ERM Power Limited
Level 3, 90 Collins Street
Melbourne VIC 3000
ABN 28 122 259 223

+61 3 9214 9333
ermpower.com.au

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Mr Andrew Splatt
Advisor
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear Mr Splatt

RE: ERC0251 – Transmission Loss Factors

ERM Power Limited (ERM Power) welcomes the opportunity to respond to the Australian Energy Market Commission's (the Commission) Consultation Paper (the Paper) to the rule change requests submitted by Adani Renewables (the Proponent) for Transmission Loss Factors.

About ERM Power

ERM Power is an Australian energy company operating electricity sales, generation and energy solutions businesses. The Company has grown to become the second largest electricity provider to commercial businesses and industrials in Australia by load[1]. A growing range of energy solutions products and services are being delivered, including lighting and energy efficiency software and data analytics, to the Company's existing and new customer base. The Company operates 662 megawatts of low emission, gas-fired peaking power stations in Western Australia and Queensland. www.ermpower.com.au

General comments

In general, we are supportive of the concerns raised by Adani Renewables in their rule change requests. However, we believe it needs to be recognised that the current forward-looking calculation methodology used by AEMO is based on uncertain forecasts of consumption and generation output at multiple transmission nodes. Invariably, this approach will result in some level of inaccuracy in loss factor calculation compared to actual losses which are used at settlement, resulting in over recovery of losses from generators and load. However, it is unclear how material the impact of this may be on dispatch efficiency as indicated by the Proponent, absent supporting data to demonstrate any current dispatch efficiency loss or potential improvement.

One significant factor in the over recovery of losses is the level of over-forecasting conservatism observed in the Australian Energy Market Operator's (AEMO) demand forecasts as the demands utilised in the loss factor calculation process are the historical outcomes, from the single reference year, which are then scaled to AEMO's current forecasts for the target year. As transmission losses are in general higher at higher demands, these conservative demand forecasts tend to bias outcomes to an overestimation of network losses.

The ongoing use of a single reference year to model the forecast of generation output in the target calculation year was satisfactory in a power system where generation was less subject to significant output variation. This may now need to be reconsidered for application in a power system where actual generation from intermittent output sources will vary, often significantly, from the single reference year.

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

The use of multiple reference years in the modelling adjusted to be more reflective of current conditions to better capture the range of variability in demand consumption and output from intermittent generation sources and the impact of this on scheduled generation output may assist to reduce the level of inaccuracy in the current methodology.

To understand this better, it is critical that improvements are made with regards to reporting of forecast compared to actual losses and detailed analysis of the reasons for any deviation. If, as suggested, errors are primarily occurring as a result of forecasting errors, then AEMO should consider what additional steps could be implemented to reduce forecasting errors.

In considering the question of the use of more dynamic loss factors to potentially make minute improvements in dispatch efficiency, consideration also needs to be given to the impact this increased uncertainty in generation output to be settled at the Regional Reference Node (the Node) would have on the willingness of participants to offer hedge contracts to the same level in the financial risk management market.

As part of this rule change consultation, we believe the Commission needs to consider the proposed rule changes on the transparency of new projects and the increased information available from AEMO with regards to potential new generation sources, (generation maps) and the loss factor calculation process. All these will assist project developers to better understand the impact of any prospective project on transmission losses.

Identifying the problem

ERM Power agrees with the Proponent that the current distribution of all intra-regional settlement residues solely to TNSPs for redistribution to market customers based on an opaque methodology is worthy of review. However, as no proposed alternative methodology has been proposed by the Proponent, or set out in the Paper, significant questions remain regarding any revised methodology to amend the distribution of these residues.

We also agree that there is an inherent level of inaccuracy in the current methodology for the calculation of transmission loss factors as it is heavily reliant on a high correlation between forecast and actual outcomes for accuracy. Whilst it can be taken as given that there will be a level of inaccuracy with regards to the calculation of forward-looking loss factors compared to actual losses, it is unclear how material the impact of this is on dispatch efficiency, and longer term investment signals, particularly given the large gaps between short-run marginal costs between generation technologies in the National Electricity Market (NEM) absent the provision of any supporting analysis.

It is unclear in our view how loss factors would impact dispatch efficiency outcomes between zero short run marginal cost (SRMC) wind and solar generation and $50 cost black coal fired generation or $100 cost gas turbines. It is also unclear given the similarity of SRMC for individual generators within each of these generation technology groups what improvement in dispatch efficiency would be achieved by the proposed change. In our view, longer term investment signals are more sensitive to factors such as cost and accessibility of fuel input sources, the capital cost of equipment, a suitably sized transmission connection and the cost of its provision, and sufficient land for construction of the resource than any inaccuracy in the calculation of transmission loss factors.

