18 JULY 2019

To: The Australian Energy Market Commission ("AEMC")
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By website: ERC0251

Re: Response to **ERC0251 Transmission Loss Factors Rule Change Consultation Paper**

Infigen Energy Limited (ASX:IFN) ("Infigen") welcomes the opportunity to make a submission to AEMC the Transmission Loss Factors Rule Change Consultation Paper dated 6 June 2019 ("Consultation Paper"). Infigen owns wind and firming capacity across New South Wales, South Australia, Victoria and Western Australia. Our portfolio includes 670 MW of vertically integrated wind (plus Infigen has entered into power purchase agreements (PPAs) to provide c90 MW of capacity in Victoria and is seeking PPAs in other regions). Infigen also owns and operates a 123 MW open cycle gas turbine in NSW and a 25 MW / 52 MWh battery in South Australia (under construction). Infigen uses its portfolio to provide firm retail contracts to commercial and industrial (C&I) customers, as well as selling derivative contracts to third parties.

Infigen's submission primarily addresses Question 3 of the Consultation Paper. In general, we consider the existing loss factor frameworks accurately capture the underlying physics and provide effective locational signals. However, we have identified options for reducing intra-year variability and providing greater information to the market (particularly prospective new-entrant projects) that may increase the supply of hedges to the market and reduce project financing costs.

QUESTION 3: CHANGING THE TRANSMISSION LOSS FACTOR FRAMEWORK

What improvements do you suggest could be made to elements of the transmission loss factor framework and why? In particular with reference to:

(a) calculating transmission loss factors on a marginal or average basis

(b) allocating intra-regional settlements residues

(c) the frequency of calculating MLFs

(d) the notice period provided to market participants

(e) whether a forward-looking or backward-looking methodology should be used

(f) if a collar and cap should be applied to transmission loss factors

Physics, dispatch efficiency and investment signals

Losses are part of the physics of the transmission system; changes to how the cost of losses are recovered may change who pays but does not reduce the actual losses in the system. While the recent falls in published marginal loss factors (MLFs) may be challenging for some participants, the cost of those losses should not be socialised across consumers (or other participants).

The AEMC should consider both market economic efficiency in the short-run (i.e., dispatch efficiency in NEMDE) and facilitating efficient contracting and investment levels in the long-run. Both short- and long-term efficiencies contribute to reducing the cost of energy to consumers consistent with the National Energy Objective.

Increased information provision

In general, Infigen considers that many inefficiencies could be addressed through the provision of more information by AEMO, particularly to inform investment decisions by new entrants. This could include:

- Publishing the modelled half-hourly transmission loss factors for each connection point (inputs to the MLF calculation), improving visibility and enabling participants to undertake their own modelling.
- Publishing the model used by AEMO to forecast MLFs, allowing for better benchmarking by participants as well as facilitating forecasting and sensitivities.
- Calculating and publishing MLF sensitivities, e.g., how the transmission loss factors for a connection point would change if additional generation or load were added. This could be similar to pre-dispatch sensitivities (±100 MW of local generation, ±500 MW, etc.) and if combined with the half-hourly publication above would allow prospective projects to more readily run sensitivities on their own projected dispatch.
- Calculating and publishing actual marginal and average losses for each connection point based on actual dispatch (e.g., for 2018-19). If published regularly, this would provide real-time information on likely MLF movements, reducing the “surprise” annual changes.

In particular, immediately calculating and publishing the historical real-time loss factors for each trading interval of 2018-19 would help AEMC to assess the merits of some of the proposals around seasonal or time of day loss factors.

Intra-regional settlement residue

It would be helpful for AEMC (with AEMO’s assistance) to quantify the source of the intra-regional settlement residue (whether positive or negative), and the relative contribution of both the annual MLF forecast methodology and the use of marginal rather than average losses.

While access to the settlement residue may provide a hedge against adverse MLF movements, in some years it could impose a new cost on generators (particularly if average loss factors were implemented); this would have negative impacts on

investment certainty that would need to be weighed against any improved average outcomes.

Average loss factors

Moving to average loss factors would be expected to reduce the variability in transmission loss factors – bringing all transmission loss factors closer to 1.0000. However, this approach would move the NEM away from marginal pricing in the system. We acknowledge that, in real-time, the currently applied MLFs are already an approximation to actual losses and as such pricing is already not strictly marginal. However, applying average loss factors may increase inefficiencies beyond acceptable levels. Further quantitative analysis by AEMO should be sought as to the likely impacts.

Collar and cap

Infigen does not support restricting MLFs to a pre-determined range. This will socialise losses (or avoided losses) across consumers. This mutes investment signals and is not sustainable in the long-term, leading to the risk of a material correction when policy inevitably changes.

