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RE: Draft 2020 Integrated System Plan (ISP)

ERM Power Limited (ERM Power) welcomes the opportunity to respond to the Australian Energy Market Operator's (AEMO) Draft 2020 Integrated System Plan (ISP), which seeks to provide a view of a potential whole-of-system plan for the development of the National Electricity Market (NEM) and power system.

About ERM Power

ERM Power (ERM) is a subsidiary of Shell Energy Australia Pty Ltd (Shell Energy). ERM is one of Australia's leading commercial and industrial electricity retailers, providing large businesses with end to end energy management, from electricity retailing to integrated solutions that improve energy productivity. Market-leading customer satisfaction has fuelled ERM Power's growth, and today the Company is the second largest electricity provider to commercial businesses and industrials in Australia by load[1]. ERM also operates 662 megawatts of low emission, gas-fired peaking power stations in Western Australia and Queensland, supporting the industry's transition to renewables.

http://www.ermpower.com.au
https://www.shell.com.au/business-customers/shell-energy-australia.html

General comments

The National Electricity Market (NEM) is transitioning. Patterns of supply and consumption are shifting rapidly. Scheduled synchronous generation has exited the market and been replaced with semi-scheduled asynchronously connected variable renewable energy (VRE) supply resources. The system will also require additional firming capacity, which is flexible in operation, to replace the additional scheduled generation that is forecast to retire. In addition, prior to full retirement, it is anticipated that scheduled generation that have historically operated "around the clock" will change operational modes and only operate when economic to do so. This will also remove the necessary power system services critical for the secure operation of the power system, which is provided at no cost to the NEM as an inherent feature of operation of these scheduled synchronous generators. The current rate of transition is highlighting the critical need for a comprehensive planning direction for the future NEM. We welcome the development of future ISP's in consultation with stakeholders, to ensure the NEM is developed at pace with the technological transition currently underway in the interests of consumers.

[1] Based on ERM Power analysis of latest published information.

There is a clear need for cost efficient investment and development of the NEM's transmission network. This is required to ensure resilience of the power system is maintained during the transition away from conventional generation resources and a one-sided market. The ISP modelling and proposed development paths provide a central planner's view of a potential transmission development plan based on the assumed inputs. However, transmission network investments by their nature are high-cost and long-lived assets which place significant risks and costs on consumers if underutilised. As such, ERM Power believe it is critical that all transmission investment decisions are made based on ensuring the delivery of reliable energy at the lowest delivered cost to consumers.

Although the ISP is published on the basis of it representing an overall integrated system plan, it needs to be recognised that the central planner has no control over investment decisions regarding the timing or geographical location of potential supply side resources. Consequently, the ISP remains similar to its predecessor, the National Transmission Network Development Plan (NTNDP), as it represents a plan for future transmission network development options. The draft 2020 ISP recommends the development of a number of significant cost major transmission network projects. Although the draft 2020 ISP and its associated documents and spreadsheets provides significant amounts of information for stakeholder review, as well as recommendations for progressing these significant network projects, we are not convinced that the timing and sizing of the proposed network developments provide the optimum outcome for consumers.

Due to the significance of these recommendations for consumer costs, we believe:

- There is potential for additional clarity and detail to be provided regarding the cost assumptions outlined in the ISP
- Additional sensitivity analysis is required to ensure the scenario modelling is comprehensive
- Improvements can be made to the current ISP stakeholder engagement process to ensure effective consultation and increased transparency is achieved in practice.
- Independent review of the estimated costs and calculated benefits of the preferred network projects is required.

We provide further comment below.

Cost assumptions

The ISP is intended to provide planning guidance to identify a potential optimal development pathway based on the selected input assumptions and scenarios for the electricity system, considering theoretical whole-of-system costs and market benefits. As consumers have faced increasing electricity prices over the past ten years, there is a need for clarity regarding the consideration and definition of estimated costs in the ISP, and the relevance of these costs for the consumer.

ERM Power emphasise that all electricity market development must adhere to the National Electricity Objective (NEO). The NEO states that the long-term interests of consumers of electricity must be promoted with respect to price, among others. As a system planning document, the ISP cost benefit analyses (CBA) considers theoretical system costs and wholesale energy market prices, rather than consumer costs specifically. AEMO has made specific assumptions based on a central planner's view of the most like geographical locations for future supply side resources that the grid investment recommended in the ISP will most efficiently increase access to lower cost supply resources, which will lower electricity bills. AEMO also assumes that, in absence of the development of the ISP transmission investment projects alternative supply resources may not materialise or be of higher cost and consumers will therefore pay increased prices for energy.

