AUSTRALIAN ENERGY MARKET COMMISSION

RULE

Rule determination

National Electricity Amendment (Enhancing investment certainty in the R1 process) Rule 2024

Proponent

Clean Energy Council

27 June 2024

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Reference: ERC0363

About the AEMC

The AEMC reports to the energy ministers. We have two functions. We make and amend the national electricity, gas and energy retail rules and conduct independent reviews for the energy ministers.

Acknowledgement of Country

The AEMC acknowledges and shows respect for the traditional custodians of the many different lands across Australia on which we all live and work. We pay respect to all Elders past and present and the continuing connection of Aboriginal and Torres Strait Islander peoples to Country. The AEMC office is located on the land traditionally owned by the Gadigal people of the Eora nation.

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To cite this document, please use the following:
AEMC, Enhancing investment certainty in the R1 process, Rule determination, 27 June 2024

Summary

1 The decarbonisation of the National Electricity Market (NEM) requires a significant amount of new generation and storage capacity to be connected at an unprecedented rate. The Australian Energy Market Operator's (AEMO's) Draft 2024 Integrated System Plan (ISP) expects that approximately 6 GW of new capacity needs to be added every year to replace retiring thermal plants and achieve emissions reduction targets.[1]

2 This growth in new generation and storage capacity is accompanied by a large increase in the number of projects in the connection queue: from 389 projects in July 2022 to 593 projects in March 2024.[2]

3 To help the large magnitude of projects in their connection process, the Australian Energy Market Commission (AEMC or Commission) has made a more preferable final rule (hereafter 'final rule') that aims to improve investment certainty in the R1 process by addressing several gaps and hindrances to timely connections.

4 The R1 process refers to connection applicants demonstrating to AEMO and network service providers (NSPs) that their relevant plant is capable of meeting or exceeding its performance standards, so that it can be registered as a participant in the NEM.

5 The final rule and determination is in response to the Clean Energy Council's (CEC's) rule change request that identified several issues with the R1 process and proposed solutions to these issues. The CEC's rule change request arose from the Connections Reform Initiative (CRI), through which the CEC extensively collaborated with generators, renewable energy developers, NSPs and market bodies. It established a range of potential solutions to the challenges involved with the connections and registration processes.

6 The Commission has made a final rule that is different to that proposed by the CEC but which we consider better addresses the issues raised in the rule change request. The final rule:

- formalises the commencement and conclusion of the R1 process through timely notifications by NSPs and AEMO and guidance on what constitutes a complete R1 package
- clarifies the obligations of all parties during the R1 process and introduces a timeframe for AEMO to determine whether it is satisfied of a plant's capability to meet or exceed its technical performance standards
- requires AEMO and NSPs to provide written reasons for additional data and information requests during an R1 assessment at the outset, alongside permitting connection applicants to request further reasons where more clarification is required to address the system security risk identified
- removes barriers to sensible revisions of a generator's performance standards, reducing the likelihood of unnecessary engineering work
- allows AEMO to conditionally register generators to streamline connections, but only after it has consulted with industry as to when and how conditional approval may be used
- requires AEMO to add new information in its registration information resource and guidelines to describe how it assesses plant capability and considers adverse power system impacts in the R1 process.

1 AEMO, Draft 2024 Integrated System Plan, p 10.

2 These numbers include projects across the entire connection process; from enquiry to commissioning. See AEMO's Connections Scorecards for more information.

7 Our final rule commences on 11 July 2024, with a requirement for AEMO to update its registration information resource and guidelines by no later than 1 March 2025.

The final rule will improve the speed and clarity of the R1 process, contributing to the achievement of Australia's emissions reduction targets

8 The R1 process occurs between the execution of a connection applicant's connection agreement and the completion of market registration. It involves the connecting party preparing and submitting detailed engineering designs of their plant, a suite of technical models and other documentation to demonstrate to the NSP and to AEMO that the plant meet or exceed their performance standards. The performance standards are agreed to as part of the connection agreement between the generator and the NSP.

9 During the R1 process, generators liaise with both the NSP and AEMO to ensure that the connecting plant will meet their agreed upon performance standards and will not have any adverse power system impacts.

10 The final rule improves the R1 process by addressing some issues that contribute to connection delays. The changes to the National Electricity Rules (NER) ensure that valuable engineering effort is being spent appropriately, promotes a collaborative approach throughout the R1 process, and aims to provide stakeholders with greater certainty and transparency through new information requirements.

11 These changes recognise that to meet Australia's emissions reduction targets, a substantial amount of new generation and storage capacity must be connected to the NEM. As such, the final rule codifies the R1 assessment process, clarifies the roles and responsibilities held by connecting parties, and requires AEMO to produce guidance on the R1 assessment process. Collectively, these changes will help reduce connection delays, making investors more likely to support new generation and storage.

12 The final rule shifts risks to network businesses and AEMO which have more access to information and therefore better placed to bear that risk. This is in turn likely to support investment, which will lead to downward pressure on the wholesale price of electricity in the NEM throughout the energy transition and beyond. These lower prices will flow through to consumers, promoting the national electricity objective.

The Commission has considered stakeholder feedback in making its final determination

13 In its rule change request, the CEC and its members considered that the R1 process has several issues that are contributing to increased uncertainty and long delays. It noted that:

- a lack of NER obligations on parties in the R1 process is contributing to poor engagement and process delays
- the timeframes for how and when AEMO and NSPs should communicate, provide their assessment, and request clarifications are not clear
- generators are often held responsible for changes outside of their control, which can lead to excessive rework and remodelling for marginal or inconsequential improvements
- during renegotiation of the plant's generator performance standards (GPS), minor but pragmatic reductions in the level of performance standard capability between the GPS agreement and registration are not accepted by NSPs or AEMO due to a restrictive clause in the NER

- the decisions made by NSPs and AEMO are not reviewable, with it considering that the existing dispute resolution processes are insufficient.

14 To address these issues, the CEC proposed a self-assessment process, whereby connection applicants would classify their plant into one of five 'types', depending on the differences between its R1 model and the requirements of its negotiated access standards. The pathway to registration would be different for each self-assessment type.[3]

15 The CEC also proposed a materiality framework and guidelines that would determine what kinds of power system impacts would constitute 'material' impacts on the power system.[4] It also proposed prescriptive timeframes on AEMO and NSPs to respond to connection applicants upon submission of an R1 package, as well as for the duration of the R1 assessment.[5] Finally, to resolve engineering disputes that have a commercial impact on connection applicants, the CEC proposed a facilitated review process as an alternative to the existing dispute resolution frameworks that exist in the NER.[6]

16 The Commission's draft rule sought to address the problems raised in the CEC's rule change request, but adopted alternative solutions that we considered would be more practical and easier to implement than the CEC's solution. The draft rule would have:

- provided generators with the ability to request written justification from NSPs and AEMO for additional modelling requests, on the condition that generators have submitted adequate data and information and complied with other NER obligations
- removed a barrier to agreeing on reasonable and pragmatic revisions to the GPS during renegotiation in the R1 process
- formalised the commencement and conclusion of the R1 process through timely notifications by NSPs and AEMO.

Key differences between draft rule and final rule that are informed by stakeholder feedback

17 Stakeholders were broadly supportive of most of the policy positions in the draft determination — however, some stakeholders were disappointed that some of the CEC's proposed solutions were not pursued in the draft determination. Many stakeholders, including those who were largely satisfied with the draft determination, put forward various suggestions for how to improve the draft rule to improve its efficacy.

18 The final rule therefore builds upon many of the policy positions presented in the draft determination to increase transparency, clarity and certainty in the R1 process. Some notable changes between the draft rule and final rule are that:

- new information that must be included in the registration information resource and guidelines to provide connection applicants with greater certainty as to when and how AEMO and NSPs conduct their R1 assessments — this was only a recommendation in the draft rule
- a new 60 business day timeframe for AEMO to either provide an update to the connection applicant as to the status of its assessment, or to inform the applicant that it is ready to proceed to registration
- allowing AEMO to conditionally register generators, subject to AEMO consulting on when this may be appropriate through its registration information resource and guidelines

3 CEC rule change request, pp 35-38.
4 CEC rule change request, p 39.
5 CEC rule change request, p 36.
6 CEC rule change request, p 51.

- new transitional provisions to clarify that new obligations introduced by the final rule do not apply to processes that are already underway, and that existing AEMO guidance can be used until the registration information resource and guidelines are formally updated.

19 Other changes between the draft and final rule are discussed in more detail in each chapter — see chapter 3 to chapter 5.

We assessed our final rule against assessment criteria using regulatory impact analysis and stakeholder feedback

20 The Commission has considered the NEO[7] and the issues raised in the rule change request and assessed the final rule against five assessment criteria outlined below. We gathered stakeholder feedback and undertook regulatory impact analysis in relation to these criteria.

21 The final rule will contribute to achieving the NEO as follows:

- **Safety, security and reliability** — the operational security of the power system depends on whether connecting plant and equipment would be able to operate with the agreed technical limits, operate safely and not present significant system security risks. Reliability means that we have sufficient capacity to meet our needs. The connections process can contribute to and impact on both security and reliability. This criterion was selected to consider the safe, reliable, and secure operation of the power system at least cost.
- **Emissions reduction** — the market and regulatory arrangements for grid connections should efficiently contribute to the achievement of government targets for reducing Australia's greenhouse gas emissions. This criterion was selected as the efficiency of the connections process can have an impact on timely connection of renewable energy generation and storage to the power system.
- **Innovation and flexibility** — we selected this criterion as we consider innovation and flexibility important principles for resolving delays in the R1 process. This is both from the perspective of process innovations and innovations in finding solutions to system security issues uncovered through the R1 process.
- **Principles of good regulatory practice** — the market and regulatory arrangements for grid connections should promote transparency and be predictable, so that market participants can make informed and efficient investment and operational decisions. We selected this criterion to assess how the more preferable final rule would impact stakeholders.
- **Implementation considerations** — the cost and complexity of implementation and ongoing regulatory and administrative costs to all market participants, consumers and market bodies must be balanced. This criterion was selected as we want to assess how the final rule would impact simplicity, transparency and predictability in the R1 due diligence negotiations process. The final rule will take effect two weeks after the publication of the final determination on 11 July 2024, with the updates to the registration guidelines due by 1 March 2025. In comparison, the materiality guidelines and the type pathways that the CEC proposed would have been more challenging to implement, due to its relative regulatory complexity and technical uncertainties involved with developing materiality guidelines.

7 Section 7 of the NEL.

The final rule will address issues that have caused delays and uncertainty in the connections process

Obligations on AEMO and NSPs will clarify their roles and responsibilities during the R1 process

22 To improve the clarity of the roles and responsibilities of connection applicants during the R1 process, the final rule makes clear that AEMO has sole discretion to register generators, but that it must consult with NSPs and have regard to their views when making its assessment.[8]

23 This recognises the vital role that NSPs play in maintaining power system security, and ensures that they are not sidelined during this process.

24 The final rule also places reasonable endeavours obligations on AEMO and NSPs to share information with each other,[9] so that all parties are kept well-informed as to the status of the assessment and to address any outstanding technical issues.

25 We have codified important milestones in the R1 process by requiring AEMO to notify the applicant when it has received a complete R1 submission and when it has completed its assessment, both within 5 business days.[10]

26 AEMO also has 60 business days to either determine that it is satisfied with the capability of an applicant's plant, or to provide reasons as to why it is not yet satisfied, together with next steps for the plant to achieve registration.[11]

27 Further, the final rule requires AEMO and NSPs to provide their reasons for an additional information request at the same time as the request, rather than in response to a connection applicants' request for written reasons.[12]

28 This is likely to improve the speed of the connections process as the particular security issue at hand can be more readily pinpointed and remedied by a connection applicant when it receives reasoning at the outset.[13]

The removal of barriers to sensible revisions of performance standards will reduce the engineering burden on connection applicants

29 To remove a key source of engineering overwork and connection delays, the final rule removes the 'no less onerous' requirement that prevented connecting plant from proposing an adjustment to their standard that may have been lower than their existing standard.[14]

30 This allows connection applicants to retune their standards more flexibly to rectify any issues identified during impact assessments. It also facilitates larger alterations to plant that would improve power system security, such as upgrading inverters to exhibit grid-forming capabilities.

31 The final rule retains the 'no less onerous' requirement for any plant standards that are at or below the minimum access standard (MAS). However, an applicant may propose to lower their plant's standards further upon joint agreement by the NSP and AEMO.

32 In scenarios where AEMO and NSPs have identified that alterations to legacy plant may benefit the

8 Clause 5.3.7A of the final rule provides the process for AEMO to assess the capability of a connection plant's ability to meet or exceed its performance standards, so they may be eligible to obtain registration (otherwise known as the R1 process).

9 See clause 5.3.7A(i)(1)-(2) of the final rule, which contains the requirement for AEMO and NSPs to use reasonable endeavours to share data and information with each other for the purposes of conducting an R1 assessment.

10 Clauses 5.3.7A(d) and 5.3.7A(k) of the final rule.

11 Clause 5.3.7A(j) of the final rule.

12 In our draft rule, we had only proposed that connection applicants may receive written reasons upon requesting them from the NSP or AEMO. See section 3.1 of the draft determination.

13 Clause 5.3.7A(f)-(h) of the final rule. We also noted the importance of pin pointing the precise issue to be remedied at p 18 of the draft determination.

14 See clause 5.3.4A(b)(1A) of the final rule.

power system, the Commission would not want this alteration to be unnecessarily prevented. This allows the engineering judgement of AEMO and NSPs to prevail over the NER in certain situations which may become more common throughout the energy transition.

AEMO will be able to conditionally register generators to avoid delays in the connections process

33 The National Electricity Law (NEL) confers AEMO with the ability to register participants subject to terms and conditions that AEMO considers appropriate.[15] However, the NER does not explicitly set out how AEMO should be permitted to conditionally register participants.

34 The final rule allows AEMO to conditionally register plant, but that it must be subject to the registration information resource and guidelines. This means that until AEMO consults with industry as to how and when it is appropriate for AEMO to propose conditional registration, it will not be able to conditionally register plant.[16]

35 The Commission considers that conditional registration can speed up the time it takes for projects to achieve registration. This is because there are some issues that may be more efficiently resolved at the commissioning phase of the connections process, rather than spending considerable time and money prior to registration.