Proposed assessment framework

In general, ERM Power supports the assessment framework as proposed by the Commission. Notwithstanding, we believe that in considering any changes to the current transmission loss factor calculation process, the Commission should not consider potential changes to physical market dispatch outcomes in isolation, but must also consider the potential impact of any proposed change to the ongoing efficient operation of the NEM's associated financial contracts markets. It is these markets that primarily guide the assessment of potential investment in new supply side resources and large consumer loads as opposed to the impact of any small inaccuracy in dispatch outcomes in the physical markets.

Potential changes to the transmission loss factor framework

The Commission has outlined a number of potential changes to the transmission loss factor framework in the consultation. These potential changes are discussed in greater detail below.

Calculating transmission loss factors on a marginal or average basis

It is unclear to ERM Power how average (or actual) loss factors could be calculated on a forward-looking basis with a reasonable level of accuracy due to the variability of output, particularly for intermittent generation sources, and the natural variability of load. The use of average loss factors may under recover losses and thus require the use of an additional ex-post adjustment at the time of settlement to balance overall market settlement via an additional levy to be recovered from either generators or market customers based on where the losses are calculated to have occurred. This will add increased complexity to the settlement process, expose generators and market customers (retailers) to an uncertain cost recovery outcome increasing their risks, and require AEMO to develop new processes for the implementation of this proposed change. This will increase the overall costs to the market which will ultimately be passed through to consumers.

Whilst there may be small dispatch inefficiencies associated with errors in the current forward looking marginal loss factor calculation process, in our view this would also apply to the calculation of forward looking average losses as both would utilise the same input assumptions in their calculation. We are also concerned that any marginal benefit achieved in physical dispatch efficiency by the proposed change may be offset by negative outcomes in the financial contracts markets due to the imposition of an ex-post settlement shortfall recovery levy. An ex-post levy would increase settlement uncertainty for generators resulting in a reassessment of the level of contracts offered or a demand for higher prices, or both, to manage this risk. It is our view that the requirement for an additional settlement shortfall recovery levy would decrease the level of certainty afforded by the current loss factor framework.

On balance, it is unclear to ERM Power that any marginal benefit associated with the proposed change would outweigh the additional costs for its implementation or the potential negative impacts on the financial contracts market.

Allocating intra-regional settlements residues

We are supportive of a review of changes to the allocation of intra-regional settlements residues. However, we remain somewhat cautious with regards to the proposed change and our support for any change would be based on the proposed methodology to be adopted. Any proposed change would need to ensure that negative changes to participant incentives, particularly in the area of financial contracting volumes or prices are not introduced.

If it is determined that a change in the allocation of intra-regional settlements residues is warranted we believe this would be best achieved by the distribution of the residues based on actual losses calculated following the end of each financial year. All intra-regional settlement residues that accrue during the year would be held in trust by AEMO for redistribution following the calculation of actual losses across the period. Where actual losses at a transmission node are calculated as higher than forecast losses over the 12 month period, no allocation of residues would occur and the generator or load would not be required to make any additional payments. Whilst this may introduce a small inaccuracy in the final losses adjustment settlement outcomes, it ensures certainty of outcome and facilitates the ongoing willingness of participants to contract in the financial markets based on AEMO's forecast of transmission loss factors prior to the commencement of the financial year. We believe any methodology which would require participants to contribute additional settlement payments ex-post to dispatch would result in negative outcomes for financial contracting and risk management in the NEM increasing costs to consumers due to the need for an additional pricing risk premium to manage this new risk.

We believe that providing clarity on the removal of process-introduced errors in the settlement outcome where reasonably practical to achieve would promote certainty for participants and potential participants that individual settlement outcomes will reasonably represent the efficient costs of their individual dispatch and consumption decisions over time. This could be facilitated through improvements to the accuracy of AEMO's input assumptions to the calculation process.

We support the allocation of the intra-regional settlements residues by AEMO directly to market customers and generators rather than via TNSPs as this would remove any unnecessary administration costs. We also support the public reporting of the allocation of these residues on a market customer and generator basis.

Introduction of multiple loss factors

ERM Power does not support a change to the current use of a single annual loss factor. We see little benefit in introducing multiple loss factors across a year such as those outlined in the Paper[2] where the calculation of these would remain based on the same reference year and generator output and demand forecasts input assumptions as used in the calculation of the current financial year based loss factors. The proposed change would result in scheduled generators selling lower levels of hedge contracts during the higher demand periods due to the higher assumed losses during these periods. Retailers would be required to frequently update billing systems to accommodate multiple loss factors across the year adding additional costs and complexity to customer billing. Overall, we believe the introduction of multiple loss factors would simply increase complexity and administrative costs for all parties which will invariably be paid for by consumers whilst providing little benefit to overall dispatch efficiency or investment signals.

