10 June 2022

Anna Collyer
Chair
Energy Security Board

Submitted by email: info@esb.org.au

Dear Ms Collyer,

Transmission Access Reform Consultation Paper

Origin Energy Limited (Origin) welcomes the opportunity to provide comments on the Energy Security Board's (ESB) Transmission Access Reform Consultation Paper.

As the pace of decarbonisation accelerates, timely and efficient augmentation of the grid will be critical to support the significant volume of renewables set to enter the market. Renewed focus on transmission investment challenges is needed and Origin has supported work programs to address these issues, such as jurisdictional renewable energy zones (REZs). Ideally, these transmission augmentation issues should be resolved prior to any changes to the access regime.

Notwithstanding this, Origin notes that the ESB's approach to splitting the examination of access issues into two timeframes has made the problem statements clearer and could allow for more innovative solutions. Origin provides the following feedback on the proposed solutions, which we expand on in Attachment I:

- **Investment timeframe models**:
    - To the extent the investment timeframe options are intended to enhance existing locational signals, these could be useful, provided they build on existing incentives and do not create uncertainty.
    - The congestion zones with connection fees model is preferable to the transmission queue as it could be designed to build on existing planning processes (such as the Integrated System Plan), with connection fees aimed at enhancing existing locational signals. It is expected that connection fees would be zero in REZs but high in severely congested locations.
    - The transmission queue model would introduce an additional process when connecting generators, which could lead to connection delays potentially slowing the pace of transition. In addition, the investment signal itself would be through incentives during operational timeframes, rather than at the investment stage. This makes the proposal more complex and the signal weaker than the connection fee model.
- **Operational timeframe models**:
    - Origin remains concerned that adoption of the congestion management model (CMM) with universal rebates is unlikely to result in a net benefit and it is not clear that all generators would be fully hedged against the basis risk introduced by the congestion charge, regardless of which allocation metric is chosen. Furthermore, the choice of metric is likely to be complex and may itself create unintended consequences. Short-run marginal cost is not a static figure and would be challenging to implement centrally. It is also unclear that

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using generator availability is a suitable alternative or that such an approach would drive more efficient outcomes overall.

- The congestion relief market is conceptually better than the CMM as it gives participants the choice of trading congestion relief, consistent with their risk management strategies, while managing congestion transparently. More detail on the model, including how it would likely work in practice, is required to determine if it is worth implementing.

The ESB also raises the issue of 'winner takes all' in the consultation paper. When congestion occurs, the NEM dispatch engine (NEMDE) prioritises generators with lower contribution factors i.e., the extent to which they contribute to a constraint. 'Winner takes all' outcomes can occur when generators have negligibly different contribution factors – in that instance, we understand that NEMDE still dispatches the generator with the lower contribution factor first (the winner), despite the negligible difference, which can lead to outcomes whereby other generators are disproportionately curtailed in relation to their contribution to the constraint. We consider 'winner takes all' to be a discrete problem. The ESB should quantify the magnitude of this issue and assess solutions if needed. This should be progressed as a separate work program.

If you wish to discuss any aspect of this submission further, Sarah-Jane Derby at Sarah-Jane.Derby@originenergy.com.au or on 02 8345 5101.

Yours Sincerely,

Steve Reid
Group Manager, Regulatory Policy

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Timely and efficient transmission investment is critical to the transition

Origin maintains that a holistic approach is required to ensure the evolution of the transmission framework to meet the changing needs of a rapidly decarbonising market. Key to this is the extensive and timely augmentation of the grid to accommodate the significant volume of VRE set to enter the market as the pace of decarbonisation accelerates.

Several jurisdictions have recognised this need and are working towards their own transmission augmentation plan, primarily through renewable energy zones (REZs). The need for transmission investment is also reflected in the Integrated System Plan (ISP), which has identified $12 billion's worth of efficient grid augmentation in the coming decade, to support new investment. Similarly, the AEMC is currently reviewing whether the regulatory framework is flexible enough to enable the timely and efficient delivery of major transmission projects needed to support the transition.

