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RE: Draft 2023 Inputs, Assumptions and Scenarios Report (IASR)

About Shell Energy in Australia

Shell Energy is Shell's renewables and energy solutions business in Australia. Shell Energy delivers business energy solutions and innovation across a portfolio of electricity, gas, environmental products and energy productivity for commercial and industrial customers. Our residential energy retailing business Powershop, acquired in 2022, serves more than 185,000 households and small business customers in Australia. The company's generation assets include 662 megawatts of gas-fired peaking power stations in Western Australia and Queensland, supporting the transition to renewables, and the 120 megawatt Gangarri solar energy development in Queensland. Further information about Shell Energy and our operations can be found on our website here.

General Comments

Shell Energy welcomes the opportunity to contribute to the development of AEMO's inputs, assumptions and scenarios modelling library. Given the breadth and depth of material covered by the assumptions we have attempted to restrict our comments to the priority feedback areas identified by AEMO.

Review of Historical Accuracy of Consultants Inputs

AEMO has made extensive use of input assumptions provided by a limited number of consultants in key areas such as future economic conditions, costs of new supply side resources, and electric vehicle uptake and charging as inputs to previous Integrated System Plans. To date little in the way of benchmarking has been undertaken to compare these previous forecasts to actual outcomes. Shell Energy considers that the 2023 IASR would be improved if it contained a comparison section of historical forecasts to actual which may also include details where actual outcomes have deviated from forecasts. Seeking to understand model deviations from actual outcomes is crucial to improving future modelling outcomes.

Scenarios

Shell energy is generally supportive of the scenarios that are proposed for consideration. However, whilst the Green Energy Exports scenario represents a book end at the optimistic end of the spectrum, we observe that the inputs into the Progressive Change scenario do not appear to be at the other end of the spectrum as we would expect for a robust scenario modelling approach. This is the case in key areas such as economic growth and the cost of new variable renewable generation resources which may be impacted by supply side constraints. With the removal of the Slow Change scenario, Shell Energy consider that the Progressive Change scenario would benefit from additional sensitivity analysis that considers outcomes with lower economic growth and potential higher costs for new variable renewable energy supply side resources. This however would not alter the allocated carbon emissions budget for the scenario. Where the scenarios differ from current legislated domestic and global policy and their objectives, this should be clearly detailed in the scenario with the additional costs of achieving these set out in the draft and final ISP.

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Generation

We note that costs for new supply side resources are provided by a consultant. We consider the costs as indicated warrant further close review by AEMO as in our view the costs of supply constraints including mineral resources for battery energy storage systems, wind and solar have not been adequately allowed for across the short-, medium- and potentially the long-term horizons. It is also unclear as to why these costs are provided as point estimates only and consider that a cost range must be provided. This work should also include a more detailed geographical assessment to improve the accuracy of the relative cost differences between electrical sub-regions. In considering this, we recommend that alternative regional and sub-regional supply side resources build assumptions be included in sensitivity analysis to test the changes that may result in the optimal development path for the transmission network.

Based on historical outcomes for the construction and commissioning of new supply side resources some further analysis is justified for project lead times.

We also consider the weighted average cost of capital (WACC) values applied to market facing resources do not align with the WACC applied to new investment. In addition, the internal hurdle rates that would be applied to approval of a new supply side resource project may be significantly higher than that implied by the WACC.[1] We recommend that AEMO engage further with potential investors in this area.

For synchronous unit commitment assumptions, AEMO has proposed that from 2026, existing thermal synchronous generators commitment assumptions will be altered such that the number of units required in-service will halve every two years from for the Progressive Change scenario. This suggests an accelerated synchronous thermal generator retirement path compared to that currently set out by the generator owners. We recommend that this change be implemented as a sensitivity rather than a base assumption and the base assumption be based on the currently announced generator retirement dates in the progressive change scenario due to the nature of the scenario as a conservative book end to the analysis.

Discount rate used in calculating future benefits

Sensitivity testing of discount rates in the 2022 ISP showed they had the largest impact on reducing net market benefits of the scenario weighted optimal development path (ODP) for the proposed transmission network augmentations. We understand that AEMO simply intends to update the discount rates used in the 2022 ISP adjusted for recent moves in interest rates. Given that the calculated market benefits are highly sensitive to the discount rates used, we recommend that AEMO engage expert consultants in this area with a key question regarding the use of the same discount rate for costs as well as benefits. Whilst recovery of costs plus a reasonable margin is certain for transmission investment, the delivery of forecast benefits is less certain, and the use of different discount rates could be one method to represent this outcome.