We reject the proposal to introduce real time dynamic loss factors on the basis of the increased complexity for efficient real time dispatch decision making as the loss factor would not be known in advance and the negative implications for financial contract market trading and reduction in revenue certainty for investment decisions. Whilst such a change would have limited impact on intermittent generation resources with metered output power purchase agreements which tend to operate solely on input energy availability, the change would negatively impact the ability of scheduled generators to offer hedge firming products to offset the intermittent output from these generators to market customers.

The frequency of calculating MLFs and notice period provided to market participants

ERM Power does not support a change to the frequency of calculation of transmission loss factors. We see little benefit is such a proposed change where input assumptions used in the methodology may remain the same as those used in the current annual calculation process. To realise any benefits from such a proposed change would require changes to AEMO's overall forecasting process at considerable cost which would likely outweigh the marginal benefit from the introduction of such a change. Similar to the proposal to introduce multiple loss factors across a year, we believe this change would simply increase complexity and administrative costs for all parties, potentially for little benefit.

As such, we see no material benefit to altering the current publication timetable for publication of transmission loss factors to apply from 1 July each year from the immediately preceding 1 April. The three month notification period allows final contracting level adjustments to be negotiated and concluded prior to the commencement of the financial year. We acknowledge that some random failure event or change to a generator planned outage could occur in the period between 1 April and the commencement of the financial year, with the potential to negatively, or positively impact the calculated loss factor to apply to the forthcoming financial year. However, compared to actual losses, the impact of such an event or change would be the same if this were to occur at any time through the financial year in which the calculated loss factors applied with no ability for AEMO to make further changes as a result.

[2] Section 5.2.3 AEMC Transmission Loss Factors Consultation Paper

Use of forward or backward looking loss factor calculation methodology

We support the ongoing use of the forward-looking loss factor calculation methodology. This ensures that forecast changes to account for commissioning of new generation sources or significant load can be included as well as forecast major generator planned outages as indicated in the Medium Term Projected Assessment of System Adequacy (MTPASA). We believe that although this may not provide the perfect outcome it continues to provide the best outcome available at the time of calculation.

Use of collar or capping in the calculation of losses

We agree that the application of a collar to the range of possible loss factor outcomes or a cap to the allowed change to loss factors between financial years could be applied to increase the level of certainty to market participants regarding potential future loss factor outcomes. However, this would introduce greater inaccuracy in the calculation of loss factors. It also introduces the potential that some form of ex-post settlement adjustment may be required to balance overall market settlement which could take the form of a special levy on market customers or generators which would ultimately be borne by consumers. In this case counterparties do not have the ability to manage this risk due to the ex-post nature of the adjustment. For this reason we do not support such a change.

Grandfathering of loss factors

The Paper contains little in the way of detail with regards to how grandfathering of loss factors between years could be applied in practice. We believe that any methodology for grandfathering of loss factors would still need to capture the impact on overall system losses due to the natural variability of generation output, particularly for intermittent generation and changes in consumption profile. The question of how to allocate a grandfathered loss factor to energy storage systems (ESS), particularly when the ESS was providing frequency control auxiliary services, would be particularly complex.

Whilst grandfathering of loss factors for existing generators could sharpen locational signals for new generators to more accurately calculate their true marginal impact on overall system losses[3], the use of grandfathered losses could also act as a barrier to the efficient entry of new generation or retirement of existing generation.

Given the lack of detail with regards to potential methodologies for the introduction of grandfathered loss factors and the complexity that would be introduced in the loss factor calculation methodology to facilitate this change ERM Power does not support this change.

Conclusion

The accuracy of the calculation of forward looking transmission loss factors is highly dependent on the correlation of input assumptions used in the loss factor calculation to actual dispatch and consumption outcomes. Regardless of the best intent of the forecasting process a level of inaccuracy will always inherently exist in the process. Notwithstanding, this should not be taken to indicate an acceptance that AEMO's current forecasting processes should not be subject to rigorous analysis and comparison reporting which is an essential part of any forecasting improvement process.

Given that a level of inherent inaccuracy will always exist, the Proponent's proposal to implement an ex-post settlement adjustment of the over recovery of system losses accrued during the settlement process via a change to the allocation of intra-regional settlement residues has merit and may represent the 'best' possible alternative for overall efficient short and long term markets outcomes. The key issues we believe are the methodology to be used for its introduction, and that its implementation does not introduce any negative changes to participant incentives, particularly with regards to the financial contracts markets.

[3] Slide 14 AEMC Presentation to Transmission Loss Factor Stakeholder Workshop 4 July 2019

With regards to other changes as proposed in the Paper, we do not believe a satisfactory case has been made for their introduction and any proposed change should only warrant further consideration based on the demonstration of a net benefit for consumers.

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

Yours sincerely

[signed]

Ben Pryor
Regulatory Affairs Policy Adviser
03 9214 9316 - bpryor@ermpower.com.au