Renewed focus on transmission investment challenges is needed and Origin has supported the work programs mentioned above to address these issues. Ideally, these transmission augmentation issues should be resolved prior to any changes to the access regime.

Notwithstanding this, Origin notes that the ESB's latest approach has involved splitting the examination of access issues into two timeframes. This has made the problem statements clearer and easier to assess. It could allow for more innovative and targeted solutions, rather than focusing on a 'silver bullet' approach to addressing complex access issues. We have provided some preliminary views on the four proposed models should the ESB proceed with access reform below.

Investment timeframe model – congestion zones with connection fees

The congestion zones with connection fees model would be preferable to the transmission queue proposal as it could be designed to reinforce existing signals by providing an enhanced congestion information tool for investors. As the proposed model would build on existing transmission planning processes, it could help to better coordinate generation and transmission investment.

The congestion zone assessment should incorporate planned transmission build, such as actionable ISP projects and state REZs to provide a more accurate picture for investors. AEMO would be best placed to have oversight of the planning process (i.e. identifying congestion zones, including setting an efficient level of congestion), with input from transmission businesses as required.

The connection fee aspect of the proposal should aim to provide an incremental improvement in investment incentives, consistent with existing signals. This could be done by ensuring that REZs and low congestion zones face the status quo, i.e., no additional connection fee. Fees would only apply to congested areas of the grid to prevent sub-optimal outcomes, consistent with the expanded planning framework. In addition, fees should also be transparent and known upfront so as not to dampen investment. In terms of governance, the AER should have oversight of fee setting. Ideally, there should only be one body for fee setting for NEM consistency.

We acknowledge there is a trade-off between simplicity and accuracy. However, we consider existing signals are already strong – the fee, in addition to the enhanced information, need only provide an incremental improvement to sharpen these incentives. A more precise approach to setting connection fees, particularly in terms of a detailed assessment of the long-run marginal cost of congestion for all generators, would increase complexity and could lead to connection delays.

In addition, a more complex type of connection charge would be more akin to generators paying for transmission augmentation, which would require additional changes to the transmission investment framework which is out of scope of access reform. The broader question of who pays for transmission should continue to be examined separately by the ESB, not through this work program.

Revenue paid by generators could be used to offset transmission use of system charges (TUOS). This assumes that planning frameworks like the ISP ensure there is efficient transmission build under way, with the savings to consumers representing efficiency gains from better locational decisions.

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Investment timeframe model – transmission queue

This model introduces additional complexity to an already-lengthy connections process through a new and additional expression of interest (EOI) connection process for all generators. This would likely lead to delays or waitlists, which runs counter to the need for timely connections. Specifically, the proposal would create an additional risk in project development/connection due to the extra hurdle of the EOI process, and associated uncertainty of its outcomes for all new entrants, regardless of where they locate. This could in some instances disincentivise investment if projects cannot receive financial support ahead of the outcomes of this process. It is not clear how this could be managed through changes to the design.

The proposal also relies on operational dispatch incentives to create a locational signal in investment timeframes – i.e., once generators are allocated a queue number through the EOI process, their place in the queue would confer certain 'priority dispatch rights'. The form of this incentive is yet to be determined and it is unclear whether priority rights would be firm or transparent enough to provide strong signals. For example, if the congestion management model is implemented, priority rights could mean that generators with poor queue numbers would not receive a rebate or would receive an adjusted rebate. This creates another level of complexity and uncertainty, particularly when compared to the congestion zones with connection fees where the investment incentive could be designed to be known upfront, at the time the investment is made.

Operational timeframe model - congestion management model (CMM) with universal rebates

Origin remains concerned that adoption of the congestion management model (CMM) with universal rebates is unlikely to result in a net benefit.