The final rule addresses information gaps by requiring new information that must be included in registration guidelines

36 To better balance the existing information asymmetry that exists between connection applicants and NSPs & AEMO, the final rule requires AEMO to set out new information about how it conducts its R1 assessment.

37 The registration information resource and guidelines must set out:

- the minimum requirements that connection applicants must meet when submitting a complete R1 package
- how AEMO conducts its assessment and how it considers adverse power system impacts in the assessment
- the circumstances where AEMO or NSPs may request additional information to address potential adverse power system impacts.[17]

38 The Commission considers that the CRI's extensive work can feed into the development of the new information that will be included in the registration information resource and guidelines.

The Commission considers that the existing dispute resolution processes can be used for issues arising from the R1 process

39 The Commission considers that a lack of NER codification and clarity of the R1 process made it difficult for parties to use the existing dispute resolution processes.

40 As the final rule codifies the R1 process in the NER, and introduces new obligations on connection applicants, NSPs and AEMO, we consider that the existing processes will be more effective.[18]

41 Our final determination clarifies how the existing dispute resolution mechanisms can be used

15 Section 12(6) of the NEL provides that registration may be subject to such terms and conditions as AEMO considers appropriate in accordance with the NER.

16 See clauses 2.1B.1(c) and 2.1B.2(b)(4) of the final rule. AEMO must develop and publish guidelines on the conditional approval pathway in consultation with industry, which must set out the circumstances under which AEMO will impose terms and conditions of registration and the nature of those terms and conditions, as required by clause 2.1.3(b)(4) of the final rule.

17 See clause 2.1.3(6) of the final rule.

18 In particular, the Commission notes NER clauses 5.4 (independent engineer process), 5.5 (commercial arbitration) and 8.2 (formal dispute resolution).

during the R1 process — see chapter 6 for more information.

The final rule will come into effect on 11 July 2024

42 The Commission considers that to maximise the benefits of the final rule, the changes should take effect as soon as practicable. As such, the final rule takes effect two weeks after publication of this final determination, on 11 July 2024.

43 We consider that changes to most stakeholder processes should be relatively minor or administrative. A two-week period to implement these changes and notify any affected parties of the changes should be sufficient. Moreover, the final rule includes transitional provisions so that any R1 processes currently underway up until 11 July 2024 are not affected by the final rule.

44 However, the work required for AEMO to update its registration information resource and guidelines is more significant and complex, and will require extensive stakeholder consultation. This is because AEMO must include the minimum information requirements for R1 packages, explain how it conducts its assessment, and provide circumstances as to when it or NSPs may request additional information from connection applicants.

45 Recognising this, the final rule requires that AEMO must consult on and update the registration information resource and guidelines by no later than 1 March 2025.[19]

19 See clause 11.171.2 of the final rule.

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This final determination is to make a more preferable final rule in response to a rule change request submitted by the CEC to improve the pre-connection registered data (R1) connections process for connecting new generation into the power system.

1.1 Our final rule clarifies roles and responsibilities during the R1 process and removes regulatory barriers to faster connections

The final rule aims to enhance investment certainty in the R1 process by removing barriers to faster registration and clarifying the roles and responsibilities of connection applicants, NSPs and AEMO. Specifically, the final rule:

- removes the 'no less onerous' requirement when renegotiating technical performance standards, which prevented pragmatic and sensible changes to standards during the R1 process, even if all parties agreed to the changes — see chapter 3
- codifies the R1 process in the NER by requiring the connection applicant to submit its R1 package to AEMO and the NSP, and AEMO to inform connection applicants as to when it has commenced and concluded its R1 assessment, as well as codifying how AEMO conducts its assessment in the registration information resource and guidelines (which will be updated to provide guidance for the R1 process) — see section 4.3 and chapter 5
- provides certainty to connection applicants that AEMO is conducting its assessment and open-ended delays will not occur through the introduction of a 60 business day timeframe for AEMO to provide applicants with next steps to achieve registration and five business day timeframe for AEMO and the NSP to provide the connection applicant with clarification for additional information requests — see section 4.3.3 to section 4.3.6
- fosters good communication and collaboration between all parties in the R1 process by requiring AEMO and NSPs to consult with each other and to use reasonable endeavours to share information with each other — see section 4.2
- allows AEMO to consult on and produce guidelines for the circumstances where it may conditionally register generators and integrated resource providers to enable faster connections — see section 5.3.

The new requirements and obligations introduced under our final rule aim to minimise any additional administrative burden on NSPs and AEMO while improving the clarity of NER obligations on all parties to improve the R1 process.

Some notable changes from the draft rule include:

- new information that must be included in the registration information resource and guidelines to provide connection applicants with greater certainty as to when and how AEMO and NSPs conduct their R1 assessments — this was only a recommendation in the draft rule
- a new 60 business day timeframe for AEMO to either provide an update to the connection applicant as to the status of its assessment, or to inform the applicant that it is ready to proceed to registration
- a new five business day timeframe for AEMO or NSPs to clarify its request for additional data and information, if the connection applicant requests such clarification
- clarifying that AEMO can conditionally register generators and integrated resource providers, subject to AEMO consulting and producing guidance on when this may be appropriate through updating its registration information resource and guidelines

- new transitional provisions to clarify that new obligations introduced by the final rule do not apply to R1 assessments that are already underway, and that existing AEMO guidance can be used until the registration information resource and guidelines are formally updated to provide specific guidance for the R1 process as required by our final rule.

The Commission considers that these changes will improve the efficacy of our rule to help improve the connections process by providing greater certainty to all parties about how R1 assessments should be conducted.

1.2 This rule change emerged as an initiative from the Connections Reform Initiative

The CRI was formed in 2021 by AEMO and the CEC to address concerns related to the connections process.[20] Specifically, the amount of time that a project spent in the connections process was too long, due to NSPs and AEMO requiring large amounts of analysis or technical rework to meet requirements that may be overly onerous or inflexible.

The CRI plays an important role in accelerating the energy transition by working to develop solutions to address the most pressing and systemic concerns with the NEM's connections process. The CRI's initiatives aim to address issues across the entire connection process— from enquiry, to application, and to commissioning.

This rule change relates to the R1 process, which occurs before registration and prior to commissioning. The rule change request is one of the key focus areas of the CRI and emerged from review and consultation with developers, investors, original equipment manufacturers (OEMs), NSPs and AEMO.

To develop the rule change request, the CRI held a series of workshops with their members and other stakeholders. This included sessions with AEMO, Energy Networks Australia (ENA), the CEC's members, CRI leadership and delivery groups.

1.3 Stakeholder feedback shaped our determination

I The Commission has consulted with a broad range of stakeholders to make our final determination. Our consultation included stakeholder submissions to our consultation paper and draft determination, several technical working group meetings, and virtual meetings with stakeholders and peak bodies.

There was broad support across stakeholder groups for most of the policy positions presented in our draft determination. While some stakeholders were disappointed that we did not pursue some of the reforms contemplated in the CEC rule change request, they agreed that the draft rule was a step in the right direction.[21] Networks were generally supportive of most of the elements in the draft rule,[22] while AEMO provided many suggestions to improve the operation of the draft rule.[23]

Key stakeholder feedback that shaped the Commission's determination include:

- a desire from many stakeholders for greater transparency and clarity as to how the R1 assessment process is and should be conducted.[24] This led the Commission to include a new

20 For more information, see: https://aemo.com.au/en/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/connections-reform-initiative.

21 Submissions to the draft determination: CEC, pp 1-2; Shell, pp 1-2; Goldwind, p 1; ACEN, pp 1-2; AGL, p 1; Origin, p 1; EnergyAustralia, p 1.

22 Submissions to the draft determination: ENA, p 1; TasNetworks, p 1; Transgrid, p 1.

23 AEMO, submission to the draft determination, p 1.

24 Submissions to the draft determination: Goldwind, pp 2-3; Energy Queensland, p 1; AGL, pp 1-2; EnergyAustralia, p 3; Shell, p 2; Tesla, p 2; CEC, p 13.

requirement for the registration information resource and guidelines to provide guidance on the R1 process, including information that the connection applicant must provide to AEMO and NSPs

- a lack of time-bound obligations on NSPs or AEMO throughout the R1 process affects stakeholder certainty.[25] To address this concern, the Commission has introduced a 60 business day timeframe for AEMO to determine whether it is satisfied that a generator or integrated resource provider can meet or exceed its GPS, or provide reasons as to why it is not yet satisfied, along with next steps. The Commission has also introduced a five business day timeframe for AEMO or NSPs to provide the connection applicant with clarification for additional information requests, if the connection applicant requests such clarification
- the existing 'no less onerous' clause of the NER unnecessarily hampers the adjustment and renegotiation of the GPS, lengthening the connections process.[26] Our final rule removes the 'no less onerous' requirement when negotiating technical performance standards that are at or above the MAS to allow practical engineering judgement to more frequently prevail. The Commission has also adopted AEMO's suggestion to allow it to conditionally approve plant to be registered to help streamline the connections process
- support for a new dispute resolution mechanism that may be better fit-for-purpose for the R1 process.[27] However, the Commission considers that the existing processes are appropriate and can be used for disputes that may arise during the R1 process. Moreover, the increased codification of AEMO and NSP obligations during the R1 process in the final rule is likely to improve the efficacy of the existing dispute resolution mechanisms.

For more information and discussion on stakeholder issues raised, see the relevant chapters or appendix F.

1.4 Our determination will support faster connections of new facilities to the NEM needed for the energy transition

In recent years, there has been a significant increase in the number of connection applications due to a rapidly changing generation mix in order to decarbonise the electricity sector.[28] AEMO's March 2024 Connections Scorecard shows that there are currently 593 projects across the entire connections queue, from enquiry to commissioning. This is a large increase from 389 projects in July 2022, and is expected to continue to grow.

To achieve Australia's emissions reduction targets by 2030 and beyond, a large amount of generation and storage will need to connect to the NEM. As a result, the Commission recognises the importance of mitigating some risks associated with the connection process for applicants so that investment in new generation and capacity is not unintentionally stifled. This is especially important in an environment with skilled labour and engineering shortages and global supply chain constraints, which also cause delays in connecting new renewable generation and storage.

The Commission's final determination aims to shift some of this risk away from connection applicants through the changes described in section 1.1. However, the Commission concedes that the final rule, by itself, will not address many issues faced by all parties in the connections process, although it will go some way to assisting. The Commission supports the reforms that

25 Submissions to the draft determination: ACEN, pp 1-2; AGL, p 1; EnergyAustralia, p 3; Origin, p 1; Shell, p 1; Sungrow, p 3; Total Energies; Vestas, p 5; CEC, p 9.

26 Submissions to the draft determination: AEMO, pp 10-11; AGL, p 2; CEC, pp 3-5; Goldwind, p 3; Origin, p 2; Shell, p 1; Sungrow, p 2; Tesla, p 3; Total Energies; Vestas, p 4.

27 Submissions to the draft determination: CEC, p 10; EnergyAustralia, p 5; Sungrow, p 3; AGL, p 2.

28 See AEMO's Connections Scorecards for more information.

industry is progressing to improve different, but related, aspects of the connections process to accelerate new generation and capacity entry. The Commission remains committed to assisting the industry in implementing any changes that will assist in driving the energy transition, while ensuring that the reforms contribute to the NEO.

1.4.1 The industry is progressing work to address issues in the broader connections process

The Commission notes the following work by AEMO to improve the connections process:

- AEMO has updated its connection scorecard to provide participants a new level of useful project details[29]
- AEMO has completed its review of technical requirements for connection and has submitted two rule change requests to the AEMC for consideration[30]
- AEMO noted in its submission to the draft determination that it intends to produce new or update guidelines to promote transparency and clarity in the R1 process.[31]

AEMO is also collaborating closely with the CEC and with the broader industry through the CRI[32] with the following workstreams:

- OEM Data and Modelling — seeking to improve the quality and consistency of connection information provided by proponents, manage OEM model uncertainty and risk, and allow for better model sharing or black box modelling
- Guidance on the use of root-mean-square (RMS) and electromagnetic transience (EMT) tools — to clarify the appropriateness of the use of RMS and EMT tools to assess performance
- Streamlined Connection Process — which seeks to introduce a reform known as 'batching' to avoid onerous rework and impact assessments at the application stage of the connections process that can occur when nearby projects become committed. It also aims to clarify the responsibility and scope split between AEMO and NSPs on key performance standard clauses and to decouple R1 from registration, as far as practicable
- Review of NER clause 5.3.9 — aims to identify improvements to the plant alteration process to reduce inconsistencies in the application and interpretation of the clause.

The Commission also made a final rule change to expand the transmission ring-fencing framework on 16 May 2024.[33] The final rule empowers the AER to impose ring-fencing obligations on TNSPs in respect of negotiated transmission services through its Transmission Ring-fencing Guidelines. This will support effective competition in the market for contestable connection services to meet the substantial increase in demand for connection services from renewable and storage developments, driven by the energy transition.

The Commission considers that the final rule set out in this determination complements and aligns with these broader reforms to improve the connections process, which will enable more generation and storage to connect to the NEM.

29 See AEMO's Connections Scorecards.

30 See AEMO review of technical requirements for connection (NER clause 5.2.6A), Improving the NEM access standards – Package 1 and https://www.aemc.gov.au/rule-changes/improving-nem-access-standards-package-2.

31 AEMO submission to the draft determination, p 3.

32 See AEMO's page on the Connections Reform Initiative.

33 See the *Expanding the transmission ring-fencing framework* project page.

2 The rule will contribute to the energy objectives

The final rule would promote the NEO as it clarifies the obligations of parties in the R1 connection process and promotes transparency around decision-making. It would promote power system security through principles of good regulatory practice and contribute to the timely decarbonisation of the energy market.

This chapter explains why the Commission has made its final determination and the accompanying final rule.

2.1 The Commission must act in the long-term interests of energy consumers

The Commission can only make a rule if it is satisfied that the rule will or is likely to contribute to the achievement of the relevant energy objectives.[34] For this rule change, the relevant energy objective is the NEO.

