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26th May 2023

Ms Anna Collyer
Chair
Energy Security Board

Lodged via email to info@esb.org.au

Dear Ms Collyer and Senior Government Officials,

RE: Submission in response to ESB Transmission Access Reform Consultation Paper

RES is the largest independent renewables company in the world. Established in the 1980s within the Sir Robert McAlpine engineering and construction group in the UK, RES has the expertise to develop, construct and operate renewable generation across the Americas, Europe and Asia Pacific. With a renewables project portfolio over 23GW, RES is driven by our vision to deliver a future where everyone has access to affordable zero carbon energy.

RES was founded in 1981 and remains the world's largest independent renewable energy company. Active in 11 countries, we draw on an experienced global team of experts to deliver projects. We have developed more than 23GW of renewable energy projects across the globe and currently manage over 10GW of assets. We have developed a deep understanding of various energy market structures across these geographies. In Australia, we have developed projects such as Taralga Wind Farm, Ararat Wind Farm, Murra Warra Wind Farm, Dulacca Wind Farm, Emerald Solar Farm, Templers Battery Energy Storage System and Avonlie Solar Farm. Setting us apart from our peers, we have built a strong team of power systems engineers with in-house modelling capability to carefully select, prioritise and design new entrant generators to mitigate congestion impacts and optimise network utilisation. We have been actively engaged in the transmission access reform over an extended period via our involvement in the ESB's Technical Working Group.

In January, RES provided a submission to the ESB's Transmission Access Reform Directions Paper. RES have been actively involved in the ESB's Technical Working Group on Transmission Access Reform over the past months and our positions have evolved as the ESB's thinking has progressed and detailed worked examples have been provided. RES have identified several critical issues with the proposed hybrid Priority Access and Congestion Relief Market (CRM) access framework. RES supports ongoing detailed design work to resolve these critical issues.

We urge the ESB, market bodies and governments to avoid implementation until detailed design work has achieved the following objectives:

1. Emissions reduction
2. Do not exacerbate the connections race
3. Unbundle transmission and generation connection risk
4. Efficient allocation of transmission access
5. Support the energy transition
6. Maintain optional participation in the CRM

These critical issues identified by RES and our recommendations to help achieve these objectives are outlined in the remainder of our submission.

1. Emissions reduction

The ESB has prepared several detailed worked examples to examine how the CRM would have worked in historical dispatch intervals. In at least one of the worked examples, New South Wales black coal was displaced by Victorian brown coal, materially increasing emissions. Further design work is required to pre-empt the introduction of an emissions limb to the National Electricity Objective. Through detailed design, consideration would need to be given to whether emissions are traded off against price or if CRM trading that increases emissions are blocked.

2. Do not exacerbate the connections race

With the current high volume of renewable connections and the requirement for detailed system strength impact assessment studies, AEMO and the TNSPs are under considerable strain to process connection applications. The NEM connection process is one of the most complex globally. It requires applicants to prepare very high-quality connection application packages based on mature designs, including having finalised their connection arrangements, made final OEM and technology selections and have completed electrical balance of plant designs well ahead of Final Investment Decision (FID). With the implementation of a priority access model, developers would have an unintended incentive to rush the design process that currently underpins a Rules based Connection Application, as they are driven to secure a queue number ahead of competing projects. This would lead to suboptimal outcomes for consumers and penalise better projects that can deliver lower costs of energy. This would have a detrimental impact on connection processing times as AEMO, TNSP and proponent's resources are consumed with repeated cycles of work on immature projects, and developers constantly escalating issues with AEMO and TNSP leadership teams to expedite progression of projects toward securing priority queue numbers.

The incentive for developers to race for connection could be reduced by implementing a tiered model for priority access, rather than absolute queue positions. In locations with abundant transmission capacity, proponents could take their time to develop robust connection applications,

knowing that an attractive tier will still be available for the Offer to Connect. However, in locations with limited transmission capacity, proponents would still face an incentive to secure an attractive tier before it is exhausted and access allocation moves on to the next tier. When determining the most appropriate point in the connections process to allocate access tiers, the ESB should consider how to minimise this unintended incentive.

3. **Unbundle transmission and generation connection risk**

RES is concerned about operating conditions where the capacity of the transmission network is lower than expected at the time of Final Investment Decision (FID). These conditions may arise during planned outages, unplanned outages, reclassification of non-credible contingencies, re-rating of a network element or the unexpected establishment of a new stability constraint. Under the status quo arrangements, the risk of reduced transmission capacity is allocated to generators based on constraint equation coefficients. As a result, generators are typically exposed to outages on transmission elements within their immediate vicinity.

