Meridian Energy Australia Pty Ltd
Level 15, 357 Collins Street
Melbourne VIC 3000

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Australian Energy Market Operator
Email: forecasting.planning@aemo.com.au

Reliability Forecasting Methodology Issues Paper

Meridian Energy Australia Pty Ltd and Powershop Australia Pty Ltd (MEA Group) thank the Australian Energy Market Operator (AEMO) for the opportunity to provide comments on the Reliability Forecasting Methodology Issues Paper (the Issues Paper).

The MEA Group is a vertically integrated generator and retailer focused entirely on renewable generation. We opened our portfolio of generation assets with the Mt Mercer and Mt Millar wind farms and in early 2018 acquired the Hume, Burrinjuck and Keepit hydroelectric power stations, further expanding our modes of generation. We have also supplemented our asset portfolio by entering into a number of power purchase agreements with other renewable generators, and through this investment in new generation we have continued to support Australia's transition to renewable energy.

Powershop is an innovative retailer committed to providing lower prices for customers and which recognises the benefits to customers in transitioning to a more distributed and renewable-based energy system. Over the last five years, Powershop has introduced a number of significant, innovative and customer-centric initiatives into the Victorian market, including the first mobile app that allows customers to monitor their usage, a peer-to-peer solar trading trial and a successful customer-led demand response program. Powershop has also been active in supporting community energy initiatives, including providing operational and market services for the community-owned Hepburn Wind Farm, supporting the Warburton hydro project, and funding a large range of community and social enterprise energy projects through our Your Community Energy program.

The MEA Group welcomes the effort that AEMO has applied to developing the Issues Paper. We recognise that the issues addressed are challenging and the timeframe provided by the rule change process has forced AEMO to identify workable processes that will be fit for purpose and achievable in a very short time. Nonetheless, and as good as the AEMO process has been to date in terms of consultation and transparency, the forecasting methodology adopted must be the best possible that can be achieved to ensure that the objectives of the Retailer Reliability Obligation (RRO) are achieved at the lowest possible long term cost to consumers.

In light of this, we have set out a number of suggestions to try to address the fact that any forecasts or methodology to be used for the purposes of the RRO are a reasonable and workable estimate of any expected reliability gap. Such forecasts must not under nor overestimate the gap or any investment required to meet consumer expectations.

Use of Summer Capacity Ratings.

We understand that AEMO proposes to utilise the summer capacity factor for every day over the entire summer period. This assumption is an extremely conservative assumption that is likely to substantially overestimate any Reliability Gap. In Melbourne, the reference node temperature is 41 degrees which has never occurred in November and occurs on average less than two days per annum and rarely more than once in any month.

We recognise the need for the methodology to address potential periods of stress (of which high temperature is a major driver), but this approach does not reflect the underlying reality and therefore is not a reasonable estimate of actual reliability issues. We also recognise that merely including forecast temperature in the modelling may also not accurately reflect expected outcomes (especially due to persistent waves of high temperature).

A suggestion as to how to address this conundrum would be to utilise standard capacity factors unless the model predicts that high temperatures (37 degrees or within 10% of the reference node temperature) are predicted either for that day, the two prior days or the succeeding day. This approach would allow a probabilistic utilisation of the summer capacity factor but would also bring that factor into play for adjacent days to deal with potential mis-forecasting of actual weather outcomes (i.e. a high weather forecast on a Sunday would trigger both Friday and Monday – allowing for temporal drift), potential delayed temperature impacts on reliability (a high weather day forecast on a Tuesday could still trigger a Wednesday or Thursday outcome) and would also assist in addressing potential increases in heat waves.

Consideration of projects which are not yet recorded as committed

We understand that AEMO will only be utilising committed projects for both its T-1 and T-3 forecasts. This is also likely to be a significant overestimate of the reliability gap (especially in the T-3 timeframe). We are aware of a significant number of projects that have passed into production is less than three years which would have been expressly excluded from the reliability gap calculations under this approach. We also understand AEMO's concern that the proposed use of the COM* would likely lead to an underestimate of any gap.