The NEO is:[35]

> to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—
>
> (a) price, quality, safety, reliability and security of supply of electricity; and
>
> (b) the reliability, safety and security of the national electricity system; and
>
> (c) the achievement of targets set by a participating jurisdiction—
>
> (i) for reducing Australia's greenhouse gas emissions; or
>
> (ii) that are likely to contribute to reducing Australia's greenhouse gas emissions.

The targets statement, available on the AEMC website, lists the emissions reduction targets to be considered, as a minimum, in having regard to the NEO.[36]

2.2 We must also take these factors into account

2.2.1 We have considered whether to make a more preferable rule

The Commission may make a rule that is different, including materially different, to a proposed rule (a more preferable rule) if it is satisfied that, having regard to the issue or issues raised in the rule change request, the more preferable rule is likely to better contribute to the achievement of the NEO.[37]

For this rule change, the Commission has made a more preferable final rule. The reasons are set out in section 2.4 below.

2.3 How we have applied the legal framework to our decision

The Commission must consider how to address deficiencies in the NER regarding how the R1 package is defined, assessed and determined against the legal framework. The Commission has

34 Section 88(1) of the NEL.
35 Section 7 of the NEL.
36 Section 32A(5) of the NEL.
37 Section 91A of the NEL.

undertaken a comparative evaluation of the proposals in the CEC's rule change request and those put forth by the Commission in the final rule.

We identified the following criteria as set out in our consultation paper to assess whether the proposed rule change, no change to the rules (business-as-usual), or other viable, rule-based options are likely to better contribute to achieving the NEO:

- **Safety, security and reliability** — the operational security of the power system depends on whether connecting plant and equipment would be able to operate with the agreed technical limits, operate safely and not present significant system security risks. Reliability means that we have sufficient capacity to meet our needs. The connections process can contribute to and impact on both security and reliability. This criterion was selected to consider the safe, reliable, and secure operation of the power system at least cost.
- **Emissions reduction** — the market and regulatory arrangements for grid connections should efficiently contribute to the achievement of government targets for reducing Australia's greenhouse gas emissions. This criterion was selected as the efficiency of the connections process can have an impact on timely connection of renewable energy generation and storage to the power system.
- **Innovation and flexibility** — we selected this criterion as we consider innovation and flexibility important principles for resolving delays in the R1 process. This is both from the perspective of process innovations and innovations in finding solutions to system security issues uncovered through the R1 process.
- **Principles of good regulatory practice** — the market and regulatory arrangements for grid connections should promote transparency and be predictable, so that market participants can make informed and efficient investment and operational decisions. We selected this criterion to assess how the more preferable final rule would impact stakeholders.
- **Implementation considerations** — the cost and complexity of implementation and ongoing regulatory and administrative costs to all market participants, consumers and market bodies must be balanced. This criterion was selected as we want to assess how the final rule would impact simplicity, transparency and predictability in the R1 due diligence negotiations process. The final rule will take effect two weeks after the publication of the final determination on 11 July 2024, with the updates to the registration guidelines due by 1 March 2025. In comparison, the materiality guidelines and the type pathways that the CEC proposed would have been more challenging to implement, due to its relative regulatory complexity and technical uncertainties involved with developing materiality guidelines.

These assessment criteria reflect the key potential impacts of the rule change request, for impacts within the scope of the NEO.

The Commission has undertaken regulatory impact analysis to evaluate the impacts of the various policy options against the assessment criteria. Appendix D outlines the methodology of the regulatory impact analysis.

The rest of this section explains why the final rule best promotes the long-term interests of consumers when compared to other options, including that proposed in the rule change request, and assessed against the criteria.

2.4 How the more preferable final rule will better contribute to the NEO

The CEC's rule change request identified several issues experienced in the R1 connection process, and proposed several solutions to address these issues. We received valuable feedback from stakeholders in response to our consultation paper and draft determination that has informed this more preferable final rule. The Commission considers that these alternative solutions both address the issues raised by the CEC and better advance the NEO than the proposed solutions in the rule change. Our alternative solutions:

- clarify the roles and responsibilities held by connecting parties to improve investment certainty in the R1 process
- remove barriers to sensible revisions of the GPS
- enable AEMO to impose terms and conditions on registration for connection applications, thereby streamlining the R1 process
- introduce a new R1 assessment guideline to be prepared by AEMO in consultation with industry
- clarify that the existing dispute resolution mechanisms may be used to resolve issues that arise during the R1 process.

This section explains how these alternative solutions better promotes the NEO assessment criteria set out above in section 2.4.

2.4.1 Enabling more transparent analyses of risks to power system security

The R1 assessment process is an essential step that NSPs and AEMO undertake to ensure connecting parties deliver technical performance that is consistent with their connection agreement. NSPs and AEMO work collaboratively with connecting parties to complete these due diligence assessments within broadly predictable timeframes.[38] This R1 assessment process is typically concluded when AEMO determines that the connecting plant can meet or exceed its performance standards. Following this, a connection applicant would then go on to obtain market registration from AEMO pursuant to the NER Chapter 2 process.

The R1 models are typically prepared as connecting parties finalise their plant design and begin construction. The R1 models that are submitted at this stage are generally different to the performance standards that were agreed in the connection agreement. In most instances, these discrepancies are managed through additional inverter tuning or modelling clarifications discussed with the NSP and/or AEMO.

Occasionally, there are disagreements between NSPs and/or AEMO on the one hand and connecting parties on the other, regarding how material a discrepancy will be for power system stability, and whether that issue needs to be resolved before the plant is registered.[39]

The CEC's rule change request proposed resolving this discrepancy by introducing a 'materiality' assessment and type pathways process with accompanying guidelines. Owing to stakeholder feedback, the final rule does not action those proposals put forth by the CEC because the Commission's consultation process revealed that disagreements during the R1 stage are driven by three factors:[40]

- the experience of the connecting engineers

38 For more information, see the AEMC consultation paper, pp 17-20.
39 Acciona Energia submission to the consultation paper, p 4.
40 The reasons for this are set out in section 2.4.1 of the draft determination.

- the quality of the R1 package (which includes modelling data and information)
- generators not being able to interrogate NSP power system models, thus giving rise to an information asymmetry.

Instead, the final rule enables generators to gain a better understanding of the system security risks AEMO and NSPs are focusing on by:

- codifying in the NER the requirement for AEMO to produce guidelines on the new capability assessment introduced in clause 5.3.7A of the final rule, which prescribes the R1 process
- requiring NSPs and AEMO to communicate to the generator when it has provided enough information to enable the commencement of their R1 assessment, thereby clarifying what constitutes the minimum requirements for a complete R1 submission
- introducing a new clause that requires AEMO and NSPs to provide reasons at the outset for additional information requests in response to a submitted R1 package, and enables applicants to request additional reasons for the request (for example, on the power system security risks AEMO and NSPs would like addressed through requests for additional modelling or inverter tuning) should this not be clear in the reasons initially provided by AEMO and NSPs.

In the draft determination, the Commission recommended that AEMO produce guidelines pertaining to the R1 assessment, as opposed to making it a codified requirement. The Commission made this recommendation to address the issue raised by the CEC and other stakeholders that there is a lack of clarity surrounding how AEMO and NSPs assess risks of adverse power system security impacts and adverse power quality impacts on other network users.

We heard from several stakeholders in response to this recommendation that codification would be preferred.[41] We also heard in our technical working group hosted 22 May 2024 that an R1 assessment guideline would improve transparency for the R1 process, and the NER should establish a deadline for AEMO to release a draft guideline for public consultation. As such, the final rule codifies the requirement for AEMO to produce guidelines to clarify the process for the capability assessment under clause 5.3.7A of the final rule that:

- clarifies the data and information the connection applicant must provide to AEMO and the NSP when submitting an application for R1 assessment. This is in connection with relevant NER clauses (such as schedule 5.2), the agreed performance standards, and that which is otherwise required to assess whether the performance standards may have an adverse effect on power system security or the quality of supply for other network users
- provides examples of the circumstances in which AEMO or the NSP may request additional data and information from the connection applicant and if that request is made, examples of data and information the connection applicant may provide in response to satisfy AEMO and the NSP
- how AEMO may assess, and the matters AEMO may take into account in assessing:
  - the data and information provided as part of the R1 package
  - whether a generating system, integrated resource system or performance standards has an adverse effect on power system security or the quality of supply for other network users, with reference to the relevant access standards
- any other matters AEMO considers relevant in describing the process for the capability assessment.

41 See for instance AGL submission to the draft determination, p 2.

The Commission considers that codifying this level of detail will ensure that AEMO publishes its work through the CRI in a timely fashion and would likely provide greater certainty to stakeholders. Requests for additional modelling would need to pass a more onerous threshold, which may speed up R1 processes by reducing the number of such requests, particularly in instances where they may lead to zero or only marginal benefit.

While this final rule seeks to respond to the issues raised by the CEC by promoting flexibility, the Commission has been conscious of ensuring power system security risks can still be appropriately managed by AEMO and NSPs. The final rule makes it easier for parties to agree pragmatic changes to performance standards. However, the Commission has sought to design the amendments in a way that will not have any adverse power system security risks.

2.4.2 Promoting emissions reduction and the secure decarbonisation of the generation fleet

Our final rule will help achieve Commonwealth and state government greenhouse gas emissions reduction and renewable energy targets, for example, the Commonwealth's 2030 target of 43% below 2005 levels, by supporting the timely delivery of new inverter-based renewable generation and storage by seeking to shift risks of connecting parties in the connection process and promoting clarity and transparency of arrangements.

The final rule operates to improve transparency on issues identification and resolution in the R1 process and provide generators more clarity on when AEMO and NSP's R1 assessment will commence and conclude. This will be critical to promoting investor confidence regarding when the project enters a new phase of construction and project delivery.

Further, by requiring AEMO and NSPs to provide reasons for additional data and information requests after an R1 package is submitted for assessment, and providing generators the option to request additional reasons should they be unclear, the final rule will reduce the number of engineering hours that are allocated to this process, especially where the benefits of this effort is marginal. This will introduce more accountability in decision-making and information requests made by AEMO and NSPs. Further, this will reduce the circumstances where engineering hours are being dedicated to achieving plant optimisation for zero or only marginal benefit.[42]

By reducing the number of engineering hours that are allocated to optimisation of plant performance at the R1 due diligence phase, the final rule will help ensure scarce engineering time can be allocated to other projects that are already in the connection phase. This in turn will promote the faster connection of renewables by enabling generators to get to the energisation and revenue generation stage faster, and also promote the efficiency of connection due diligence for other projects.

2.4.3 Maintaining flexibility and enabling innovation in resolving risks identified in the connections process

The Commission has found that flexibility and collaboration is critical to the success of the R1 assessment process. This process aims to provide all parties confidence that the power system will perform in the way generators expect, that generators are able to provide a beneficial response that helps maintain system stability and generators can provide a response to return the system to a secure operating state after a disturbance.

The R1 stage is a phase of the generator design process that sees applicants, NSPs and AEMO proactively address known risks and identify new issues emerging from the rapid developments to

42 Goldwind submission to the consultation paper, p 2.

inverter technologies, and the rapidly evolving dynamics of the power system. While the Commission has sought to introduce more accountability and clarity around the process, it has not wanted to jeopardise the benefits of the iterative process, by prescribing in the NER the precise methods through which an AEMO or NSP R1 assessment should be undertaken.

The Commission has also considered a proposal for more flexibility in the rule change request in the form of conditional approvals. Conditional approval refers to market registration being granted to an applicant subject to terms and conditions that must be satisfied post registration. In the draft determination, the Commission decided not to pursue that proposal because it considered that the NER does not currently preclude NSPs from providing conditional approval. In our consultation process that followed from the draft determination, the Commission heard from AEMO that there are indeed barriers in the NER that prevent AEMO from granting applicants registration with terms and conditions.

In light of this feedback, and given the scale of the transition underway that requires more generation to be connected to the NEM, the final rule makes express provision for AEMO to grant registration with terms and conditions. This will help avoid long delays where AEMO cannot register a generator until all of its standards are met. AEMO can instead rely upon criteria in conditional registration to resolve specific issues later, subject to consultation with NSPs. We note that the NER does not contain strict prescription around the circumstances in which conditional registration may be granted. Rather, AEMO will update its registration information and resource guidelines through a consultation process with industry to describe these circumstances.

The Commission's final rule makes an amendment to the no less onerous clause in NER 5.3.4A(b)(1A). The proposed change balances three needs. These are to:

1. provide a way for generators to more easily and quickly agree small, pragmatic amendments to GPS that are often unavoidable
2. reduce the average length of the connections process overall by protecting nearby generators at the connection application stage from having to redo their modelling, because a generator at the R1 stage has made a large GPS change
3. provide an incentive to employ grid forming technologies at an existing site, as these investments are sometimes impeded because they require large GPS changes that take a long time to negotiate.

The Commission has found that GPS changes at the R1 stage are often unavoidable. This is because certain aspects of a plant's detailed design are unknowable at the application stage — that is, before construction has started.[43] These GPS changes often do not have any power system security or power quality impact, but we understand consume a large amount of engineering hours because the NER currently strictly prohibit any changes below the standard executed in the generator's connection agreement.

The current rule does not allow any GPS amendment below the standard that has been executed in the generator's connection agreement. Changing one clause in a connection agreement often requires generators to renegotiate all of the GPS clauses in their connection agreement. The final rule therefore amends the no less onerous clause to promote innovation and flexibility by allowing GPS amendments below the existing standard if the plant is not a legacy plant. If the plant is a legacy plant with a performance standard that is below the MAS, the GPS amendments must still be no less onerous than the performance standard that corresponds to the technical requirement

43 For example, reticulation impedance is only revealed after site works.

that is affected by the alteration to the generating system or integrated resource system or plant (as applicable), unless otherwise as agreed by AEMO and the NSP.[44]

The final rule would require changes to GPS for legacy plants with a performance standard that is below the MAS to be no less onerous than the existing standard so as to protect other nearby generators at earlier stages of connection negotiations from having to redo their modelling analyses, because a nearby generator at the R1 stage has made large GPS changes that they had not accounted for. This would create a necessary disincentive for a generator from seeking large GPS changes, unless that generator is changing their inverter type from grid-following (GFL) to grid-forming (GFM).

