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Australian Energy Market Commission
PO Box A2449
South Sydney NSW 1235
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Re: Response to AEMC 2018 Reliability Frameworks Review, Directions Paper

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Infigen Energy (Infigen) welcomes the opportunity to contribute to the ongoing Reliability Frameworks Review (RFR) consultation. Infigen would also like to congratulate the AEMC on the development of this series of useful reports which provide a clear summary of how the current markets structures operate in the NEM. This will form a useful reference point for ongoing consultation on the operation of the NEM.

1. INTRODUCTION

Infigen is an active participant in the Australian energy market, with a 557 MW portfolio of wind capacity across New South Wales, South Australia and Western Australia, and a further 113 MW of wind generation under construction in New South Wales.

We are active participants in the energy market, developing innovative products with large C&I customers that incorporate demand response. As such, we are acutely aware of price and investment signals in the market, and the need to deliver affordable and reliable supply.

In preparing our response to the Directions Paper, Infigen considers that ensuring affordable supply to consumers should be a priority, and the potential for increased costs to consumers should be given significant weight. Any additional costs would need to deliver commensurate, measurable benefits – either reducing costs elsewhere in the market or ensuring the reliability standard is met.

Infigen has elected to provide a submission on three aspects of the RFR: day-ahead markets, forecasting and wholesale demand response, noting that strategic reserves will be addressed in AEMO's separate rule change requests as well as through the National Energy Guarantee discussion.

2. DAY-AHEAD MARKETS

2.1 Case for day-ahead markets

Infigen emphasises that the current NEM markets have delivered the reliability standard and are projected to continue to do so over the medium term. Maintaining a

balance between improved reliability and the costs to consumers is critical, and Infigen considers that the Reliability Panel is well placed to manage these decisions. Infigen also supports developing more detailed measures of the value of customer reliability.

Infigen does not believe that a case has been made, at this time, for the introduction of new day ahead markets for the NEM. We distinguish between mandatory US style day-ahead markets from voluntary Short Term Forward Markets (we deal with the latter below).

AEMC's list of potential objectives for a day-ahead market seem comprehensive, but identifying a clear issue and problem statement should be prioritised before further work is expended on design options.

It is also inappropriate to draw strong conclusions from the historical reliability experiences of international markets, given that the NEM has *also* exhibited high historical reliability and projected market conditions in the NEM have not been tested against those designs. Instead, AEMO and the AEMC should consider first-principles analysis of the NEM: starting by identifying and proposing specific points of failure for the current market design, backed up by forward-looking modelling and analysis.

Once a clear problem has been identified, a range of possible solutions could then be explored. This may include day-ahead markets, but could also include enhancements to existing frameworks, or development of new reserve markets if participants are not making sufficient reserves available to manage uncertainty. These alternatives are likely, in our view, to prove superior given that current problems to be solved generally relate to security matters and to short-notice reliability events which are not likely to be dealt with by a day ahead market¹.

2.2 Possible approaches

In terms of the options presented, Infigen considers that participants are best placed to manage risks over both *investment* and *operational* timeframes. Market participants such as Infigen with both generation and retail positions are exposed to both the upside and downside market risks, and therefore have strong incentives to look for and deliver efficient *and* reliable services.

If future analysis demonstrates that the current market is insufficient or inefficient for delivering the reliability standard, Infigen recommends that incremental and no-regret changes that should be pursued first, such as:

- Consider benefits of additional information requirements for pre-dispatch & ST-PASA
- Continue to investigate forecasting accuracy and potential improvements

¹ Without imposing additional constraints or services, Infigen considers that day-ahead markets are unlikely to deliver significantly different outcomes to the current market, although they might be used to co-ordinate those constraints or services.

Infigen does not support physical commitment through day-ahead markets. This would represent a dramatic shift in the market operation of the NEM, and would necessarily increase system costs by preventing more optimal resources from being utilised at real-time.

In contrast, voluntary ahead *financial markets* may deliver efficiency benefits through short-term trading & firming and allowing better alignment between gas and electricity markets. Infigen would support further consideration of the benefits of approaches such as the previously proposed Short Term Forward Market (STFM). As noted above, however, this work should be led by first identifying challenges in the market, and be compared to a range of potential solutions.

If the financial risks around unit-commitment are found to increase in the future, to the point where participants cannot manage these risks themselves, the AEMC could consider whether new “reserve” markets (similar to FCAS, but for reliability) could help de-risk unit commitment or demand response activation decisions. However, this should be weighed against any additional costs to consumers, and whether it would be likely to increase consumer reliability.

3. FORECASTING

3.1 Reporting

Infigen acknowledges demand forecasting is a highly challenging task, and ex-post comparisons to final demand doesn't necessarily indicate an error in those forecasts. Infigen also recognises that in forecasting demand, the consequences of under-forecasting demand have the potential to be more serious than over-forecasting. However, Infigen is concerned that there appears to be a systemic trend of overestimating peak demands in AEMO's demand forecasts. Further investigation and reporting on this would be valuable. Understanding the methodology, scope and accuracy of AEMO's forecasts will be particularly critical if these are to be used to procure RERT capacity or to trigger obligations under the proposed National Energy Guarantee.