The outcomes and effectiveness of the CMM depend on a centrally-determined allocation metric. The allocation metric, which determines the magnitude of the rebate, is conceptually equivalent to a hedge against the basis risk introduced through the congestion charge in the model. As a result, the metric used will be crucial to determining how firm of a hedge the rebate will be. It is unclear from the proposal how firm generators would be, particularly in meshed parts of the network. Even when using a metric such as availability, it is likely that some generators, including incumbents that cannot relocate, would be financially worse off due to some basis risk.

The allocation metric would also influence generators' bidding incentives. This is because generators optimise their bids based on a plethora of factors, including their costs, contractual positions, portfolio conditions, risk appetite as well as market and operating conditions on the day. With the CMM proposal, generators would also incorporate congestion charges and rebates ahead of bidding. Given that the allocation metric would be set ahead of time, it is unlikely to be consistent with a dynamic, five-minute market, meaning that the metric itself is unlikely to be efficient.

The potential issues with an administratively-determined metric is particularly evident in the allocation metric option to centrally determining short-run marginal cost (SRMC). This option is likely to lead to sub-optimal outcomes as it would be difficult for an independent body to accurately determine each generator's SRMC, as evidenced by market participants' experience with the directions' compensation framework. Furthermore, SRMC changes over time, and it is unclear how dynamic an administratively-determined metric could be.

Generally, it is possible that unintended outcomes could arise no matter which allocation metric is chosen, which calls into question whether the model would drive more efficient outcomes overall. As an example, we understand the model would, in some instances, allocate rebates to generators that were not dispatched, creating a windfall gain in terms of foregone maintenance costs not captured in the rebate metric (e.g., if based on availability). The ESB also proposes further changes to the allocation methodology in order to exclude out-of-merit generators from receiving the rebate, adding to the complexity of setting a metric centrally.

Choosing an appropriate allocation metric is therefore likely to be controversial, with market participants facing increased risk due to the uncertainty around the rebate in the face of congestion

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charges. This would in turn dampen investment and unfairly penalise existing generators that cannot relocate.

Operational timeframe model – congestion relief market (CRM)

The CRM would give market participants the option to choose their level of risk exposure through voluntary participation in a new market, and could help to manage congestion more efficiently across the NEM. At a conceptual level, this market could prove useful if the case for change is made.

Generally, a market-based approach would provide a better risk management tool for market participants, which would maintain investment signals. This contrasts with the CMM, whereby the centrally-determined rebate would likely expose participants to additional risk and could lead to unintended consequences, as discussed in the previous section.

In addition, a market such as the CRM is likely to send clear signals (i.e., prices set by market forces) for investment in storage or hybrid plant to help with the transition, whereas the CMM relies on a mix of administratively determined charges and rebates to drive efficient outcomes.

However, the consultation paper only provides high-level information on the model, which limits our ability to appropriately assess the merits of the proposal. The ESB should provide more detail on the model, including how it would likely work in practice, to determine if it is worth implementing.

Winner takes all is a discrete issue that should be explored as a separate work program

The consultation paper discusses 'winner takes all' outcomes and seeks feedback on whether operational timeframe models should aim to address this issue.

We understand that these outcomes arise when bids are price tied across generators with very similar contribution factors (also known as coefficients). When congestion occurs, the NEM dispatch engine (NEMDE) prioritises generators with lower contribution factors i.e., the extent to which they contribute to a constraint. 'Winner takes all' outcomes can occur when generators have negligibly different contribution factors – in that instance, we understand that NEMDE still dispatches the generator with the lower contribution factor first (the winner), despite the negligible difference, which can lead to outcomes whereby other generators are disproportionately curtailed in relation to their contribution to the constraint. This is seemingly a sub-optimal outcome.

In our view, this is a discrete issue unrelated to core access problems or efficient bidding. Our understanding is that winner takes all outcomes could occur even when generators bid efficiently when congestion occurs. The issue appears to be a quirk of how NEMDE dispatches generators with very similar coefficients.

The ESB could explore this issue further, including quantifying the magnitude of the problem and, if significant enough, assess potential solutions. However, this should be progressed as a separate work program.

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