We suggest that at least for the T-3 forecast, AEMO consider using a proportion of the COM* projects. This approach is likely to lead to a more accurate forecast and provide participants with incentives to ensure that AEMO has the best available advice as to progress on such projects. Even if this proportion is initially set to zero it will provide a mechanism to more accurately reflect future developments if significant amounts of generation are added in timeframes shorter than three years.

In addition, it should be remembered that the purpose of the RRO is to ensure that there are sufficient incentives for generation investment to occur (especially in circumstances resulting in lower than expected investment arising from normal market operation) and not to ensure that investment is committed at least three years in advance of requirements.

Unexpected impacts of using fixed time and date periods

The proposed use of months and fixed time periods for determining reliability gap periods and relevant trading periods is sensible and in the circumstances probably reasonable. Two issues which we consider need further investigation is whether the proposed 2% and 5% factors are set at the correct level and whether the use of any LOLP rather than say LOLP likely to approach the Reliability Standard mean this is a VERY conservative assumption. It would be helpful if AEMO were to do a 'backcast' of this approach to determine whether it overestimates potential likelihood of a Reliability Gap period occurring.

We are also concerned that the combination of a number of mechanistic approaches adopted in the proposed methodology may result in the potential declaration of reliability gaps, reliability cap periods and effected trading intervals that are disconnected from any reality associated with the underlying likelihood.

It should be remembered that the market is not designed to deliver 100% reliability at any cost and the Reliability Standard already makes a trade-off on behalf of customers between excessive investment and reliability. Adopting unnecessarily conservative forecasts has the potential to drive excessive investment at great customer cost and potentially delivering that investment in a sub-optimal manner.

While there a number of things that AEMO could do to address these concerns we would suggest consideration of the following factors:

- Use of LOLP of any loss is inconsistent with the Reliability Standard of some acceptable level of loss of load. This is especially relevant where it is a forecast and not even the actual final reliability outcome;
- The use of 5% (1 in 20) LOLP for identifying months which should constitute reliability gap periods may be inconsistent with the Rules and NEL obligation to identify periods where the forecast reliability gap is forecast to occur; and

- A similar issue arises in the use of 2%(1-in-50) for identifying effected periods[1];
- The intention to use months may result in the reliability gap period being unnecessarily and excessively extended (for example a very small probability of some LOLP occurring on 1 March would result in all of March being included).

These factors and outcomes could be ameliorated to a large extent if the methodology allowed AEMO to 'step back' after completing all of its analysis and undertaking a 'sense test'. Such an approach would enable AEMO to adjust any gaps or periods identified to more accurately reflect expected customer impacts and avoid the imposition of unnecessary or burdensome declarations which neither meet the spirit, or the letter, of the RRO rules and the NEL.

Ensuring previous experience is 'fed-back' into future forecasts

We note that that AEMO conducts an Annual Forecasting Accuracy report and intends to utilise this process to continue to enhance its forecasting processes and methodologies. This is welcome and we support this approach. However, as the use of the Electricity Statement Of Opportunities (ESOO) for RRO purposes is new and developed in a relatively compressed timeframe we would encourage AEMO to include within the methodology a process to ensure that detailed assessment of the ESOO's accuracy and workability for this purpose be regularly undertaken. In particular, regular 'out of band' assessment of the results achieved compared to the forecasts should be undertaken and the significance and causes of any substantial variations be investigated. In addition, if any bias is identified consideration must be given to including either more accurate processes or an adjustment factor.

We have been informed that recent high temperature events (which were substantially higher than expected) did not result in energy consumption that would be consistent with the forecast model. While it is pleasing that the system (mostly) was able to deliver energy to consumers in conditions much hotter than projected it also may indicate that the model is overestimating weather associated demand and hence unnecessarily triggering expensive interventions or investments. A process designed to demonstrate the accuracy and appropriateness of the model would assist in disabusing market participants of the notion that the model is excessively conservative.

Please find below our specific responses to the questions raised in the Issues Paper.