We agree that forecasting potential market costs is a critical component of the modelling process and effective market design significantly impacts consumer prices. However, we believe that recommending significant scale transmission investment projects based on assumptions of potential impacts on consumers' bills is an over-extension.

Once approved, the time period over which consumers are required to continue to fund regulated transmission investments is significant, and consumers bear all the risk if the central planners assumed supply side investment fail to materialise. Therefore, we recommend that any fast-tracking of projects through the RIT-T process due to ISP priority ensure that rigor and integrity of the regulatory investment test process is maintained. This is particularly important as when calculating the Net Present Value (NPVs) of net market benefits using CBA, the identification of an optimal development path is not required to include the project of lowest net cost.

The definition and specification of costs for each input assumption drive the modelled outcomes of the ISP and provide strong weighting to the selection of optimal development paths. ERM Power has previously supplied a submission raising some concerns regarding assumed supply side costs to AEMO[2]. Comments contained in that submission apply equally to this current consultation. We note that estimated costs for each of the proposed network developments in the ISP have a considerable range in the potential final outcome which suggests little confidence in the current cost estimates. It is unclear to ERM Power what actual cost point in the cost range has been used by AEMO in the CBA and least regrets analysis. We recommend that AEMO publish the actual costs used as inputs in the CBA and least regrets analysis to allow stakeholders opportunity to provide feedback on these input costs. As the preferred outcomes could change significantly due to adjusted input costs, this would provide the market with improved confidence in the final optimal development path selections.

The ISP indicates 33,000 MW of new VRE capacity and 21,000 MW of standby or firming capacity is required in the future NEM. The 21,000 MW of firming capacity is suggested to be required to support the lack of dispatchability and firm output outcomes of the 33,000 MW of new VRE plant. From a cost perspective, we suggest it could be beneficial to investigate whether installation of 21,000 MW of firming capacity is sufficient to support system security and dispatchability, in absence of new VRE and transmission investment.

Scenario modelling options, assumptions and sensitivities

Although the ISP represents a modelling exercise of significant complexity, we believe there remains some gaps in the sensitivity analysis presented, which have potential to impact the modelled outcomes. For instance, the “step change” scenario assumes that a high demand scenario is plausible based on significant electrification of other areas of the economy but does not consider a lower demand scenario. Based on recent observations of the commercial and industrial market, we believe that the “step change” scenario should include a sensitivity for demand destruction outcomes. Recent public statements made by smelter operators have indicated that operations will cease under the realisation of a “step change” scenario. Although AEMO has considered an additional sensitivity to be the closure of a large smelter in Victoria in the next 10 years, AEMO also assume that other smelters will continue to operate. Considering the current market uncertainty for large industrial loads, and the large inaccuracy of energy consumption and maximum demand projections in the past, we believe this assumption requires further substantiation.

ERM Power suggests that the scenario modelling options should not solely consider input assumptions and sensitivities, but also the potential for adjusted timing of implementation of currently indicated preferred options. We agree that the least regret options should represent the preferred projects. However, there is potential that the timing of ISP projects may need to be more flexible and able to respond to emerging conditions. We believe consideration should be given to the staging of components of the modelled preferred options. The staging of some components of a preferred option may present future opportunities for alternative preferred options to be developed. For instance, an early upgrade to the Wagga Wagga-Yass network in New South Wales could be progressed as the first development component of the HumeLink project.

[2] AEMO’s consultation on AEMO’s key inputs and assumptions for use in its 2020 Forecasting publications for the National Electricity Market (NEM).

This would allow for the impact of this development to be considered within the 2022 ISP, which may lead to the identification of alternative preferred options or changes in timing for later stages of the HumeLink project as further details in emerging supply side options are revealed.

It is also unclear if the ISP has factored in the varying costs of power system services, system strength, voltage control, etc, into the selection of potential supply side development scenarios, or who would be required to fund the provision of these necessary services. We believe more detailed analysis in this area is required.

Considering the potential for changed weather extremes projected under different climate change scenarios, we support that change to include a more comprehensive assessment of the impact of increased temperatures on demand and decreasing rainfall on storage based hydro output. Similarly, sub-optimal generator operation from shifting weather extremes has the potential to impact system security and reliability. We recommend that detailed assessment on the operation of all generation technologies under these conditions should also be included.

Renewable Energy Zones

AEMO has stated that REZs are selected based on input energy (solar or wind), existing network capacity, cost of network augmentation, and environmental or cultural limits on the land. We suggest that AEMO also consider efficiency of energy delivery when considering large inter-regional network developments, with direct transmission routes preferable to long, circuitous routes design for the connection of potential new REZs. We are concerned that the existing large scale inter-regional development routes have been selected to minimise the costs of REZ connection at the expense of overall costs to consumers.

