27 September 2023

Ms Anna Collyer
Chair
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Electronic Submission – ERC0363

Consultation Paper – Enhancing Investment Certainty in the R1 process

Dear Ms Collyer,

Energy Networks Australia (ENA) welcomes the opportunity to provide a submission to the Australian Energy Market Commission (AEMC) on the Enhancing Investment Certainty in the R1 process.

ENA is the national industry body representing Australia's electricity transmission and distribution and gas distribution networks. Our members provide more than 16 million electricity and gas connections to almost every home and business across Australia.

ENA recognises the pace of the transition needs to increase, while the power system is more complex and more dynamic than it has been in the past. This involves new challenges for all parties. To get the maximum benefit from our collective efforts, time and effort may be better spent enabling the new transmission and security services needed and better coordinating generation connections.

ENA supports the intent to speed up the connection process in a prudent and efficient manner. Achieving this may be best progressed through effective due diligence by the generation proponents prior to the Generator Performance Standards (GPS) being agreed, and through ensuring that design and equipment choices are made consistently with meeting the agreed GPS. The R1 process can be completed quickly where the connecting plant meets those standards.

ENA is not convinced that transferring the onus of proof, costs and risks to Network Service Providers (NSPs) and ultimately consumers is likely to result in a more timely connection process, or to lower costs for customers. Our submission suggests exploring several other areas to improve processes, rather than revisiting agreed standards.

In summary

- Currently the R1 process can be completed within a few weeks if the connecting plant delivers to the agreed GPS.

- Mitigating against delays in the connection process are best achieved through effective due diligence by the generation proponents prior to the GPS being agreed, and through ensuring that design and equipment choices are made consistently with meeting the agreed GPS.
- The lack of National Electricity Rules (NER) obligations in the R1 process does not lead to delays. Rather, the proposed rules could delay the connection process and add to costs for networks and ultimately consumers.
- ENA recognises that delivered plant may not always perform exactly with what was agreed in the performance standards. As such, ENA members support conditional approval being granted to continue the registration process in some circumstances, where a remediation action plan can be agreed with both the network and Australian Energy Market Operator (AEMO). AEMO should be responsible for determining whether the issue is immaterial and whether this option is available. To ensure that the remediation action plan is agreed there needs to be appropriate review and penalties.
- ENA disagrees with the proposed approach to transfer the onus of proof to the NSP and notes that where issues have arisen due to changes in a generator's design, the onus should remain on the connecting generator to demonstrate that it can meet its agreed GPS. To ensure that there is a workable framework with the appropriate incentives on proponents to meet the GPS, if the proposed type process is implemented then a Materiality Guideline should be agreed prior to the making of the final rule.
- ENA is not aware of any circumstances where independent, external dispute resolution would have been beneficial and was not available to connecting parties. As our submission notes, reassessing a performance measure and how it is best resolved, renegotiating GPS in the R1 process and adding independent parties and external reviews will all take time and resources which will most likely slow connections rather than speed them up.
- To make the connection process more efficient, the ENA proposes that a more standardised approach is taken to testing. Plant equipment could be type tested. The Type Tests would set a performance bar that would be high enough to permit connection at most transmission locations and therefore reduce the overall study workload for proponents, NSPs and AEMO.

Delivering to agreed generator performance standards saves cost and delay for all connections

Currently the R1 process can be completed within a few weeks if the connecting plant delivers to their agreed GPS. The framework presupposes that proponents and networks, along with AEMO, agree a set of GPS that suit the equipment the proponent proposes to use. If the connecting plant delivers to these agreed standards then the registration process should be able to be completed in a timely manner.

ENA notes that power system engineers are a finite resource. Extensive modelling is undertaken in the connection process to reach agreed GPS and a network connection agreement. During this process the connecting proponent is expected to achieve the automatic access standards or to explain why they should deliver below the automatic standard and not impact the power system and other connections.