The final rule provides generators the flexibility to seek larger GPS changes when they are replacing, upgrading or installing a GFM device in place of a GFL. GFM inverters often have technical characteristics that are closer to the MAS rather than the automatic access standard (AAS). As the NER currently require generators to explain why they cannot meet the AAS, agreeing GPS changes to install a GFM inverter can be lengthy and inefficiently consume a large number of scarce engineering hours. The final rule promotes innovation by allowing a connecting generator to seek an NSPs agreement to make larger GPS changes if they are installing a GFM inverter at an existing generation facility.

2.4.4 Aligning with the principles of good regulatory practice

The Commission has determined that the risks that NSPs, AEMO and generators try to identify and resolve collaboratively through the R1 process are highly uncertain. This means that they are not easy to codify as was proposed in the rule change request by the CEC.

Based on the feedback from stakeholders, the Commission considers that implementing the rule change request's proposed materiality guidelines, type pathways and the statutory timeframe for delivering an outcome for R1 due diligence in the NER, would not be consistent with good regulatory practice.[45]

The Commission accepts that the R1 phase of connections negotiations needs to be codified in the rules to provide investors certainty regarding when the R1 due assessment phase begins and ends. However, the final rule does not prescriptively define how the R1 due diligence assessments should be undertaken. The Commission concludes that the NER should support engineering judgement to expert connecting engineers undertaking this work currently.

The final rule addresses the codification gap that exists in the NER by requiring AEMO to acknowledge receipt of the R1 package for the purpose of the new capability assessment for registration eligibility process,[46] and inform the connection applicant when the assessment has been completed. This differs from the draft rule, which required joint notification from AEMO and NSPs. Following extensive consultation, the Commission has decided that this notification requirement should rest solely with AEMO, as AEMO is ultimately responsible for granting registration. The Commission also recognises the valuable and crucial role of NSPs, which is reflected through a new cooperation provision that requires AEMO and NSPs to work together and use reasonable endeavours to exchange information during an R1 assessment. This is consistent with good regulatory practice because it seeks a balanced outcome between prescription for clarity on the process, and enabling greater flexibility to maintain collaboration and innovation through the R1 due diligence process.

44 Clause 5.3.4A(b)(1A) of the final rule.
45 For more information, see p 14 of our draft determination.
46 See clause 5.3.7A of the final rule.

Further, the final rule has also incorporated a requirement for AEMO to notify connection applicants as to the status of the R1 assessment within a 60 business day timeframe. By clarifying obligations and introducing a timeframe, the final rule provides connection applicants with the certainty that open-ended delays or poor communication between parties will not occur. We do not intend for the timeframe to add additional burden to existing AEMO or NSP practices during the R1 process — instead, we consider that existing practices already comply with this timeframe.

This is consistent with principles of good regulatory practice as it balances the need for investment certainty through prescription, alongside flexibility given the timeframe does not interfere with NSP or AEMO practices, but enhances them.

2.4.5 The final rule come into effect through a staged process to balance investment certainty with promoting a faster, easier and more transparent connections process

The final rule will come into effect through a staged approach to reflect aspects that require further consultation, particularly with respect to AEMO being required under the NER to update or produce new guidelines for its R1 assessment and conditional registration processes. As such, the Commission notes the following staging for the final rule:

- The effective date for the final rule is 11 July 2024.
- By no later than 1 March 2025, AEMO must develop and publish the registration and information resource guidelines that relate to the process for the capability assessment under clause 5.3.7A of the final rule.
- New clause 5.3.7A does not apply where AEMO commenced its assessment of the capability of a generating system or integrated resource system to meet or exceed its performance standards before the effective date.
- If a connection applicant requests that AEMO conduct the capability assessment on or after the effective date, but before AEMO publishes the registration and information resource guidelines that relate to the process for the capability assessment under clause 5.3.7A in accordance with clause 2.1.3(b)(6) of the final rule, then the minimum information requirements for an R1 package reflects any relevant requirements under the registration information resource guidelines published by AEMO as at the date of the capability assessment. AEMO and the NSP must still provide reasons if it wants to request additional information from the applicant by reference to the current NER requirements, and the applicant may still request further clarification for AEMO's or the NSP's request for additional information.

3 The final rule removes barriers to sensible revisions of generator performance standards

Box 1: Our final rule updates NER clause 5.3.4A(b)(1A) to allow pragmatic revisions to generator performance standards

The final rule will allow sensible revisions of a generator's performance standards that may be less onerous than its existing standards. It does not include the requirement in the draft rule to be 'as close practicable to the existing standard' as this potentially conflicted with NER clause 5.3.4A(b1).

The effect of the final rule's amendments to NER clause 5.3.4A(b)(1A) are summarised below:

- When renegotiating a standard that is **above the minimum access standard**, the final rule removes the 'no less onerous' requirement. This allows connection applicants to propose a negotiated standard that is less onerous than the existing standard, subject to NER clauses 5.3.4A(b)(1) and 5.3.4A(b1) — see section 3.1.
- When renegotiating a standard that is **below the minimum access standard**, the final rule retains the 'no less onerous' requirement. However, only upon joint agreement by the relevant NSP and AEMO, a connection applicant may propose a negotiated access standard that is less onerous than their existing standard — see section 3.2.

During the applications phase of the connections process before the R1 process commences, connection applicants must submit proposals for negotiated access standards (NAS) for each technical requirement where the proposed plant will not meet the AAS.[47] Once agreed upon by the NSP and the connection applicant, the NAS forms part of a connection agreement between the two parties that is then forwarded onto AEMO.[48]

An outcome of the R1 process is for the connection applicant to satisfy AEMO that its plant will meet or exceed its performance standards as agreed in its connection agreement. This is a key requirement for a generator[49] to be registered by AEMO.[50]

However, as emphasised by some stakeholders throughout this rule change process, there are many circumstances that may necessitate changes to a GPS in its connection agreement during the R1 process.[51] Changes to GPS at the R1 stage are often unavoidable, due to certain aspects of a plant's design being unknowable at the application stage.[52] Similarly, there are instances where a registered participant may seek to alter its existing plant (for example, to upgrade its inverters to exhibit greater grid-forming capabilities) — to do so, their GPS must also be renegotiated.

In both of these cases, NER clause 5.3.4A(b)(1A) applies. This clause requires that renegotiated standards must meet or exceed (be 'no less onerous') than the existing standard. The Commission's final rule updates this clause to ensure that the requirements for a NAS better promote the NEO by removing barriers to pragmatic or sensible renegotiation of standards.

47 NER, clause 5.3.4(e).

48 NER, clause 5.3.7(g) and (h).

49 For the purpose of this determination, 'generator' refers to both generators and integrated resource providers, which are the two overarching registration categories for plant. See NER clause 2.1B.1 and 2.1B.2.

50 NER, clause 2.2.1(e)(3).

51 Submissions to the consultation paper: APA Group, p 6; Goldwind, p 3; ACEN, pp 1-2.

52 For example, reticulation impedance is only revealed after site works.

3.1 The 'no less onerous' requirement will not apply to standards that are above the minimum access standard

3.1.1 The 'no less onerous' requirement was identified as a key barrier to sensible revision of generator performance standards

In its rule change request, the CEC raised that the requirement for a proposed NAS to be 'no less onerous' than the existing standard at NER clause 5.3.4A(b)(1A) is unnecessarily constraining the renegotiation of performance standards. The CEC considered that it prevents the appropriate application of engineering judgement to provide flexibility when there are non-material differences.[53]

Furthermore, generators and NSPs identified that the clause can prevent pragmatic revision of the GPS at any time after the connection agreement is executed.[54] This can lead to connection applicants undertaking a substantial amount of additional modelling and extensive engineering work to meet a 'no less onerous' standard, which causes significant delays in the connections process.[55] Stakeholders have advised that this is particularly frustrating when these time-consuming and costly efforts to achieve the standard may not actually lead to better system security outcomes, and may, in some cases, lead to worse outcomes. For example, Goldwind noted that many engineering hours are being spent working through relatively minor discrepancies between the plant performance and the GPS.[56]

Moreover, AEMO considered that application of clause 5.3.4A(b)(1A) can cause problems during the 5.3.9 plant alteration process and 4.14(p) performance standard amendment process, as it requires that a revised performance be not less onerous than the previously agreed performance standard.[57]

3.1.2 The final rule removes the 'no less onerous' requirement for new plant

The final rule seeks to address these concerns discussed in section 3.1.1 by removing the 'no less onerous' requirement for any standards that are above the MAS. This allows connection applicants to propose a NAS that may be less onerous than the existing standard, so long as the proposed standard is above the MAS and complies with NER clause 5.3.4A(b1).[58]

Figure 3.1 shows the range of an allowed NAS under the final rule, compared to the range under the existing NER and our draft rule.

53 CEC, rule change request, p 23.

54 Submission to consultation paper: Transgrid, p 10; Tesla, p 4; APA Energy, p 6.

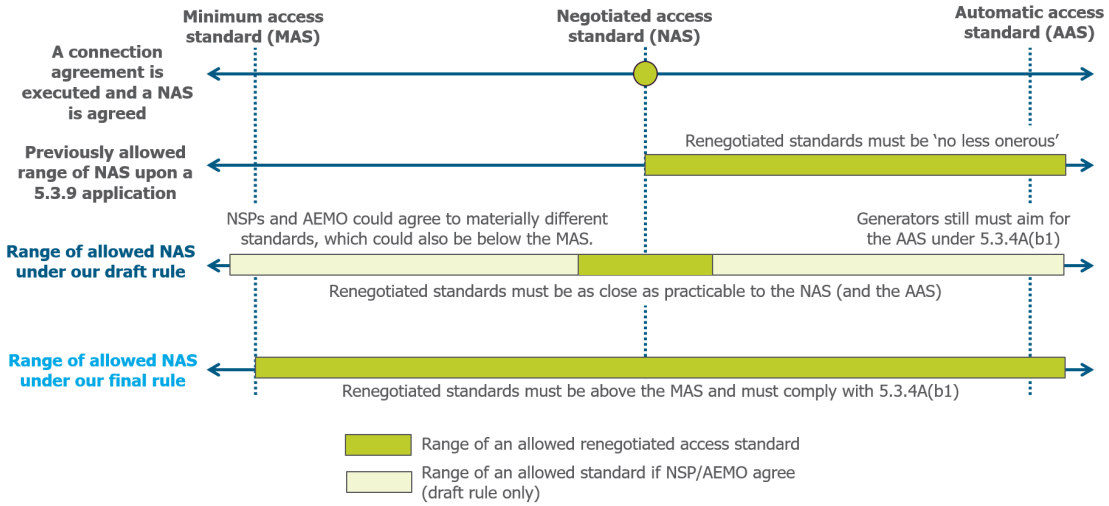
55 CEC rule change request, p 24.

56 Goldwind submission to the consultation paper, p 3.

57 AEMO submission to the consultation paper, p 4.

58 The Commission has not amended NER clause 5.3.4A to avoid conflicting with consultation that is underway as a part of the CRI's 5.3.9 process review workstream. See appendix B.1 for more information.

Figure 3.1: Range of allowed negotiated access standards for new plant under our final rule



Source: AEMC
Note: See clause 5.3.4A(b)(1A) of the final rule.

The final rule maintains a consistent set of requirements for a NAS between the execution of a connection agreement and any subsequent renegotiation of a GPS. These requirements are that a NAS must be:

- no less onerous than the MAS[59]
- as close as practicable to the automatic access standard, while having regard to:
  - the need to protect the plant from damage[60]
  - power system conditions at the location of the proposed connection[61]
  - the commercial and technical feasibility of complying with the AAS.[62]

The consequence is that the range of an allowed NAS will be identical at all points in the R1 process and also after registration,[63] providing regulatory clarity to all parties whenever standards may need to be renegotiated.

Importantly, it allows applicants to propose standards that are less onerous than their existing standards, which could save parties considerable time and money during the connections process.

Larger changes to a GPS, which may be closer to the MAS than the existing standard, may now be proposed (for example, when upgrading an inverter from grid following to grid forming. However, NSPs [64]may continue to reject proposals for a NAS where it considers that the NAS would have an unacceptable impact on power system security or other network users.[65]

59 NER clause 5.3.4A(b)(1).
60 NER clause 5.3.4A(b1)(1).
61 NER clause 5.3.4A(b1)(2).
62 NER clause 5.3.4A(b1)(3).
63 Except for any plant that later falls below the MAS due to changes in access standards — see section 3.2.
64 This includes both transmission and distribution network service providers.
65 NER clause 5.3.4A(b)(2)-(3).

3.1.3 The draft rule was not clear on the requirements for a negotiated access standard

The draft rule proposed that negotiated standards must be as close as practicable to the existing standard, unless otherwise agreed by the relevant NSP and AEMO.[66] The Commission's intention was to allow connection applicants to propose standards that are less onerous than their existing standards while disincentivising applicants from proposing major changes that may adversely affect other network users or connecting plant.[67]

A wide range of stakeholders broadly supported the draft rule's removal of the strict 'no less onerous' requirement.[68] Some stakeholders suggested improvements to the draft rule to clarify the requirements on connection applicants, noting that they may be required to be 'as close as practicable' to both the AAS and the existing standard, which may not be possible.[69] Vestas were of the view that the clause should be removed entirely, citing NER clauses 5.3.4A(b)(2)-(3) already state that the NAS must not affect power system security and quality for other network users.[70] Energy Queensland considered that proponents should not be able to renegotiate a GPS below existing standards.[71]

The Commission considers that the draft rule's requirement to be 'as close as practicable' to the existing standard conflicts with NER clause 5.3.4A(b1) to be 'as close as practicable' to the AAS, which would create regulatory uncertainty. Removing this requirement may permit connection applicants to propose materially different standards to those previously agreed. However, we do agree with the CEC's reasoning that an applicant has the commercial incentive to minimise changes to its GPS throughout the connections process to meet financial milestones.[72] Additionally, we agree that NER clauses 5.3.4A(b)(2)-(3) allow NSPs to reject proposals to a GPS that do not have any clear power system benefit or adversely impact other network users. Therefore, as discussed above, the final rule removes the 'no less onerous' requirement for any standards that are above the MAS.

Overall, we consider the final rule strikes an appropriate balance by allowing pragmatic revision of a GPS while also maintaining the existing requirements for negotiating access standards, as set out in section 3.1.2. This will allow good engineering judgement to more frequently prevail, rather than the NER unnecessarily restricting renegotiation and thereby causing delays in connections processes.