Infigen supports AEMO's recent enhancements to the MT-PASA and LOR forecasting systems. The move to probabilistic frameworks will help AEMO and the industry to better interpret and manage risk. Infigen encourages continued transparency around AEMO's demand and supply forecasting, over both short- and long-term timeframes. Further steps could include publishing information on the range of sensitivities implicitly assumed in AEMO's probabilistic LOR forecasting system. This will provide participants with greater clarity over when additional resources might be needed, and enable better coordination of energy limited resources and unit commitment decisions.

3.2 Self-forecasting by semi-scheduled units

Infigen supports, in principle, the opportunity for forecasts to be provided by semi-scheduled units and for these to take preference over the pure UIGF forecasts. Infigen considers it likely that self-forecasts can improve on the accuracy of AEMO forecasts, increasing overall dispatch efficiency and potentially reducing FCAS regulation costs for those units. However, it will be important to establish clear frameworks of responsibilities and obligations, including how forecasts will be used, interaction with AEMO forecasts, and the compliance and regulatory regime. As with the other components of the RFR, establishing and evaluating clear objectives is a critical first step.

There would also be value in extending the opportunity to self-forecast to non-scheduled units (primarily wind and solar projects). Infigen acknowledges that this may require changes to AEMO's systems.

3.3 Self-forecasting by loads

Whether requiring load forecasts would deliver benefits depends on whether retailers can:

- a) produce more accurate forecasts, in aggregate, than AEMO
- b) respond to any penalties by improving forecasts (so as to reduce those penalties)

Large loads, including retailers, are already able to elect to be scheduled loads and to participate in central dispatch, and thereby forecast their load through their bids. At this time, relatively few loads choose to undertake this, as most of the benefits of demand side response (to the load) can be realised outside of the dispatch process.

The AEMC has identified that retailers may be best placed to know their customers' loads, and to be able to seek additional data to improve forecasts. It is possible that by retailers providing individual forecasts, some elements of AEMO's bulk forecasts could be "carved out". Backcasts might then provide AEMO with greater clarity forecasting any residual demand. Demand forecasting would also naturally allow for scheduling of price responsive loads; this could improve market transparency, efficiency and coordination.

However, all forecasting is intrinsically uncertain, and care would need to be taken not to simply impose costs on loads or retailers if, in fact, demand forecasts cannot be improved (at least beyond a certain point). The interaction with FCAS cost recovery would need to be considered, given that demand forecasts errors contribute to the requirement for regulation services.

4. WHOLESALE DEMAND RESPONSE

Infigen supports the growth of Demand Response (DR) in the NEM, and to practical measures to the extent that there are barriers to entry for economically efficient resources.

However, Infigen cautions against the introduction of new measures at a time when the demand response sector is experiencing significant growth. Infigen is actively developing retail agreements incorporating flexible load response, which helps to reduce costs to consumers and also facilitates the integration of renewable generation into the NEM. While acknowledging the AEMC's discussion paper, we do not at this time see fundamental barriers to the continued growth of DR in the NEM.

If the AEMC determines to progress the development of a new demand response mechanism, Infigen strongly prefers options that support the current contracting arrangements avoid the need to develop and rely on consumption baselines, maintain symmetry between the treatment and settlement of demand and generation, and, above all, avoid additional costs to consumers. Each of the options presented have potentially problematic components, which Infigen has touched on briefly below:

- On Option 1a (baselining), Infigen is concerned about the use of baselines which risk “double counting” the benefits of reducing demand. While potentially acceptable for low-use frameworks such as the RERT, such settlement would be problematic as the penetration of DR grows.
- This framework also creates asymmetries for vertically integrated retailers seeking to physically hedge their position: the total “demand” that the retailer is liable for will no longer match with the total generation supply. Aggregators could in principle sell contracts using the demand response, but this might be an imperfect hedge if demand response had limits on its activation.
- Alternatively, the Singapore demand response mechanism would mean that demand response is treated fundamentally differently to peaking generation, such that a different effective market price cap potentially applies to generation and loads. This option does provide an elegant approach, and should be considered further, but it creates potential for gaming and increased costs for consumers in some cases. In particular, participants who are already incentivised by the current market prices to reduce demand during high price periods will receive additional payments that will be recovered from other consumers.
- Under Option 2, parties would require multiple meters on-site and the aggregator would effectively become a retailer. This is more in line with the philosophical operation of the NEM to date, but it is unclear whether this delivers significant benefits over current arrangements given that the aggregator would still need to be a retailer. The loads and embedded generators on each meter would also need to be electrically separated behind the meter, to ensure the two retail contracts couldn't be arbitrated against each other, which may not be desirable from a consumer that wants to use (for example) solar and battery to meet both controllable and non-controllable load².

² For example, consider a battery that could either export to the demand response meter or offset the consumer's FRMP meter consumption. Consumers could (at least theoretically) use their battery to offset their load (avoiding retail tariffs) until the price became high. Then, when requested, they could deliver “demand response” by exporting on their second meter (earning, say, the high market price) and then simply purchase electricity from the grid at their retail tariff from their primary meter. This would change their net settlement for no observable benefit to the NEM.



- It is difficult for Infigen to comment on Option 3 at this time. Like most incentive schemes, it would be of benefit if the incentives can address a real barrier to entry for economic resources, and the benefits exceed the costs of providing the incentives.

5. CONCLUSION

These are important issues to be considered, and Infigen supports continued open and transparent discussions, supported by forward-looking analysis and evidence based problem statements.

Infigen looks forward to continuing to engage with the RFR and related reviews and Rule Changes. Please feel free to contact me directly in relation to Infigen's submission.

Yours sincerely

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