In the registration process, the rule change proposes that the connecting plant can deliver below what has been agreed in the network connection agreement and the network needs to remodel and prove why this is a problem. This will impact the resources available to model connections more generally. The resources needed to undertake further modelling will delay the R1 process and will also delay the earlier connection process for other proponents as key resources will be diverted. Whilst the volume of connections can vary, networks sometimes need to employ consultants to manage the periods of higher workload and these resources are in high demand and becoming more expensive, also adding to connection costs.

The most efficient outcome will occur by undertaking the appropriate due diligence prior to agreeing to GPS. This due diligence should ensure procured plant meets the agreed performance standards, avoiding the need for later rework. Providing quality applications and models will also avoid the iterations between networks and proponents. ENA members note that the quality of applications and models is highly variable. There are particular concerns that proponents that negotiate GPS and then on-sell the project are transferring the risks of not being able to procure equipment that can meet the agreed GPS. This often causes the design to essentially start from scratch and results in further assessment and negotiation to the surprise of the new project owner. The proposed rules do not provide incentives to curb this behaviour, rather they seek to transfer the risk from proponents to networks and end customers; neither of whom can do anything to mitigate these risks.

ENA considers that the lack of NER obligations in the R1 process does not lead to delays.

If proponents are allowed to connect with delivered equipment that doesn't meet the network's connection agreements and GPS, then any additional costs to resolve the issue may be borne by networks and ultimately paid for by consumers. If more connections progress with lowered GPS then the cumulative outcome will be system security issues which will ultimately prevent future generators from being able to connect until the NSP has resolved the issue.

Undertaking the appropriate due diligence prior to agreeing to GPS is the most efficient way to ensure a timely connection process. The benefits outlined in the rule change proposal and the consultation are best able to flow where there is sufficient transmission capacity and proponents meet their agreed GPS.

Better value for consumers

ENA's preference is that the proposed materiality guideline not be codified. The incentive should be to deliver the plant to the agreed GPS. In terms of improving the timeliness of connections through to the commissioning phase, avoiding rework with finite resources is crucial.

There could be merit in considering a batching process. This could be considered with the priority queue as part of the access reform process. Facilitating approvals in the transmission investment and delivery process and enabling transmission delivery ahead of coordination of generators in Renewable Energy Zones or using the Capacity Investment Scheme could aid improved coordination and outcomes for proponents.

A measured anticipatory approach to building new transmission should be considered. This would be similar to the forward planning approach to system strength to enable more renewables to connect.

There may be benefit in sharing the wide area modelling more broadly or looking at whether the Dynamic Model Acceptance Test (DMAT) could be more generic and automatic and whether this could provide better value and improve the end-to-end connections process.

Appropriate access standards have considered the cost and risks to consumers

AEMO has undertaken an extensive process to assess and propose adjustments to the connection access standards which may progress as rule changes. These are AEMO's best views, taking into account stakeholder feedback, of what is available from the different technologies and what will place the power system in the best position for a rapid transition. ENA queries why we would be lowering the standards so readily from these arrangements as opposed to trying to deliver the best technology available.

The agreed GPS represent the appropriate levels of performance for a connection. Lowering the agreed GPS transfers the cost and risk from generators not delivering to the agreed GPS onto networks and ultimately consumers. The energy industry has a long-standing principle of placing the risk on those best placed to manage it. ENA do not see value in transferring these costs to networks and customers when the generator is best placed to manage the risks associated with meeting the GPS and ensuring the connection and commissioning occur in a timely manner.

Pragmatic to support conditional approval in some circumstances and an action plan for the proponent to resolve

ENA recognises that delivered plant may not always perform exactly as agreed in the GPS. As such, ENA members support conditional approval being granted to continue the registration process in some circumstances where a remediation action plan can be agreed with both the network and AEMO. ENA suggests this is a pragmatic approach that could be recognised in a final determination and does not need to be codified in the NER. Conditional approvals can and do already occur.

AEMO should be responsible for determining whether the issue is immaterial and whether this option is available. ENA is mindful that conditional approvals for some generators could impact the performance of the power system or nearby generators for the benefit of the connection proponent. To ensure that the remediation action plan is actioned, there needs to be appropriate review and penalties for non-compliance.