66 Clause 5.3.4A(b)(1A)(i) of the draft rule.

67 AEMC draft determination, pp v, 14, 30, 32.

68 Submissions to the draft determination: AEMO, pp 10-11; AGL, p 2; CEC, pp 3-5; ENA, p 2; EnergyAustralia, p 3; Goldwind, p 2; Origin, p 2; Shell, p 1; Sungrow, p 2; TasNetworks, p 2; Tesla, p 3; TotalEnergies; Transgrid, p 1.

69 ENA, p 2; Transgrid, pp 2-3.

70 Vestas, submission to the draft determination, p 4.

71 Energy Queensland submission to the draft determination, p 1.

72 CEC submission to the draft determination, p 4.

3.2 The 'no less onerous' requirement will still apply to standards that are below the minimum access standard

The 'no less onerous' requirement was introduced to allow legacy plants[73] that are not able to achieve performance at the MAS to improve the technical performance above their existing standard.[74] Without it, legacy plant would have to meet the minimum access standard whenever it seeks an alteration, which may be significantly more onerous than the existing standard. In some cases, this may be unachievable.

The Commission's final rule retains the 'no less onerous' requirement for any plant standard that is assessed to be below the minimum access standard. This will allow registered participants to propose improvements that may benefit power system security without having to meet the MAS, while also ensuring that alterations to plant should not, as a general rule, degrade existing standards.

3.2.1 Performance standards below the MAS may be revised downwards only upon joint agreement by the NSP and AEMO

In its submission to our draft determination, the CEC noted that the CRI has identified circumstances where performance standards of a legacy plant may need to be lowered below the existing NAS to allow the conversion of a grid-following to a grid-forming inverter.[75] Other stakeholders supported amending or removing the 'no less onerous' clause to increase the possible range of NAS for legacy plant.[76]

While the Commission is unaware of any contemporary examples where the NER is preventing a legacy plant alteration because a specific standard needs to be lowered below its current standard, we consider that this scenario may occur more frequently in the foreseeable future. This is because future changes to access standards and a rapidly evolving power system may cause more generator performance standards to fall below the MAS. If any of these registered generators requires a downward revision to a specific performance standard to increase its other standards to realise a net power system security benefit, then the Commission considers that the NER should not prevent this.

To ensure that power system security is not compromised, any applicant proposing such an alteration must receive joint agreement by the relevant NSP and AEMO before proposing a lower NAS than its existing standard. AEMO and the relevant NSP will have ultimate discretion on when to allow or reject these proposals for downward revision.[77] This sets the appropriate expectation that downward revision of legacy plant standards should not be considered the norm.

The requirement under NER clause 5.3.4A(b1) for all NAS to be as close as practicable to the AAS remains, irrespective of whether the proposed new NAS is more or less onerous than the legacy plant's existing standard.

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73 For the purpose of this determination, 'legacy plant' refers to any plant that has one or more performance standards that are below the MAS, due to changes in access standards since its connection agreement was executed. As a result, some recently constructed plant may be considered 'legacy' plant due to changes in access standards.

74 AEMC *Generator technical performance standards* rule change final determination, p 252. An unintended effect of this clause was that generators would be prevented from seeking 'downward' (that is, a revision closer to the MAS rather than the AAS) revisions to their existing performance standard even where there are no adverse power system security or power quality impacts for other network users. Our final rule addresses this issue by allowing 'downward' revision of a GPS through the changes discussed in section 3.1.2.

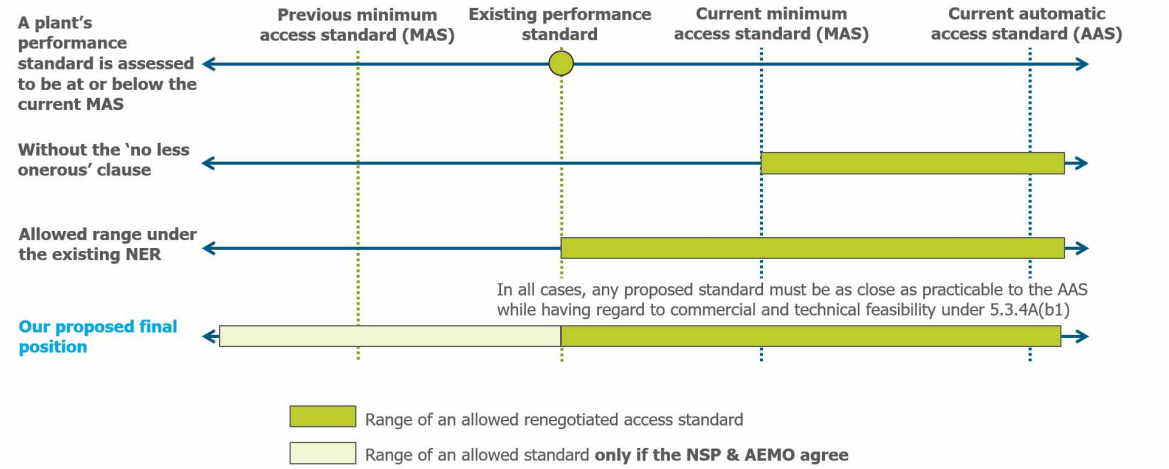
75 CEC submission to the draft determination, p 4.

76 Submissions to the draft determination: EnergyAustralia, p 3; TotalEnergies; Vestas, p 4.

77 It also allows AEMO and the NSP, where they may have previously investigated that an alteration to legacy plant may be beneficial, to request a registered participant to alter its plant accordingly.

Figure 3.2 shows the range of an allowed NAS under the final rule for any performance standards at or below the MAS, compared to the range under the existing NER.

Figure 3.2: Range of allowed negotiated access standards for legacy plant under our final rule



Source: AEMC
Note: See clause 5.3.4A(b)(1A) of the final rule.

In summary, the Commission considers that the final rule will enable pragmatic revisions to a generator's performance standards in cases where the NER was unnecessarily preventing these revisions. It also gives AEMO and NSPs discretion on when they may choose to allow a GPS that is below the MAS to be revised downwards in order to promote power system security. By promoting engineering judgement in these scenarios, we consider that the final rule contributes to the NEO by providing greater flexibility, through more consistent regulatory requirements and by creating more opportunities to improve power system security.

4 The final rule clarifies the obligations of AEMO and NSPs to improve certainty

Box 2: We have made three key clarifications to improve certainty in the R1 process

AEMO has sole discretion to register generators

- New clause 5.3.7A of the final rule provides the process for AEMO to assess the capability of a connection applicant's ability to meet or exceed its performance standards, so they may be eligible to obtain registration (otherwise known as the R1 process).
- This operates to address uncertainty regarding the commencement and completion of the R1 process, clarify the information required to be included in an R1 package, and sets out a clear framework for when additional data and information is required by NSPs and AEMO.
- Clause 5.3.7A of the final rule makes clear that the NER codifies the aspects of the R1 process that relate specifically to AEMO being satisfied that a generator can meet or exceed its GPS, removing any ambiguity that was present in the draft rule.
- Joint approval with the relevant NSP is not required for AEMO to register an applicant, but a level of cooperation between AEMO and the NSPs will be required during AEMO's R1 assessment.

There are reasonable endeavours obligations on AEMO and NSPs during the R1 process

- In practice, AEMO relies heavily on NSP views, advice and other information to satisfy itself that a generator can meet or exceed its GPS for the purpose of registration.
- The final rule requires AEMO to consult with NSPs when conducting its R1 assessment.
- It also places new reasonable endeavours obligations on both AEMO and NSPs to share data and information with each other to enable AEMO to perform its registration functions.

AEMO must notify connection applicants as to the status of the R1 assessment within a 60 business day timeframe

- Upon receipt of an R1 package, AEMO must assess if it conforms with the minimum information requirements set out in the R1 assessment guideline. Within **five business days**, AEMO must provide the connection applicant with written acknowledgement of receipt of a complete R1 package, or with details of the package's non-conformance with the R1 assessment guideline.
- Once AEMO receives a complete R1 package and provides the connection applicant with written acknowledgement of receipt, AEMO has **up to 60 business days** to either determine whether it is satisfied that the generator can meet or exceed its GPS or provide a status update of the R1 assessment.
    - During this time, AEMO would engage in extensive three-way discussions with the NSP and the connection applicant. Performance standards may be renegotiated, and AEMO or the NSP may request additional information from the connection applicant (see section 5.2).
- When AEMO or the NSP requests additional information from the applicant in accordance with the registration information resource and guidelines, it must also provide written reasons for the request. The applicant may ask AEMO or the NSP for further clarification for the request if

it is still unclear as to what additional information is being requested. Within **five business days** after receiving an applicant's request for clarification, AEMO or the NSP must provide that clarification to facilitate the applicant preparing and providing the requested information.

- If AEMO is not yet satisfied at the end of the **60 business day** period, it must provide reasons and next steps for the connection applicant or NSP to follow to achieve registration. These reasons and next steps must be in writing but may otherwise be provided in any form most convenient to AEMO.
- Whenever AEMO has completed its assessment and is satisfied that a generator can meet or exceed its GPS, it must notify the connection applicant within five business days that the assessment is complete.

By clarifying obligations and introducing a number of timeframes, the final rule builds upon the codification and timeframe measures included in the draft rule by providing connection applicants with the certainty that open-ended delays or poor communication between parties will not occur.

We do not intend for the timeframe to add additional burden to existing AEMO or NSP practices during the R1 process — instead, we consider that existing practices already comply with these timeframes. See section 4.3.6 for examples of how existing practices would interact with the timeframes.

4.1 AEMO has sole discretion to register generators under the final rule

The R1 process occurs after a connection agreement is agreed between the connection applicant and the NSP, and before registration and commissioning. It necessitates a close collaboration between connection applicants, NSPs and AEMO so that all parties are comfortable that an applicant's plant is capable of meeting or exceeding the GPS agreed to in its connection agreement with the NSP. Therefore, a primary purpose of the R1 process is for AEMO to be satisfied for the purpose of registering the applicant under relevant NER clauses in Chapter 2.[78]

While the Commission recognises that there are related processes that occur in parallel with the R1 assessment,[79] the Commission considers that it is preferable for the final rule to codify only the aspects of the R1 process that are related to AEMO registration. This is because the other obligations that bind connection applicants, NSPs or AEMO to carry out processes in parallel with the R1 assessment are covered by other clauses of the NER, or are requirements set out in connection agreements between applicants and NSPs, state law, or other legislation.[80]

As a result, the final rule retains AEMO's sole discretion to register connection applicants once it is satisfied that a generator can meet or exceed its GPS. In addition, the final rule obliges AEMO to consult with the relevant NSP when conducting its assessment (see section 4.2). This reflects the collaborative and three-way nature of the R1 process while reducing the risk of unintentionally prolonging registration.

As such, new clause 5.3.7A of the final rule provides the process for AEMO to conduct a capability assessment for registration eligibility. The process operates to address uncertainty regarding the commencement and completion of the R1 process, clarify the information required to be included in an R1 package, and sets out a clear framework for when additional data and information is

78 NER clauses 2.1B.1(c) and 2.1B.2(b)(4).

79 For example, but not limited to: NSP or AEMO impact assessments, system strength impact assessments, approval of a commissioning plan, or satisfaction of meeting Renewable Energy Zone (REZ) access standards.

80 For example, approval of the connection applicant's proposed commissioning program is covered by rule 5.8 of the NER.

required by NSPs and AEMO.[81] This is in response to stakeholders such as Energy Australia who highlighted that the NER does not specify the point in the connections process when the applicant should submit its R1 package to then be evaluated by the NSP and AEMO.[82]

This measure balances the need for clear prescription with flexibility, to promote principles of good regulatory practice and reduce process delay during the R1 stage. Further, it promotes clarification of the roles and responsibilities held by connecting parties, which is discussed further throughout this chapter.

4.1.1 The draft rule may have removed AEMO's sole discretion to register generators

While intending to capture the fact that both NSPs and AEMO play an important role in assessing an applicant's R1 package, clause 5.3.7A(g) of the draft rule may have unintentionally expanded the power of registration beyond AEMO. This is because it required a joint notification from the relevant NSP and AEMO that their R1 assessments have been completed before AEMO may proceed to registration under clauses in Chapter 2 of the NER.[83]

In its submission to the draft determination, Tesla considered that the draft rule added complexity to the approvals process by requiring additional approval from the NSP.[84] AEMO described the draft rule as potentially conflating or duplicating the responsibilities of AEMO and NSPs, which may unintentionally extend the time taken to complete the R1 assessment process.[85]

AEMO explained that it would, in practice, ensure alignment between NSPs and AEMO throughout the R1 assessment process. However, requiring a joint position before it may register a generator may bring forward or duplicate assessments that NSPs would otherwise undertake at later stages of the connections process. AEMO suggested that draft clause 5.3.7A(g) should be amended to include an obligation for AEMO to consult with the NSP when it assesses the capability of a generator to meet or exceed its GPS for registration.[86]

The Commission agrees with AEMO's characterisation of the draft rule's effect on its discretion to register generators, which may cause unnecessary delays. Therefore, the final rule does not include a requirement for joint notification prior to registration. This ensures that AEMO retains its sole discretion when registering generators while it emphasises the importance of AEMO's and the NSP's collaboration and consultation during the R1 process.

4.1.2 The obligations of Chapter 5 of the NER also apply to distribution network service providers

Despite the vast majority of new large connections to the NEM occurring at connection points in transmission networks, the Commission anticipates that there may be more connection applications for plant to be located in distribution networks in the future.

In response to Energy Australia's request for clarification,[87] the Commission emphasises that a number of obligations under Chapter 5 of the NER apply to connections to distribution networks. Notably, rules 5.3 and 5.3A apply to applicants intending to register as a party seeking connection

81 This is discussed further in chapter 5.

82 Energy Australia, submission to the consultation paper, p 2.

83 Clause 5.3.7A(g) of the draft rule stated 'whether [AEMO and the NSP] are satisfied with the outcome of the assessment, including for the purposes of clause 2.2.1(e)(3).' Clause 2.2.1 has since been deleted due to amendments made by the *National Electricity Amendment (Integrating energy storage systems into the NEM) Rule 2021*. The intent of draft clause 5.3.7A(g) was that an applicant must obtain a joint notice from AEMO and the NSP before AEMO may register its plant under the appropriate categories referenced in NER clause 2.1.3(d)(2).