We do however see merits in smoothing out the volatility in annual MLF changes. This would reduce the volatility of participant revenues, reduce contracting risk, and potentially allow higher levels of firm contracting.

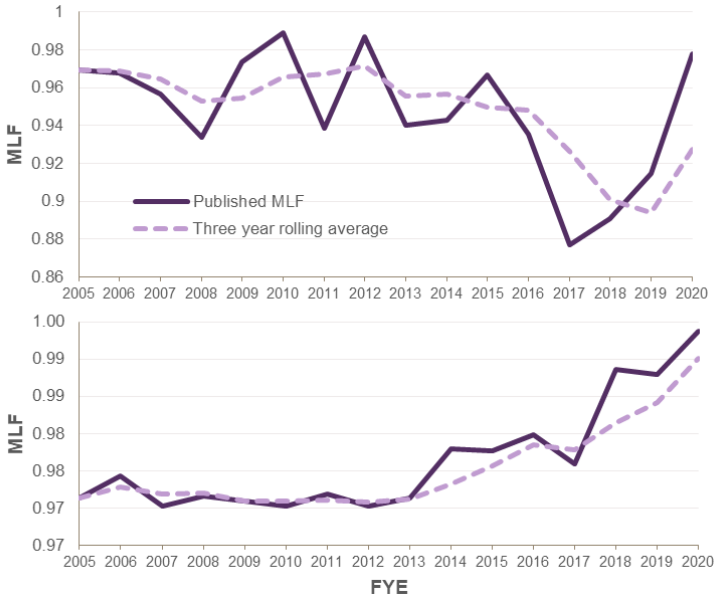
This could be achieved through:

- Moving to average loss factors, which reduce the magnitude of swings but would lead to inefficiencies in dispatch as noted above.
- Limiting annual movement to (say) 5%; this would provide time for participants to adjust to changes, but would socialise losses or benefits for the component of capped reduction.
- Applying a rolling average MLF for the purposes of dispatch and settlement. For example, Figure 1 below shows MLFs for two wind farms and how a three year rolling average would reduce annual volatility in MLF.

A rolling average over ~3 years is appealing because it reduces volatility (such as the significant spikes in Figure 1 below) over a typical retail contracting period of 2-3 years, while still exposing participants to the annual MLF (just smoothed over multiple years, potentially averaging out spikes).

We note that MLFs already incorporate significant lag through the use of data from two years' prior (i.e., the last full financial year of data). Despite the forward looking loss factor methodology, they are susceptible to year-specific effects, such as flows on major interconnectors. We consider any short-term inefficiency to be outweighed by the improvement to contracting efficiency. Averaging MLFs over three years would also help avoid triggering debt covenants due to a single atypically poor MLF year, making project financing easier.

Figure 1 – Impact of three year rolling average MLF on two representative wind farms



Real-time loss factors

Although the introduction of real-time loss factors would on one level be likely to improve the economic efficiency of dispatch (and provide continuous feedback on MLF changes), we consider this would be problematic for both operational and investment decisions. Close to real-time, participants would need to forecast both spot prices and individual MLFs when making unit commitment decisions, which would increase uncertainty and investment risk. MLFs would also become another unknown when contracting, forcing participants to contract at more conservative levels across the year, reducing liquidity and total supply of hedges to the market.

Frequency of MLF calculations

While fixing loss factors for longer periods (e.g., for five years, for project life, etc.) would increase investment certainty, losses are affected by both “local” (e.g., a competing project) and “non-local” effects (e.g., significant changes to bulk interconnector flows). Fixing loss factors at (for example) the year 1 MLF would distort the market and (most likely) socialise actual losses, while it would be problematic for AEMO to develop and lock-in a long-term MLF forecast.

Infigen does not support moving away from the open access framework for the existing network. Allowing competition, and the most efficient development of new resources, provides the necessary flexibility the NEM needs to transition to a low emissions future. However, as noted above, AEMO could play an important role in increasing the information available to potential new entrants (including their impact on MLFs).

Therefore, if the AEMC elected to provide fixed MLFs to participants for a longer period, new entrants should not be responsible for all "additional" losses (i.e., their loss factor should be calculated as if no MLF hedges were in place) so as not to prevent efficient investment due to poor forecasting by (presumably) AEMO.

2. CONCLUSION

We look forward to the opportunity to engage further with the AEMC regarding the Consultation Paper. If you would like to discuss this submission, please contact Dr Joel Gilmore (Regulator Affairs Manager) on joel.gilmore@infigenenergy.com or 0411 267 044.

Yours sincerely

Ross Rolfe
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