Network constraint information

The current IASR contains little information regarding the impact of network constraints under the different scenarios. We believe the IASR should set out:

- Full details of all constraints included in the modelling and how they were derived including changes to current constraints.
- Details of binding hours of constraints for each modelled year preferably on at least a quarterly basis for each year

[1] Why Are Investment Hurdle Rates So Sticky? | Bulletin – December 2021 | RBA

- Details of constraints which are approaching binding levels and hence represent an impediment to new connections of load or generation.
- Any other constraints, such as capacity, (as opposed to monthly/annual energy), restrictions on thermal or hydro generating units and the reasons for their application.
- Details of any network constraint that was omitted or purposely not included in the modelling.

Network Augmentation Options

Historically the ISP has restricted itself to larger cost higher capacity projects which move energy between regions. These projects also have higher risk that the benefits claimed may in practice not be as high as the modelling forecasts. It is also noted that costs for these projects have substantially increased from when they were first proposed with cost increases exceeding double the initial forecast costs in most cases. We support the work being undertaken by AEMO in developing the transmission costs database, however we note this still allows for 30 to 40% costs increases compared to the costs used in the cost benefit analysis. Shell Energy considers that it is critical that sensitivity analysis is performed for each proposed network augmentation at the upper bound of the costs estimate for each project as this value has been more reflective of costs sought by transmission network service providers when requesting regulated funding approval.

In considering network augmentation projects, we consider that the project under analysis should contain the full set of network augmentation required to deliver energy to the consumer load centres. We do not support splitting of projects where benefits could be claimed twice for each segment of a project. We question if HumeLink and the Southern Sydney 500 kV Ring are in fact two separate projects from a cost benefit analysis or if the projects should be combined for the cost benefit analysis.

Shell Energy considers that there may be some smaller lower costs network augmentation options that could be developed that would allow timing for the larger network augmentations to be delayed and allow more certainty regarding their costs and need to mature. These projects could include:

- Rebuild of one of the two older 132 kV TL between Wagga and Yass in NSW as a 330 kV transmission line.
- Strategic upgrades and network support of the 132kV Central NSW network to remove existing constraints in the Parkes, Orange, Forbes region.
- Construction of an additional single or double circuit 220 kV TL between Bendigo and Shepparton to better utilise the existing 3 off 220 kV transmission lines between Shepparton and Dederang in Victoria.
- Installation of energy flow control equipment on the Dederang - Wodonga – Jindera – Wagga, Murray to Lower Tumut and Murray to Upper Tumut 330 kV transmission lines.

The 2024 ISP must also consider the level of network augmentation to the existing network that will be required to support the construction and commissioning of network augmentation for renewable energy zones. The costs associated with this should be detailed in the draft and final ISP.

Consumer risk preference

Whilst work has been undertaken to determine the appropriate value consumers place on reliability, (value of customer reliability), to date work in the area of consumer risk preference has yet to commence. One of the challenges in undertaking this work is to adequately frame, quantify and communicate the level of risk consumers currently face. We recommend that this is the first step that must be undertaken if consumer risk preference is to be quantified. In considering consumer risk preference, schemes such as the NSW Energy Roadmap which aims to ensure reliable supply to NSW consumers whilst reducing carbon emissions should also be factored into the process in determining consumer risk preference.

Demand Outcomes

Shell Energy has provided a submission to AEMO forecasting accuracy report and improvement plan. The comments set out in that submission are also relevant to the IASR.

In the area of electric vehicles (EV), we note and support AEMO's intention to undertake improvements to cater for uncontrolled and controlled load charging of electric vehicles and recommend further consideration in the area of tariff reform to provide cost reflective charging costs. We encourage AEMO to continue work in this area and where possible expand its expertise beyond reliance on a single consultant for forecasts of EV uptake and charging patterns.

Costs of Electrification

In addition to the costs associated with augmentation of the transmission and distribution networks to facilitate electrification of homes, small business and large commercial and industrial loads, we consider these cost estimates must also include the costs to consumers to convert their individual premises for electrification. We note to date only costs associated with augmentation of the transmission network has been considered in the ISP. The costs of electrification should also consider and quantify the costs of stranded assets in the existing gas transmission and distribution network, how these costs are to be recovered, and the cost impact of this on remaining gas users.

For further detail or questions regarding this submission please contact Peter Wormald (peter.wormald@shellenergy.com.au).

Yours sincerely,

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