84 Tesla, submission to the draft determination, p. 2.

85 AEMO submission to the draft determination, p 5.

86 Ibid., p 6.

87 EnergyAustralia, submission to the draft determination, p 4.

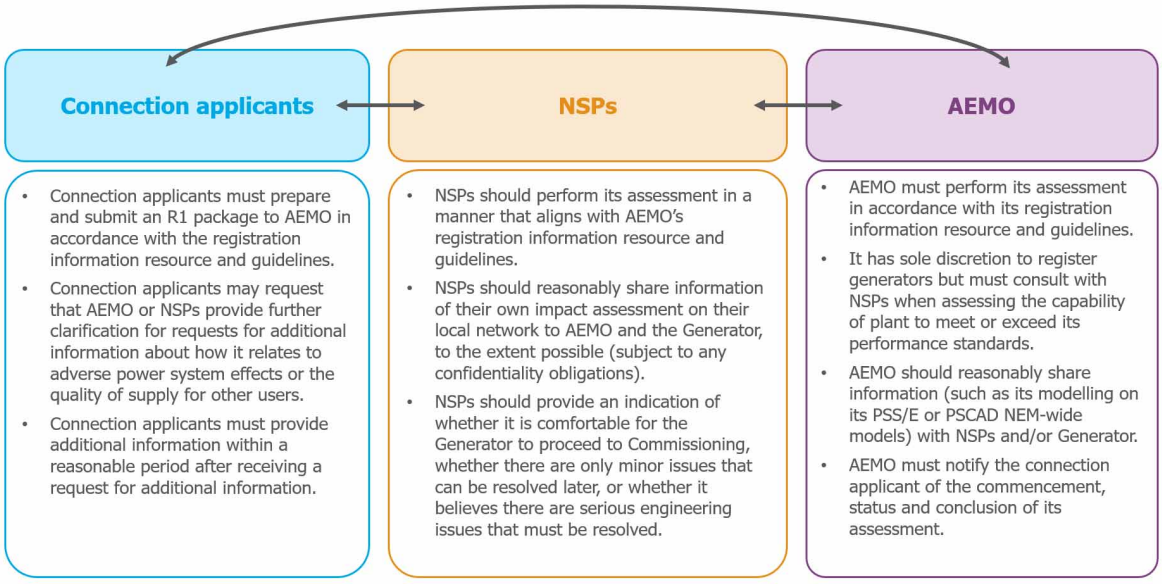
to a distribution network and rule 5.3AA sets out obligations for access arrangements relating to distribution networks. There are also obligations relating to negotiating frameworks, amongst other matters relating to distribution networks. The new obligations under the final rule will apply to connections to distribution networks.

4.2 AEMO and NSPs must consult closely with each other during the R1 process

To ensure that the R1 process remains collaborative and constructive throughout the energy transition and beyond, the Commission's final rule obliges AEMO to consult with the NSP in conducting its assessment of whether it is satisfied that the generator can meet or exceed its GPS.[88] It also places a reasonable endeavours obligation on both AEMO and NSPs to share information with each other to enable AEMO to effectively perform its registration functions.[89]

Figure 4.1 illustrates the relationship between connection applicants, AEMO and NSPs during the R1 process, and lists out their respective obligations and expectations.

Figure 4.1: Obligations on expectations on parties throughout the R1 process



Source: AEMC
Note: See 5.3.7A(i) of the final rule for the cooperation obligation on AEMO and NSPs during the R1 process.

4.2.1 AEMO should consult with NSPs throughout the R1 process

Although AEMO has sole discretion in assessing whether it is satisfied that an applicant's plant can meet or exceed its GPS for the purposes of the applicant's registration, the Commission expects that AEMO will continue to have close regard to the NSP's views when making its assessment. The final rule codifies this expectation in the NER by stating 'in conducting its capability assessment, AEMO must consult with the Network Service Provider'.[90]

88 Clause 5.3.7A(i)(1) of the final rule.
89 Clause 5.3.7A(i)(2) of the final rule.
90 Clause 5.3.7A(i)(1) of the final rule.

This expectation is shared by AEMO in its submission to the draft determination, where it suggests that the final rule could require AEMO to consult with NSPs when performing its assessment of a plant's capability of meeting or exceeding its performance standards.[91] AEMO also considered that, in its notice to connection applicants that the R1 assessment is complete, it would outline any matters that have been raised by NSPs that may be relevant to later stages of the connection process (such as issues that may be best left to the commissioning phase).[92]

By requiring AEMO toconsult with the relevant NSP during its assessment, it ensures that AEMO cannot register a generator or IRP in a manner that is independent of the NSP's processes. NSPs play an important role in ensuring that connecting generators and IRPs do not adversely affect the security of their network, as AEMO does not usually have complete visibility of an NSP's network.

This is especially important for S5.2 access standards that are not considered to be AEMO advisory matters, where NSPs have primary carriage of assessing whether a plant can meet or exceed performance standards and do not need AEMO's advice when renegotiating standards.[93] In the application (or R0) phase of the connections process when standards are being negotiated, AEMO must advise the NSP whether it should accept or reject a proposed negotiated access standard, where it relates to an AEMO advisory matter.[94] In other words, NSPs must consult with AEMO before it decides to accept or reject a negotiated access standard.

We consider that mirroring the R0 consultation requirement in the R1 process as per the final rule more accurately describes what happens in practice. Although AEMO has sole discretion to register generators or IRPs, it should only make its decision after closely considering advice and information from NSPs. Without this obligation being codified, the NER would be silent on this important aspect of the R1 process, which could lead to undesirable outcomes by sidelining the active role of NSPs in the process.

4.2.2 NSPs should reasonably share information with AEMO to enable AEMO to be satisfied of a generator's GPS.

While AEMO will be required to consult with NSPs during the R1 assessment process, the Commission also considers that a reasonable endeavours obligation on both parties to share information will also reduce the likelihood of any open-ended delays.[95] As illustrated in Figure 4.1, the R1 process necessitates three-way discussions between applicants, the NSP and AEMO.

While other aspects of our final rule aim to address stakeholder concerns about information asymmetry or requests for additional reasons (see section 5.2 of this final determination), this information sharing obligation aims to reduce:

- duplicate assessments by NSPs and AEMO
- the number of additional modelling requests by NSPs and AEMO
- misalignment between parties on the severity of specific power system security issues
- misalignment between parties on when issues should be best addressed (for example, either in the R1 process prior to registration, or during commissioning after registration has occurred)

91 AEMO submission to the draft determination, p 6.

92 Ibid., p 6.

93 S5.2 clauses that are not AEMO advisory matters are clauses S5.2.5.2 and S5.2.5.6 of the NER, relating to the quality of electricity generated and continuous uninterrupted operation.

94 NER, clause 5.3.4A(d)-(d1).

95 This obligation is subject to any confidentiality obligations that AEMO or NSPs may have — see clause 5.3.7A(i)(2) of the final rule.

- divergent assessment methodologies, which can otherwise lead to an increased engineering burden on applicants.

For example, as mentioned in section 4.2.1, we expect that NSPs should share the results of their assessments and any network models with AEMO, especially for those S5.2 standards that are not AEMO advisory matters. Similarly, we expect that AEMO should share its own results and information from its NEM-wide PSCAD model with the NSP, and provide advice to NSPs on AEMO advisory matters throughout the process.[96]

Wherever possible, AEMO and NSPs should seek alignment on the severity of issues with regard to their impact on power system security, whether any additional information is required from the applicant, and the kind of information that applicants need to resubmit or append to their R1 package.[97] Alignment on these issues through information sharing will reduce the risk of miscommunication, misinterpretation of NER requirements, or disputes arising on power system security issues, which can help clarify the steps that the applicant should take to achieve registration and proceed to commissioning.

4.3 The final rule introduces a 60 business day timeframe for AEMO to respond to connection applicants

To minimise the risk of connection applicants facing open-ended delays in the R1 process, the Commission has introduced a 60 business day timeframe where AEMO must notify a connection applicant:

- that AEMO is satisfied that the connection applicant's plant can meet or exceed its GPS and can proceed to registration, **or**
- that AEMO is not yet satisfied, in which case AEMO must provide the connection applicant with next steps for the R1 process, so that the connection applicant understands what to do to achieve registration.

The 60 business day timeframe commences once AEMO has received a complete R1 package and has assessed that it complies with the minimum requirements set out in the registration information resource and guidelines.[98] If performance standards need to be renegotiated, or additional information or modelling is requested by AEMO or the NSP, the 60-day clock does not stop or reset.

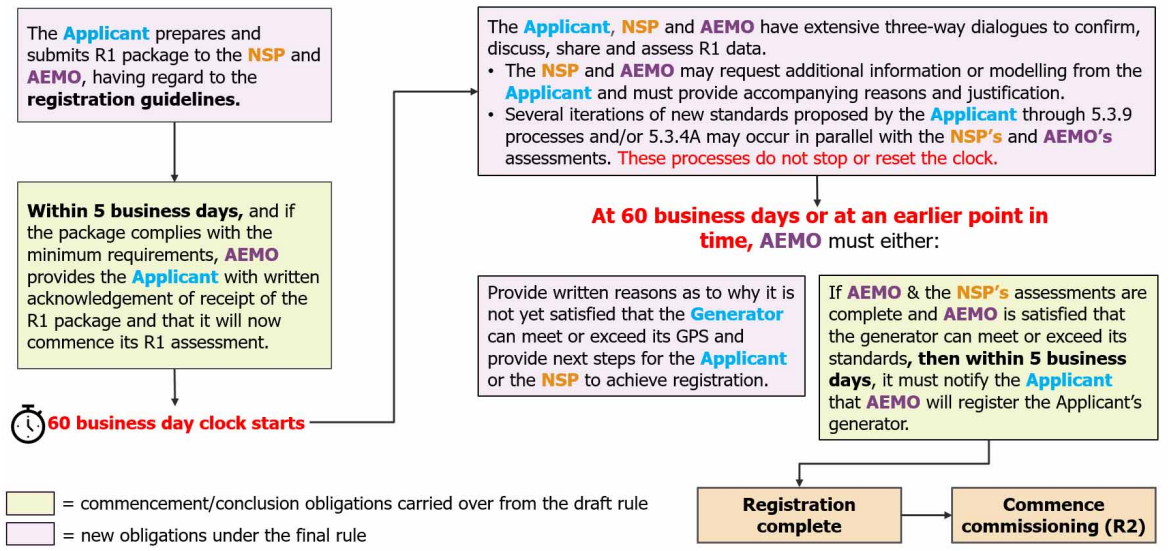
The timeframe is intended to provide a formal touchpoint between connection applicants and AEMO to ensure that connection applicants are kept informed as to the status of their R1 assessment. The Commission considers that this new timeframe should not place any additional administrative burden on AEMO or NSPs — in many cases, existing AEMO and NSP practices will already comply with the 60-day timeframe. See section 4.3.6 for examples of how the timeframe will work in practice.

96 AEMO providing advice on AEMO advisory matters throughout the R1 process is especially important, because there are often many negotiated access standards, which are renegotiated at the same time as AEMO and NSPs conduct their R1 assessment for the same or other access standards.

97 See section 5.2section 5.2 of this final determination for a full discussion on justification for requests for additional information.

98 See clauses 5.3.7A(d), (e) and (j) of the final rule.

Figure 4.2: Diagram of how the 60 business day timeframe will operate



Source: AEMC

Note: For a more detailed version of this diagram, see appendix A.

In keeping with the Commission's intent to codify only the aspects that directly relate to AEMO registration, the timeframe only binds AEMO.[99] However, the Commission expects that due to the obligation on AEMO to consult with NSPs throughout the process and the reasonable endeavours obligation described in section 4.2, NSPs will assist AEMO to provide information for its notifications under this new timeframe.

4.3.1 Stakeholders considered that the draft rule would be more effective with a timeframe for the entire R1 process

In the draft determination, the Commission explained that the absence of clear obligations and timeframes in the R1 process can lead to open-ended delays for connection applicants seeking registration, weakening investment certainty.[100]

However, the Commission also noted that it is difficult to implement a timeframe due to the iterative and complex nature of the R1 process, where assessments and renegotiations of different performance standards often occur in parallel. We considered that introducing stop-the-clock mechanisms for renegotiation of standards or for when AEMO or NSPs require additional information would be overly complex, inflexible, and may be administratively burdensome.[101]

Given this, the draft rule only codified notification timeframes for the commencement and conclusion of the R1 process, but not for the overall process. The draft rule required:

- AEMO and NSPs to each notify the applicant when it has received a complete R1 package, **within 5 business days of receipt**[102]

99 See section 4.1 for more detail on the intent of clause 5.3.7A of the final rule.

100 AEMC draft determination, pp 36–37.

101 Ibid., p 39.

102 Clause 5.3.7A(b) of the draft rule.

- AEMO and NSPs to jointly notify the applicant that the assessment has been completed **within 5 business days of completion**.[103]

In response to the draft determination, ENA and Energy Queensland were generally supportive of the codification of the commencement and completion of the R1 process as laid out in the draft rule.[104] However, many other stakeholders considered that more prescriptive timeframes were needed throughout the R1 process to provide greater certainty to connection applicants and support timely connections.[105] Suggestions for improvement included introducing a timeframe for the entire R1 process (that is, from submission to registration),[106]mirroring existing timeframes from the R0 process for the R1 process,[107] or requiring NSPs to state when they expect to complete their R1 assessment upon receipt of an R1 package.[108]

The Commission considers that the final rule improves upon the draft rule and addresses these stakeholder concerns by adding a timeframe across the broader R1 process to provide connection applicants with greater certainty that AEMO and NSPs should actively work towards achieving registration.[109]

The Commission notes that although the duration of the R1 process can significantly vary and is highly dependent upon each connection project, technology type and connection location (among other factors), the intent of the timeframe is to set the expectation that all parties should be actively working together to seek registration in a timely manner.

The Commission also emphasises that the timeframe does not constrain AEMO or the NSP to unduly rush their assessment and risk power system security to comply with the timeframe. Instead, it ensures stakeholders are kept aware of the status of their plant's assessment and are not faced with open-ended delays.