1. Transparency

1.1 Is the level of detail provided in this issues paper and referred methodology papers sufficient to allow you to constructively critique and provide feedback on the appropriateness of the methodology? If not, what additional information/explanations are required?

While generally there is sufficient information, the analysis process has identified that there would be greater benefit if AEMO continued to provide a clearer explanation of how the individual components of the forecasts are developed and used over time.

2. Open processes

2.1 In addition to this consultation and associated workshop, what other means of engagement could be considered for this year's ESOO, taking into account the time available and balancing timeliness and relevancy of information with need for consultation?

We would encourage AEMO to ensure that not only participants, but also relevant customers who will be significantly impacted (e.g. large users), are made aware of the consultation and how it may impact them and their power supply reliability and costs in the future. Use of AEMO marketing resources (e.g. Energy Live) and targeted media commentary may be necessary to ensure that all parties are aware of the need to consider and comment on these issues.

[1] *The use of such a low probability is likely to be exacerbated by the intention to utilise standard times for Trading Intervals. Potentially the existence of one half hour interval at any time with a one in 40 chance LOLP of any amount even 1MWh could result in every weekday half-hour at the same time being included. Yet it is clearly the case that on a 1 in 2 basis this half hour would have no loss of load. The forecast loss of load (even on a 2% basis) is unlikely to result in a breach of the Reliability Standard. As the NEL defines a forecast reliability gap period as the period during which a forecast reliability gap (i.e USE exceeding the Reliability Standard) is forecast to occur, this approach appears inconsistent with the NEL requirement.*

While not relevant to preparing this year's ESOO an inclusion of a session at the annual Summer Readiness session on how the reliability gaps are identified and quantified would ensure that those most likely to be impacted will be aware of the processes and their ability to assist with improving accuracy and workability,

3. Accuracy and lack of bias

3.1 Are the proposed assumptions and methodologies for calculating supply and transmission inputs to the Reliability Forecast (e.g. forced outage rates and auxiliary loads) reasonable for the purpose of assessing unserved energy? If not, what refinements should be considered?

As discussed above, we believe there is a potential conservative bias which will work against customer interests in the long term. While some of these can be addressed before this year's ESOO, it is likely that there will be a need to continually refine the process to eliminate such unnecessary biases while maintaining workability.

4. Reliability Forecast and reliability instrument methodologies

4.1 Are the outlined assumptions and approaches to calculate the reliability gap size, reliability gap period and likely trading intervals reasonable?

Again this is discussed above. There are clearly cases where the simplifying assumptions (or workability adjustments) have the potential to make the outcome unreasonable and likely to be inconsistent with the requirements and intention of the RRO.

4.2 Is the proposed demand definition to be used for the 1-in-2 year peak demand forecast reasonable? If not, what alternative definition should be considered and why?

The definition appears reasonable, however some of the assumptions may need to be tested over time. For example, the assumption that all Virtual Power Plants (VPP) are to be included in qualifying contracts may not prove to be true in practice (especially as there is still uncertainty as to what will be a qualifying contract). We would encourage AEMO to continue to monitor these assumptions and modify the process as new information comes to light. In this case (and similar cases) it may be more appropriate to include a VPP participation factor in the process (i.e. set out what percentage of VPP's are included in base demand) and adjust it each year based on prior experience. This approach would ensure that such factors are considered each year (even if initially set to zero) and that participants are encouraged to provide AEMO with accurate data to make future adjustments.

4.3 Does the set of result visualisations provided in the conceptual example provide information that assists participants in responding to any reliability instrument? What additional information would support decision-making in response to any reliability instrument?

While the visualisations are useful it may be desirable for AEMO to publish more granular data showing an effective 1-in-2 trace showing the forecast outcome with bands showing the actual declared shortfalls. This, if provided in either a graphical or CSV format, would provide users with a clearer understanding of the drivers for any declaration without having to dive into the complexities of PLEXOS.

If you have any further questions please do not hesitate to contact me or Chris Murphy on 0419 105 243.

Yours sincerely

Ed McManus
Chief Executive Officer
Powershop Australia Pty Ltd
Meridian Energy Australia