If the proposed priority access model is implemented, the last generators connected will face an increased risk of curtailment associated with reduced transmission capacity. New entrants would be exposed to the impacts of transmission outages much further afield than within their immediate vicinity. New entrants with high (worst) queue positions or access tiers would bear the brunt of the required curtailment. In RES' view, these impacts would be impossible to quantify at FID but would significantly increase investment risk compared to the status quo. It would only take a limited number of situations to arise before investors and lenders begin to consider transmission access risk in the NEM to be more significant than comparable international markets. This would lead to increases to the cost of capital, reduced availability of equity participation and ultimately hinder the energy transition. To further explore this risk, RES suggest that the ESB construct a worked example where one or more of the 275kV lines that comprise the Central – Southern Queensland grid section are taken out of service and generators within central and northern Queensland are allocated queue positions.

To resolve these issues, RES propose that the risk of reduced transmission capacity is unbundled from the risk of generation connection. The ESB's detailed design process could consider the following mitigants:

- Utilising a tiered approach to access allocation. The quantum of access awarded under each access tier should be determined based on the system normal transmission network capacity with no allowances made for transmission outages or unexpected stability constraints.
- Exclusion of constraints associated with planned outages, unplanned outages, reclassification of non-credible contingencies or the unexpected establishment of a new stability constraint from the influence of queue positions or access tiers.

RES recognise that the exclusion of specific constraints from the influence of priority access may have significant implementation challenges but detailed design work on this topic is essential to avoid the worst-case scenario – the NEM gains a reputation amongst the investor and lender community as a market that is too risky for their business.

4. **Efficient allocation of transmission access**

The implementation of the priority access model may create unintended consequences in scenarios where a generator with the highest constraint equation coefficient has the lowest (best) queue position or access tier. NEMDE will seek a generator with a higher (worse) queue position or access tier to curtail. If this generator has a much lower constraint equation coefficient, the quantum of curtailed power will be significantly higher than the status quo which would frequently lead to increases in the Regional Reference Price. RES understands that the ESB's objective is for adjustments to be applied via the CRM to arrive at an efficient dispatch scenario. However, this objective may not be realised if specific generators opt-out of the CRM or if the required quantum of congestion relief is not available.

To help avoid this scenario, RES is supportive of a more flexible approach to trading off priority access against constraint equation coefficients. For example, NEMDE could ignore priority access if the difference between generator coefficients is greater than a pre-set materiality threshold. Significant detailed design work and worked examples would be required to ensure that such a trade-off mechanism achieves the desired outcomes without unintended consequences.

5. **Support the energy transition**

No decision has been made on whether access tiers or queue positions would be awarded through a competitive auction process or awarded automatically when a connection process milestone is met. To support the energy transition, RES urge the ESB to rule out the use of access auctions for the following reasons:

- Auctions would introduce a significant additional cost to be borne by generators. This cost will increase the Levelised Cost of Energy (LCoE) for new entrants and in many cases, reduce investment returns below the required threshold, delaying the energy transition. RES understands that access fees would be returned to consumers via reductions in use of system fees. However, generators typically face higher costs of capital compared to TNSPs, so this approach would almost certainly lead to higher overall energy costs for consumers.
- The development of a generation project is a significant challenge as developers need to bring together land agreements, planning consent, supply contracts, connection agreements, debt funding, equity funding, due diligence and other workstreams. In RES' view, the introduction of auctions is likely to place a significant timing constraint on projects that will inevitably delay the energy transition.

Further to our point about access auctions, we also urge the ESB to consider the application of shorter duration access rights between five and ten years to achieve a better balance between protecting investments, reducing cost of capital, and promoting new entrants as part of the energy transition. Shorter duration access rights would be intended to protect projects from significant revenue departures during the initial years of commercial operation when a significant portion of project debt is being recovered. AEMO's Integrated System Plan has outlined how the optimal development path has significant levels of transmission congestion, particularly for solar farms in the later years of the forecast period. In RES' view, long term access rights will significantly hinder

the ability of the market to finance these solar projects if they face the marginal level of curtailment.

6. **Maintain optional CRM participation**

   As set out in our third point, situations can arise where the CRM is required to resolve inefficient dispatch outcomes arising from the impact of priority access. RES understands that the ESB's objective is for adjustments to be applied via the CRM to arrive at an efficient dispatch scenario. However, this objective may not be realised if specific generators opt-out of the CRM or if the required quantum of congestion relief is not available. RES and other proponents are concerned that these scenarios may erode the optional nature of the CRM if governments and market bodies seek further changes in the transmission access framework to resolve observed inefficiencies in dispatch.

   Like our third point, RES is supportive of a more flexible approach to trading off priority access against constraint equation coefficients. For example, NEMDE could ignore priority access if the difference between generator coefficients is greater than a pre-set materiality threshold. Significant detailed design work and worked examples would be required to ensure that such a trade-off mechanism achieves the desired outcomes without unintended consequences.

For further information regarding RES' position on transmission access reform, please contact Martin Hemphill at martin.hemphill@res-group.com.

Sincerely,

Matt Rebbeck

RES Australia CEO