4.3.2 AEMO is required to notify connection applicants upon receipt of a complete R1 package

After the execution of a connection agreement between a connection applicant and the NSP, the applicant must submit its R1 package to both the NSP and AEMO.[110] The R1 package should be 'complete' — that is, it should meet the minimum information requirements set out in the registration information resource and guidelines.[111]

The Commission expects that these minimum information requirements will be largely similar to the existing R1 submission checklist.[112] Setting out the minimum information requirements in the registration guidelines will minimise the risk that NSPs and AEMO receive what they may consider to be incomplete R1 packages.

Within five business of receipt of the R1 package from the connection applicant, AEMO must either:

103 Clause 5.3.7A(g) of the draft rule.
104 Submissions to the draft determination: ENA, p 2; Energy Queensland, p 2.
105 Submissions to the draft determination: ACEN, pp 2-3; AGL, p 1; CEC, pp 9, 11-12; EnergyAustralia, p 3; Origin, pp 1-2; Shell, p 1; Sungrow, p 1; Vestas, pp 5-6.
106 ACEN, submission to the draft determination, pp 2-3.
107 CEC, submission to the draft determination, p 9.
108 Vestas, submission to the draft determination, p 5.
109 The final rule retains the two 5 business day requirements, with slight modifications. See section 4.3.2 and section 4.3.5.
110 Clause 5.3.7A(b) of the final rule.
111 Clause 5.3.7A(c) of the final rule. See chapter 5 for a broader discussion on the new guideline obligations introduced by the final rule.
112 See the Generator Connection R1 submission checklist.

- notify the connection applicant that it has received the R1 package and will commence its assessment[113]
- notify the connection applicant that it considers that the application has not conformed with the minimum information requirements in the registration information resource and guidelines, and provide details of the non-conformance.[114]

The final rule does not specify the form in which AEMO must provide this notification, allowing it to provide the notification in an email, letter, or any other manner that may be most convenient.

We also note that the within five business day response period is consistent with other existing NER clauses. For instance, NER clause 5.3.2(b) requires an NSP to notify a connecting applicant within five business days if the information the applicant has submitted with a connection enquiry is inadequate.

This operates to make clear in the NER that the R1 process commences when an applicant has submitted its R1 model data package to the NSP and AEMO, and requests that the NSP or AEMO conduct and requests that they conduct their assessment.[115]

It also addresses feedback we received from stakeholders such as Energy Australia, who expressed in their submission to the consultation paper that the NER does not specify the point in the connections process when the applicant should submit its R1 package to then be evaluated by the NSP and AEMO.[116]

4.3.3 Within 60 days of receiving a complete R1 package, AEMO must notify the applicant as to the status of its assessment

After AEMO has provided its acknowledgement of receipt of a complete R1 package, the NSP and AEMO commences its R1 assessment and undertakes modelling and analyses to determine an applicant's plant capabilities against its GPS.

Throughout this process, performance standards may need to be renegotiated multiple times, and parallel 5.3.9 or 5.3.4A processes can occur.[117] Additionally, NSPs and AEMO may request additional information or modelling from the connection applicant to satisfy themselves of the plant's capability to meet or exceed standards, but these requests must be accompanied by written reasons and should be made according to the registration guidelines.[118] An applicant can ask AEMO or the NSP for further clarification for the request if it is still unclear as to what additional information is being requested. Within five business days after receiving an applicant's request for clarification, AEMO or the NSP must provide that clarification to facilitate the applicant preparing and providing the requested information.

If AEMO is not yet satisfied of the connection applicant's plant's capability to meet or exceed its GPS within 60 days of receiving a complete R1 package, then it must provide the applicant with details on the next steps for the assessment, and whether any additional data or information is required from the applicant.[119] The final rule requires that this notification be in writing but does

113 Clause 5.3.7A(d)(1) of the final rule.

114 Clause 5.3.7A(d)(2) of the final rule. Until the registration information resource and guidelines are updated, AEMO may point to existing documents such as its R1 submission checklist — see clause 11.171.4 of the final rule.

115 We note that NSPs and AEMO would manage the data and information provided by the applicant in accordance with the confidentiality requirements in the NER, such as those contained in NER clause 5.3.8.

116 Energy Australia, submission to the consultation paper, p 2.

117 This could be caused by plant design changes that necessitate the adjustment or retuning of performance standards, or by modelling which shows that current plant design may cause an adverse power system impact.

118 See section 5.2.

119 Clause 5.3.7A(k) of the final rule.

not otherwise prescribe the form in which this notice must be given to maximise administrative flexibility for AEMO.

After AEMO provides the applicant with next steps, the 60 business day timeframe does not restart again — that is, there is no 'reset' mechanism for the timeframe. This is because a reset mechanism may disincentivise AEMO or NSPs from providing their notice in line with an earlier milestone.[120]

However, we expect that AEMO and NSPs should continue to maintain a good level of communication with the connection applicant following the 'next steps' notice to achieve registration in a timely manner. To achieve this, AEMO's 'next steps' notice should reasonably include specific time-bound check-in points for when it may expect to finish its assessment, when it expects to receive additional information from the applicant, or any other task that may be required.[121]

Conversely, if AEMO is satisfied, it must notify the applicant that it will commence registration — see section 4.3.5.

4.3.4 The timeline does not bind AEMO to register generators within 60 business days

As discussed in section 4.3.1, despite the duration of the R1 assessment process being highly variable from project to project, this timeframe is intended to ensure that applicants are kept aware as to the status of their assessment and to minimise the risk of any open-ended delays. It does not bind AEMO or NSPs to be satisfied of a generator's capability to meet or exceed its GPS within 60 business days, as we recognise that many projects may require more time to resolve technical issues arising from R1 modelling and information.

The Commission considered that due to the complex and iterative nature of renegotiating standards, it is simpler for no stop-the-clock or reset mechanisms to be introduced at these points. If 60 business days is not sufficient to resolve all technical issues, then AEMO and the NSP should ensure that they have informed the applicant as to the nature of the outstanding technical issues, the nature of any outstanding requests for additional information and any next steps that parties should take to achieve registration. This information does not have to be provided at the 60 business day mark.[122]

For example, AEMO may choose to align its notice with a more sensible milestone for all parties. Such a milestone may occur earlier than 60 business days of receipt of an R1 package. The Commission expects that AEMO should reasonably attempt to align its obligation under the final rule with any such milestones in order to maximise the value of providing its notice with next steps to the applicant.

4.3.5 AEMO is required to notify connection applicants when their R1 assessment is complete within 5 business days

Whenever AEMO completes its assessment and is satisfied, then it must notify the connection applicant so that it can proceed to registration under Chapter 2 of the NER.[123] Despite the 60 business day timeframe obligation, this notification must occur within five business days of the assessment being complete.[124]

120 For example, if AEMO provides its 'next steps' notice 20 business days after it receives a complete R1 package, then under a resetting 60 day clock, it would be required to provide another notice at 80 business days, when it may not be necessary.

121 See section 4.3.6 for examples of what AEMO could include in its next steps notice.

122 See section 4.3.6 for examples of how this may work in practice.

123 Clause 5.3.7A(k) of the final rule.

This gives connection applicants certainty that NSPs or AEMO will not unfairly 'wait out' the 60 business day timeframe before taking any step towards registration. The timeframe aims to ensure that good communication is upheld between all parties and should not affect existing good practices by NSPs or AEMO.

4.3.6 Existing AEMO and NSP processes may already comply with the final rule's new timeframe

This section provides stakeholders with examples of how the new 60 business day timeframe will work in practice to assist in understanding how the timeframe can interact with existing NSP or AEMO practices and processes. A more detailed version of Figure 4.2 is provided in appendix A.

We provide three examples:

- An NSP uses R0 timeframes in the R1 process to assess an applicant's package — see Box 3
- An NSP does not have any specified timeframes — see Box 4
- A complex project necessitates numerous renegotiations of performance standards and additional modelling requests — see Box 5.

Box 3: An NSP applies R0 timeframes to the R1 process

In this example, the NSP aims to assess complete R1 packages within 30 business days, similar to the requirement at the R0 at NER clause 5.3.4A(e). AEMO assists the NSP in meeting those timeframes by aiming to provide its advice on AEMO advisory matters within 20 business days.

- An applicant submits a complete R1 package to the NSP, who then forwards it onto AEMO. AEMO assesses that it is a complete R1 package and provides written acknowledgement to the applicant.
- AEMO and the NSP begin their assessments and maintain an issues tracker that is shared between all parties.
- At **20 business days** after AEMO has provided its acknowledgement, the NSP flags in the issue tracker that a particular issue may require the retuning of several plant performance standards. Parties work together to try to reach a common understanding of the issue.
- At **30 business days**, in line with the NSP's stated 30 business day timeframe, AEMO issues its notice required under the 60 business day timeframe (clause 5.3.7A(j) of the final rule). AEMO sets out, directly in the issues tracker:
  - why it is not yet satisfied, in accordance with the registration guidelines
  - the applicant's next steps, which it considers to be the retuning of certain performance standards.
- The NSP also provides the applicant with more information about the performance standards in question and why it is also not yet satisfied, as part of its 30 business day timeframe.
- Following this, the applicant submits a 5.3.9 application for the adjusted performance standards, and undergoes the renegotiation process under NER clause 5.3.4A.
- After execution of the new connection agreement, the applicant resubmits its R1 data with its new performance standards.

124 The assessment includes any consultation with NSPs that AEMO must undertake before being satisfied that a plant meets or exceeds its performance standards.

- At **20 business days** after it submits its new R1 data, AEMO checks in with the NSP to determine if there are any outstanding issues remaining — to which it says there are none that need to be resolved prior to registration.
- At **25 business days** after the R1 resubmission, AEMO notifies the applicant that it has completed its assessment in accordance with clause 5.3.7A(k) of the final rule.

Source: AEMC

Box 4: An NSP has no definitive timeframe to assess R1 packages

In this example, the NSP assesses R1 packages as quickly as it reasonably can, but does not attach any prescribed timeframes due to the bespoke nature of each connecting project.

- A connection applicant submits an R1 package to the NSP. The NSP requests the connection applicant to attach a voltage control strategy document, which was missing.
- The connection applicant prepares and adds this document. The NSP forwards the R1 package onto AEMO. AEMO assesses that it is a complete R1 package and provides written acknowledgement to the connection applicant.
- AEMO and the NSP begin their assessments and maintain an issues tracker that is shared between all parties.
- At **25 business days** after the acknowledgement, the NSP requests additional information and modelling from the connection applicant regarding a specific network issue that it considers may cause an adverse power system impact. It explains its reasoning and request in accordance with the registration information resource and guidelines.
- As the issue is complex, the connection applicant notifies the NSP and AEMO that it will take a while to provide the additional information requested.
- At **50 business days**, the connection applicant provides the NSP with the additional information. The NSP shares the nature of the issue and the additional information gathered from the applicant with AEMO.
- At **60 business days**, AEMO issues its notice required under the 60 business day timeframe (clause 5.3.7A(j) of the final rule). AEMO sets out, directly in the issues tracker document:
  - The nature of the issue identified by the NSP and its potential impact on the power system
  - The expected date by which AEMO expects to complete its assessment and conclude consultation with the NSP — it estimates it will take another 10 business days.
- At **70 business days,** AEMO notifies the connection applicant that it has completed its assessment in accordance with clause 5.3.7A(k) of the final rule.

Source: AEMC

Box 5: A complex project that requires numerous iterations of GPS and additional information requests

In this example, the connection applicant alters its plant numerous times to address a variety of different issues identified by the NSP or AEMO.

- A connection applicant submits a complete R1 package to the NSP and AEMO. AEMO assesses that it is a complete R1 package and provides written acknowledgement to the connection applicant.
- AEMO and the NSP begin their assessments and maintain an issues tracker that is shared between all parties.
- At **5 business days** after the acknowledgement, the applicant quickly realises that due to changes in plant design, a particular standard will require renegotiation and new R1 data may need to be submitted. It informs the NSP and AEMO of this situation.
- At **10 business days,** the NSP identifies a significant power system issue that it considers must be addressed. It shares its network modelling with AEMO (without infringing upon any confidentiality obligations) so that AEMO can provide its advice.
- At **20 business days,** it informs the NSP and AEMO that it does not consider the issue identified by the NSP can be suitably or reasonably addressed by the connection applicant, believing it to not cause any adverse power system impacts.
- At **30 business days**, the NSP requests additional information from the applicant to resolve the issue in accordance with the registration information resource and guidelines.
- After receiving this justification, the connection applicant requests further clarification under clause 5.3.7A(h)(1) so that the NSP can more clearly explain the potential power system impact and risks, as explained in the registration information resource and guidelines. AEMO has been kept informed of this exchange through the issues tracker and through emails.
- At **50 business days**, the NSP refines its justification and requests less additional information from the connection applicant to resolve the issue. The connection applicant understands the NSP's perspective and notifies that it will provide the additional information in about 10-15 business days.
- At **60 business days**, informed by the NSP's perspective, AEMO issues its notice required under the 60 business day timeframe (clause 5.3.7A(j) of the final rule). AEMO sets out in an email to the connection applicant and NSP:
  - the nature of the issue that has led to the NSP and AEMO not being satisfied of the plant's capability to meet or exceed its GPS
  - the connection applicant's next steps, which are to:
    - provide the additional modelling information requested by the NSP
    - complete the 5.3.4A and 5.3.9 processes due to its altered plant design.
    - consider renegotiating other standards to better satisfy AEMO for registration.
- At **65 business days**, the connection applicant provides the additional information requested. The applicant also commences new 5.3.9 processes as a result of the issues set out by AEMO in its notice.
- After **120 business days**, following multiple iterations of performance standards and smaller requests for additional information, both the NSP and AEMO are satisfied. AEMO notifies the connection applicant that it has completed its assessment in accordance with clause 5.3.7A(k) of the final rule.

Source: AEMC

5 The final rule introduces new information requirements to promote transparency

Box 6: The final rule makes three key reforms around the provision of information, promoting efficiency and transparency

The Commission agrees that, as identified by the CEC and industry, there is an information asymmetry experienced during the R1 process between connection applicants on the one hand and NSPs and AEMO on the other.