ENA are supportive of proponents using the latest generation equipment and software supported by vendors. and has been part of the lengthy negotiations during the connection process. Usually technology and capability improves with newer versions. The GPS should be agreed to by the proponent with some headroom for small variations when the equipment is delivered. The lower the risk that equipment and design does not meet the agreed GPS, the faster the connection process is likely to be.

Networks are not in any significantly better position to anticipate changes on the grid between approval of a GPS and R1 testing, which could be a considerable time period. The generator proponents have the same forecast of generator connection information at the transmission level (it should all be on the generator information page once a project has reached a certain level) and actionable Integrated System Plan projects and published Regulatory Investment Tests (RITs) to assess what might change on the grid.

There are practices that proponents can employ to help manage registration timeframes, including;

- Starting registration with no, or minimal, conditions in the 5.3.5A letter.
- Reducing the number of rounds of connection documentation by ensuring the quality and completeness of each submission.
- Reducing the timeframe between the 5.3.4A letter and 5.3.4 (g) can reduce the likelihood that other nearby proponents will reach 5.3.4(g) ahead of the proponent and then require the proponent to repeat aspects of the connection process again. The foundation of open access encourages timely connection investment.
- Resourcing the registration studies.
- Minimising or eliminating plant changes at registration by scheduling design tasks earlier and putting contractual arrangements in place with Engineering, Procurement and Constructions firms to limit changes.
- Reducing the time between the issuance of the 5.3.4A letter and the initial registration submission to reduce the number of newly committed projects that need to be considered.

Ultimately AEMO and the NSPs are responsible for system security and are best placed to consider whether a variation to a performance measure should be allowed or conditional approval with an action plan should be granted. ENA understands that this practice is already being adopted, and accordingly there should be no need for a rule change to facilitate this.

Materiality Guideline likely to be difficult to agree and timeframes are unreasonable

The Consultation paper notes that the connecting party should self-assess whether its performance has met the agreed GPS and if not the materiality of the underperformance. If the 'type process' proceeds, the generator's assessment of materiality will link to a type and resulting path to resolve the issue which includes an allocation of responsibility and resulting costs.

Negotiating materiality could be a be a long and iterative exercise and would add additional complexity, uncertainty and time to the registration process. This task may also take away resources from the existing connection tasks required to be undertaken by applicants, NSPs and AEMO.

In the CEC's rule change request, it is proposed that materiality thresholds be agreed upfront i.e., at the time of GPS negotiation or at the commencement of R1 review. Identifying these issues upfront would not always be possible as issues are usually identified during detailed R1 technical review.

ENA is concerned that the responsibility to assess the type process and materiality is left to proponents with the potential for disagreement with NSPs and AEMO given the evolving networks and technologies connecting and the different network topologies. Noting the inherent complexity of self-assessing "materiality", ENA disagrees with the proposed approach to transfer the onus of proof to the NSP and notes that where issues have arisen due to changes in a generator's design, the onus should remain on the connecting generator to demonstrate that it can meet its agreed GPS.

If this process was incorporated into the NER then a Materiality Guideline should be developed by AEMO and consulted on in an arm's length manner. To ensure that there is a workable framework with the appropriate incentives to meet the GPS and deliver plant in a timely manner, if this type process proceeds the Materiality guideline should be agreed prior to a final rule. It is important that the framework provides a cohesive, practical framework before any final rule is made. A non-binding R1 Issues Management Guideline may be a more pragmatic approach, including any actions that could be taken to better manage the 5.3.9 process.

With the limited timeframes proposed for networks to reassess and model the delivered plant we query the incentive for the proponent to resolve matters that they may be best placed to rectify. If an alternative was to amend settings in nearby plant, ENA queries whether this could be agreed or resolved in the 30 business days proposed or whether this would serve to delay matters. The timeframes proposed are not sufficient for the extensive practical process entailed in the proposed approach. There may be a number of NSPs and AEMO to consult, further modelling and also assessment of options and costs/timeframes to resolve and implications on the power system.

