a consequence TasNetworks would caution against over-reliance on results from the modelling. The interactions of hydrogen in the power system include where to locate and use hydrogen electrolysers to maximise system efficiency, and understanding the impact on the development of generation and transmission. In Tasmania, the Tasmanian Renewable Hydrogen Action Plan is exploring opportunities for export of renewable hydrogen from identified sites, including the Bell Bay Advanced Manufacturing Zone and in the North West coast region, and the consequential augmentation impacts on the network. TasNetworks has been engaging with a number of potential hydrogen developers and would be pleased to provide AEMO with further information on our understanding of hydrogen developers' current issues, and the consequential impacts on the power system.

Single process for capacity outlook and time-sequential modelling

In the long-term, TasNetworks encourages AEMO to consider combining capacity outlook and time-sequential models into a single model that simulates the entire modelling horizon. A single model will better capture the firm contribution between VRE generation, future transmission requirements of the power system and the need for dispatchable capacity (including optimal storage depth) for the modelling horizon.

² Graham, Paul; Hayward, Jenny; Foster, James; Havas, Lisa. GenCost 2019-20. CSIRO publications repository: CSIRO; 2020. <https://doi.org/10.25919/5eb5ac371d372>

Power system security costs

As the TNSP in the smallest NEM region, which is decoupled from the AC network of mainland states, TasNetworks is acutely aware of the issues related to power system security as the transition to non-synchronous generation sources gathers pace. TasNetworks supports AEMO's efforts to capture the costs associated with maintaining power system security, noting the many complexities of modelling such costs. TasNetworks considers that the modelling assumptions proposed by AEMO in this area are reasonable.

Consistent with a move to better reflect power system security costs, the ISP Methodology could consider the economic benefits of reduced Frequency Control Ancillary Services (**FCAS**) costs delivered by an ISP project. As AEMO is aware, the increasing range of faults for which Basslink tripping that have been re-classified as credible has resulted in the need for greater local procurement of contingency FCAS services in Tasmania, including all contingency FCAS services procured locally when the Basslink flow is to the south. GHD Advisory³ computed FCAS benefits of approximately \$15 million per annum with the commissioning of Marinus Link. Typically, FCAS costs are more significant for Tasmania, closer to 2% of gross energy costs, compared to 1% in the mainland regions. The analysis conducted by GHD Advisory suggested that commissioning of Marinus Link could bring Tasmanian FCAS costs, as a percentage of gross energy costs, in line with mainland costs. TasNetworks would encourage AEMO to consider inclusion of the economic benefits of reduced FCAS in the ISP Methodology.

Shadow REZs

For the 2022 ISP, AEMO is proposing to include shadow REZs in both the counterfactual modelling and in the optimisation within each development path.

TasNetworks supports the concept of defining REZs in areas which are currently occupied by large thermal generators and associated infrastructure, able to be built once thermal generators retire. Whilst we understand AEMO's reasoning for previous inclusion of these as shadow REZs in the 2020 ISP, we consider that such areas should be included as potential REZs when evaluating all candidate development paths as well as the counterfactual. As such, the shadow REZ would simply be another candidate REZ, and its data should be included in the Input and Assumptions workbook with all other candidate build options.

Take one out at a time analysis

TasNetworks welcomes AEMO's new initiative to undertake a take one out at a time (**TOOT**) analysis, which will help stakeholders understand the incremental market benefit provided by a project that is part of the Optimal Development Path (**ODP**). TasNetworks notes that the incremental market benefit computed under the TOOT analysis would differ from the net market benefit in the Regulatory Investment Test for Transmission (**RIT-T**) for a project. The difference in market benefit is primarily because the Modelled Project⁴ base case is not constrained. In contrast, the TOOT analysis suggests locking down the REZ expansion outcome as an input for the TOOT case.

³ [Ancillary Service Benefits for Marinus Link](#), GHD Advisory, 4 December 2019

⁴ As defined by the RIT-T guidelines, a hypothetical project derived from market development modelling in the presence or absence (as applicable) of the relevant credible option or the base case.

Noting that a project can be included in the ODP on a least-worst regrets basis, TasNetworks considers that the TOOT analysis should be expanded to include all relevant scenarios for TNSPs under the ISP Framework, rather than being limited to the Central scenario.

Distribution Network considerations

Finally, TasNetworks supports the ENA's comments in support of greater inclusion of DNSPs in the long term planning for the NEM. Given the meshed nature of the Tasmanian distribution network, TasNetworks is best placed to undertake planning and provide AEMO with the required inputs. It is essential that any involvement of DNSPs in the ISP is proportionate and in the best interests of consumers, given existing constraints in planning resources and benefit of effort applied.

Should you have any questions, please contact Chantal Hopwood, Leader Regulation via email on chantal.hopwood@tasnetworks.com.au or by phone 03 6271 6511.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'W. Tucker', with a long horizontal flourish extending to the right.

Wayne Tucker

General Manager Regulatory, Policy and Strategic Asset Management