Transparency and engagement

We acknowledge that AEMO has recognised the importance of stakeholder engagement and transparency through the process of development of the 2020 ISP. We congratulate AEMO on the initial efforts it has made to ensure the development of the ISP with regards to this and look forward to further improvements with regards to effective consultation in preparation of the 2022 ISP. In our view, it is critical that the development of the 2022 ISP builds on lessons learnt through the 2020 ISP process and works towards a rigorous and comprehensive process for future ISPs. As the process of ensuring transparency and engagement is one of continual improvement, we recommendation several areas which, in our view, would increase confidence from stakeholders and the market on the modelled outcomes of the 2020 ISP:

- The draft 2020 ISP does not provide clarity on the full scope of transmission augmentations which were considered, and the rationale for not proceeding to more detailed analysis of these alternatives with attention to what smaller cost options were considered and discarded. We believe this is important to clarify, as smaller costs augmentations would provide the market additional time and flexibility to adapt to the changing market conditions. We believe it is critical for stakeholder assessment of the 2020 and future ISP's that full details be provided with regards to this.
- The geographical diversity of VRE output is suggested as a market benefit, although supporting data or analysis is not provided. We question the assumption that VRE output has a large geographical diversity between regions which will support the high level of inter-regional flows required to justify the preferred large inter-regional network developments.
- Transmission project options were refined in consultation with TNSPs through joint planning with AEMO. We believe a more sensible approach would be to include all stakeholders within the joint planning of transmission project options. Prospective generators have particular insights into preferred connection locations based on commercial considerations, which may assist in determining preferred transmission project options.

- Whilst AEMO has provided some details with regards to its "least regrets" approach to selection of the preferred transmission expansion options, it remains somewhat unclear if this "least regrets" analysis was applied to potential staging of options, where some parts of the preferred option could be put in place initially until there is greater certainty that the total project is required. This process may allow beneficial outcomes for consumers whilst reducing the risk that the preferred option remains underutilised.

Independent review

We acknowledge the work undertaken by AEMO with regards to the draft 2020 ISP. However, it needs to be acknowledged that the draft report recommends several large-scale significant cost network projects that will result in significant and long-lived costs to consumers. We note the recent independent review of the proposed EnergyConnect interconnector between South Australia and NSW conducted by the Australian Energy Regulator (AER). This review resulted in a reduction of 70% of the claimed net benefit of this proposed $1.5B network augmentation. Although the currently proposed project retains a small net market benefit, an increase of only 18% in the cost of the project would result in no net market benefit accruing. This is particularly important when the costs estimates as contained in the RIT-T are indicated as subject to a potential increase during construction of 20 to 50%[3].

We also note that the only other independent review of a RIT-T was undertaken by Frontier Economics for the Heywood Augmentation Project - Project Assessment Conclusions Report in May 2013. The Frontier Economics review found that; "*On a present value basis, Frontier"s analysis has found the gross market benefits of Option 1b to be roughly one tenth of the size of ElectraNet and AEMO"s reported benefits*."[4] In our view it is questionable if to date the Heywood Augmentation Project has delivered much in the way of forecast benefits as set out by the proponents in the RIT-T documents.

If implemented, the ISP projects will result in significant and long-lived costs to consumers. The draft 2020 ISP has not been prepared on the basis of the AER's Best Forecasting Practice or Cost Benefit Analysis, which will apply from the development and preparation of the 2022 ISP. We recommend that AEMO request the AER to conduct an independent review of a least two of the large-scale preferred projects, similar to that undertaken for the EnergyConnect RIT-T. We believe a demonstrated independent analysis of the net market benefits claimed in the ISP conducted by the AER will provide confidence to consumers and other stakeholders that the claimed market benefits as set out in the ISP have a reasonable probability of occurring. Currently, we believe consumers have little confidence that this is the case.

Conclusion

We acknowledge the work undertaken by AEMO in preparing the draft 2020 ISP. However, we are concerned that several areas require additional clarity regarding some of the input assumptions and outputs as set out in the draft report. We believe that although several potential future market development scenarios have been developed, additional sensitivity assessment of key inputs to these scenarios is required. AEMO has started on its journey towards effective consultation and engagement with stakeholders. We recommend further improvements to the current ISP stakeholder engagement process to ensure effective consultation and increased transparency is achieved in practice. Finally, we believe consumers would gain confidence in the ISP process overall by referring at least two of the preferred projects to the AER for independent review.

Please contact me if you would like to discuss this submission further.

[3] AER Determination – Page 80 South Australian Energy Transformation RIT-T

[4] Frontier Economics – Page 20 Market benefits of Heywood upgrade

Yours sincerely,

[signed]

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