ENA notes that Transmission Network Service Providers (TNSPs) have forward planning obligations for systems strength and potentially inertia. These forward planning obligations will help to strengthen the grid once they are both embedded into planning and operational timeframes in a co-optimised manner. However, the issues emerging are more in the control systems and oscillations and take time to resolve and agree tuning. Generators are best placed to resolve these issues and to manage the costs of doing so.

ENA considers the best approach is having robust access standards in the NER and for proponents to deliver to the agreed GPS to avoid unnecessary rework. Transferring the costs and risks to networks, and the onus of proof to networks, will not necessarily speed up the connection. Indeed, it is likely to have the opposite effect.

Application to sub- transmission embedded generation connections

ENA notes that large, embedded generation connections also occur on the distribution network and we may see large embedded generators being impacted by this rule when they connect on the sub transmission network.

Distribution Network Service Providers (DNSPs) are best placed to resolve issues for connections on the distribution network but the system strength and the proposed inertia frameworks do not apply to them. DNSPs' workloads may also increase significantly depending on the treatment of the 5MW-30MW connections in the current access standards review. Similar to transmission level, placing resolution obligations and costs, and imposing timeframes is untenable. This is unlikely to result in a better process if the NSP has to commence a lengthy RIT and CPA process to assess options to resolve an issue.

Given some states are also taking control of the connection process in REZs, access reform may develop a queuing system, leading to questions on how these arrangements interact.

Timely cost recovery is likely to be problematic for NSPs and others

ENA acknowledges that the Consultation paper proposes a zero threshold pass through for NSPs. ENA would be supportive of a zero threshold pass through, however this will be unlikely to succeed without clear direction and limited regulator discretion.

Careful consideration should also be given to the potential for delay and risks to the power system. There is the potential for NSPs and AEMO to become aware of issues late in the connection process, and for security issues to have no readily available avenue for resolution. AEMO will have no choice but to operate the power system in a secure state, which could involve operation under constrained conditions. The AEMC should consider the impact of the timeframes in which NSPs can feasibly implement changes to address issues that become known through the R1 process.

Independent party review would not be beneficial

The connection process is well advanced at the R1 stage. As the Consultation paper notes, the issues are complex and the grid is dynamic. ENA suggests that these issues are best left to the connection proponent, NSP and AEMO to reach agreement on the way forward in a pragmatic way that suits the circumstances of the connection.

Any extra dispute process is likely to delay the overall connection process for all in-flight connections as power system engineers with a working knowledge of the connection and its issues take time to bring new parties up to speed. In addition, the models and modelling capability is complex, as is sorting out and verifying the costs and best ways to resolve issues.

ENA is not aware of any circumstances where independent, external dispute resolution would have been beneficial and was not available to connecting parties. As such we do not support reviewable decisions. AEMO as the market operator already acts as an independent party who, appropriately, is also the ultimate gatekeeper for a secure power system.

Where the issues encountered are more material and warrant a change to the GPS under 5.3.9, consideration could be given to adding a clause for parties to negotiate in good faith. ENA are mindful that the automatic access standards are preferred, where negotiated access standards are agreed, any further lowering of the standards may have the potential to impact other in-flight connection proponents and nearby connections.

Potential to adopt a more standardised approach to testing

To make the connection process more efficient, the ENA suggests considering a more standardised approach is taken to testing. Essentially, each manufacturer's generating unit or inverter would be rigorously Type Tested, using generic tests akin to AEMO's DMAT tool. Instead of the focus being on the "acceptability" of the model the test would focus on the "performance" of the equipment. The Type Tests would set a performance bar that would be high enough to permit connection at most transmission locations and therefore reduce the overall study workload for proponents, NSPs and AEMO.

ENA looks forward to continued engagement with the AEMC on this rule change to ensure workable arrangements to improve the connections process.

Should you have any queries on this response please feel free to contact Verity Watson, Head of Transmission (vwatson@energynetworks.com.au).

Yours sincerely,

Dominic Adams

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