The information asymmetry exists in the context of AEMO and NSPs' assessments being informed by information that may be commercially or nationally sensitive information.

An outcome of this information asymmetry has been repeated remodelling requests during the R1 stage that do not always lead to substantively improved system security or power quality outcomes.

To address these issues, the Commission has made a final rule as follows:

Registration information resource and guideline to include guidance on the R1 process and assessment

- The final rule requires AEMO to update existing or produce new guidelines for the R1 assessment process. The guidelines must include:
  - data and information a connection applicant must provide to AEMO and the NSP when submitting its R1 package for assessment
  - examples of the circumstances in which AEMO or the NSP may request additional data and information from a connection applicant, as well as examples of the types of data and information the connection applicant may provide in response
  - how AEMO may assess and the matters AEMO may take into account when assessing the data and information provided in an R1 package, and whether the connecting plant may have an adverse effect on power system security or the quality of supply for other network users
  - any other matters AEMO considers relevant in describing the process for the R1 assessment.
- AEMO is required to consult with stakeholders when developing the guidelines and for any subsequent amendments to those guidelines.
- This addresses feedback from stakeholders to our recommendation in the draft determination that AEMO produce or update its guidance on the R1 process and assessment, which called for NER prescription and greater certainty about how AEMO may conduct an R1 assessment.

Written reasons to be provided with additional data and information requests

- The final rule requires AEMO and NSPs to provide reasons at the outset for additional data and information requests during an R1 assessment.
- As with the draft rule, the final rule also enables connection applicants to request further reasons when greater clarity is required. The final rule further requires that AEMO or NSPs provide clarification within five business days after the connection applicant's request.

- In the draft determination, we only proposed codifying in the NER the ability for connection applicants to request reasons for additional data and information requests from AEMO and NSPs. The final rule goes further to require reasons at the outset to address feedback from stakeholders who sought greater specificity around information requests made by AEMO and NSPs during the R1 process.

The NER expressly permits AEMO to grant conditional approval to connection applicants

- The final rule provides that registration may be obtained subject to terms and conditions as AEMO may agree with the person in accordance with the registration information resource and guidelines.
- The circumstances in which conditional approval for registration may be granted will be detailed by AEMO in a guideline, in consultation with the broader industry.
- Once AEMO has published the guidelines on the conditional approval pathway, at the end of the 60 business day period for the R1 assessment, AEMO will be able to either:
  - confirm that it is satisfied with the results of the R1 assessment
  - confirm that it would be satisfied with the results of the R1 assessment subject to the terms and conditions to be agreed between AEMO and the connection applicant, being the conditional approval pathway
  - if it is not satisfied at that point in time, provide a written update on the next steps of the R1 assessment.

In its rule change request, the CEC raised concerns about an information gap in the existing guidance about the connections process. Addressing this asymmetry is important to connecting parties because they consider that requests for continual improvements in plant performance without explanation can sometimes lead to delays and large design and plant layout changes at great cost and provide minimal system security benefits.[125]

Additional clarity would also benefit NSPs and AEMO as it would lead to better quality connection applications and R1 submissions, and would support them in achieving their system security obligations under the NER.

Through our stakeholder discussions and submissions to our consultation paper and draft determination, we have heard that connecting parties would like to have more clarity and guidance about:[126]

- the data and information that AEMO and NSPs expect to see from connection applicants in their R1 submission
- the reasons and types of information required to be produced for additional data and information requests made by AEMO and NSPs
- how AEMO and NSPs assess risks of 'adverse power system security' impacts and 'adverse power quality impacts on other network users'.

The final rule addresses this feedback through the following measures:

- codifying the requirement for AEMO to provide as part of its *Registration information and resource guidelines* guidance that clarifies the capability assessment process, otherwise

125 CEC, rule change request, p 3; Submissions to the draft determination: EnergyAustralia, p 2; CEC, p 8.

126 AEMC draft determination, p 17; Submissions to the draft determination: CEC, AGL, TasNetworks, ENA, Shell, Goldwind, Origin, ACEN.

known as the R1 assessment process.[127] AEMO must develop and publish the registration and information resource guidelines that relate to the R1 assessment process by no later than 1 March 2025[128]

- requiring AEMO and NSPs to provide reasons at the outset for additional data and information requests, and enabling applicants to request further clarification where it is required[129]
- removing barriers to conditional registration so that AEMO can approve registration with terms and conditions to be agreed with the applicants, in cooperation with NSPs.[130]

Collectively, these changes reduce information barriers and enhance collaboration between connecting parties by adding clarity and transparency around the R1 process, in turn reducing project delays.

5.1 The final rule requires AEMO to produce guidelines on the R1 process and assessment

The Commission has made a final rule that requires AEMO to produce guidelines that support the new capability assessment for registration eligibility process (otherwise known as the R1 assessment) set out in clause 5.3.7A of the final rule. These guidelines will fall under the registration information and resource guidelines required to be produced by AEMO.[131]

This is in response to the CEC's rule change request, which proposed that AEMO should provide guidance to:[132]

- clarify what constitutes a material risk to power system security and the process of negotiation during the R1 stage
- define external changes in the power system identified during the R1 stage and providing a methodology for determining fair value for applicants that revise their plant design or settings, in response to NSP requests for system security services.

We also heard from many stakeholders in their submissions to the consultation paper and draft determination, as well as during our technical working groups, that guidelines pertaining to the R1 process are important because they will:

- clarify when AEMO will commence its R1 assessment and the minimum information required to do so
- explain how AEMO will conduct its R1 assessment.

While the final rule does not prescribe the same level of detail to be included in the guidelines as proposed by the CEC,[133] AEMO will be required to provide details around the following in its guideline regarding the R1 process and assessment:[134]

- data and information a connection applicant must provide to AEMO and the NSP when submitting its R1 package for assessment. The data and information must refer to the requirements under the NER (including schedules 5.2, 5.3 or 5.3a), in connection with the performance standards, or other requirements by AEMO to assess whether the connecting

127 Clause 2.1.3(b)(6) of the final rule.
128 Clause 11.171.2 of the final rule.
129 Clause 5.3.7A(h) of the final rule.
130 Clauses 2.1B.1(c) and 2.1B.2(b)(4) of the final rule.
131 Clause 2.1.3(b)(6) of the final rule.
132 CEC rule change request, p 59.
133 CEC rule change request, p 39.
134 The final rule describes this process as the capability assessment under clause 5.3.7A of the final rule.

plant may have an adverse effect on power system security or the quality of supply for other network users[135]

- examples of the circumstances in which AEMO or the NSP may request additional data and information from a connection applicant, as well as examples of the types of data and information the connection applicant may provide in response[136]
- how AEMO may assess and the matters AEMO may take into account when assessing the data and information provided in an R1 package, and whether the connecting plant may have an adverse effect on power system security or the quality of supply for other network users, with reference to the relevant access standards[137]
- any other matters AEMO considers relevant in describing the process for the R1 assessment.[138]

The Commission considers this will provide greater certainty to applicants and industry about AEMO's expectations for applicants to achieve registration, whilst providing for a flexible instrument that can be updated and adapted in consultation with industry as the power system develops in its shift to net zero.

5.1.1 Codifying AEMO's requirement to produce guidelines, as opposed to it being a recommendation, will lead to better R1 applications and outcomes

As noted in the draft determination, there are inherent difficulties in prescribing and codifying aspects of the R1 process to reduce uncertainty experienced by connecting applicants.[139] As such, we made a recommendation that AEMO should continue its work to update or produce new guidelines to provide greater transparency and certainty for parties involved in the R1 stage of the connections process.

The Commission made this recommendation to address the issue raised by the CEC and other stakeholders that there is a lack of clarity surrounding how AEMO and NSPs assess risks of 'adverse power system security' impacts and 'adverse power quality impacts on other network users'.[140]

This recommendation operated as an alternative to the CEC's proposal for materiality guidelines, as we considered this would better balance flexibility and transparency in the R1 process, while being simpler to implement by building on existing processes.[141]

We received considerable support from a majority of stakeholders in their submissions to the draft determination and during consultation that AEMO produce guidelines,[142] with some stakeholders calling on the Commission to be prescriptive. Stakeholders also called for greater reform in the NER to overcome the information asymmetry experienced between connecting parties. For example:

- The CEC said recommended guidelines should not replace the need for legislative certainty for the R1 process, and the roles and responsibilities held throughout. The CEC emphasises there is a lack of clarity as to what is a material change between GPS negotiated in the connection

135 Clause 2.1.3(b)(6)(i) of the final rule.
136 Clause 2.1.3(b)(6)(ii) of the final rule.
137 Clause 2.1.3(b)(6)(iii) of the final rule.
138 Clause 2.1.3(b)(6)(iv) of the final rule.
139 See section 3.2 of the draft determination.
140 CEC rule change request, p 39; AGL submission to the consultation paper, p 3.
141 See section 3.2 of our draft determination.
142 See for instance submissions to the draft determination: Energy Queensland, p 1; AGL, p 2; AEMO, p 3.

agreement and the R1 models. Accordingly, they recommended this be addressed in AEMO guidelines.[143]

- AGL said it strongly supports the recommendation for AEMO to produce guidance relating to the R1 process. They suggested that the requirement to produce guidance be included in the NER, with mandated timeframes for AEMO to update the guidelines.[144]
- Goldwind said the recommendation for AEMO to continue developing unspecified guidance does not go far enough towards addressing the lack of consistency in connections assessments. Goldwind also raised that AEMO has been slow to update guidance, and pointed to AEMO's access standard assessment guideline, which has not been updated since 2019.[145]
- Shell stated that issues of information asymmetry and transparency that were raised in the CEC's rule change request were not fully addressed in the draft determination. Shell indicated that while some necessary changes fall outside the purview of the NER, these could be targeted through guidelines.[146]
- Energy Australia said more can be done by the Commission to address serious information asymmetry barriers, process transparency concerns, perceptions of judgement calls without clear evidence and unnecessary modelling loops. They explained that these issues are resulting in projects taking longer to reach registration and commercial operation, impacting project costs and ultimately putting upward pressure on wholesale prices.[147]

5.1.2 The NER prescribes what ought to be included in the guidelines, whilst ensuring it is a flexible and adaptable document

Greater certainty about how AEMO and NSPs conduct the R1 assessment process will be valuable for connection applicants and other stakeholders.

The final rule requires AEMO to include in its registration information resource and guidelines:

- the minimum requirements for the data and information that connection applicants must submit as part of a complete R1 package[148]
- examples of the circumstances where AEMO may request additional information or modelling from the connection applicant. An example could include where additional modelling is required due to a potential power system impact or system security issue identified by AEMO during the R1 assessment[149]
- how AEMO may conduct its R1 assessment with particular reference to AEMO may assess any adverse power system impacts and any impacts on the quality of supply for other network users[150]
- any other information that AEMO considers relevant to its assessment.[151]

143 CEC submission to the consultation paper, p 13.

144 AGL submission to the draft determination, p 2.

145 Goldwind submission to the draft determination, p 2; Note, the *Improving the NEM access standards - package 1* rule change is currently pending. You can read the rule change request from AEMO on our project page.

146 Shell submission to the draft determination, p 2.

147 Energy Australia submission to the draft determination, p 1.

148 Clause 2.1.3(b)(6)(i) of the final rule. This will also define when AEMO will commence its assessment, starting the 60 business day timeframe described in section 4.3.

149 Clause 2.1.3(b)(6)(ii) of the final rule. This will also set out some circumstances when AEMO or NSPs are able to request additional information from connection applicants and the nature of the accompanying reasons, but are not expected to be exhaustive.

150 Clause 2.1.3(b)(6)(iii) of the final rule.

151 Clause 2.1.3(b(6)(iv) of the final rule. Additional information could include administrative or manifest errors, other prudential processes that are related to registration, or any relevant fees.

The final rule references 'adverse effects to power system security' to ensure that the guidelines set out how AEMO assesses power system risks due to factors that may be external to the connection applicant's plant.[152] For example, the guidelines should explain:

- how AEMO assesses and rectifies issues caused by changes to network conditions caused by other connecting plants[153]
- circumstances where AEMO and NSPs will consider network solutions or collective retuning, instead of plant alterations[154]
- other reforms contemplated by the CRI, such as batching or black-box modelling.[155]

By requiring this information to be included in the registration information resource and guidelines, the NER places clearer statutory expectations on how AEMO and NSPs should conduct their R1 assessment.[156]

AEMO must consult with stakeholders in developing the guidelines

AEMO is required to consult with stakeholders when developing the R1 guidelines in accordance with the Rules consultation procedures contained in the NER.[157]

The Commission notes that while AEMO has already commenced consultation on this guidance, including this requirement in the NER will ensure that industry will continue to be involved in the process.

Further, the guidelines may be updated by AEMO from time to time in accordance with the Rules consultation procedure. The Commission considers this flexibility to be important as it will allow AEMO to adapt to changes in the power system and potential future changes to the NER that impact the connections process.

Implementation considerations

The Commission has consulted closely with AEMO to consider the extent to which AEMO would experience any burden in producing guidelines on the R1 process by 1 March 2025.[158]

AEMO's submission to our draft determination stipulated that:[159]

> AEMO acknowledges and supports the AEMC's recommendation that AEMO produce new or updated guidelines to promote transparency and clarity in the R1 process. As part of the CRI, under the Streamlined Connections Process (SCP) workstream, AEMO is already working with industry on the development of guidelines to provide transparency and promote consistency regarding assessments undertaken in the R1 process.

This is consistent with AEMO's submission to our consultation paper, whereby they expressed that AEMO guidance would provide value to proponents as it would increase transparency and consistency throughout the R1 process.[160]

152 This will also allow the CRI's extensive work to be progressed and implemented through industry consultation when AEMO updates the registration information resource and guidelines.

153 Submission to the draft determination: CEC, p 10; Tesla, p 2; Goldwind, p 2.

154 CEC submission to the draft determination, p 11.

155 See the Connections Reform Initiative Roadmap, May 2023.

156 While the Commission acknowledges that some of the information is already included in published AEMO documents, without the final rule, there is no obligation on AEMO to follow its own guidance when conducting its assessment. The final rule obliges AEMO to conduct its assessment in accordance with the registration information resource and guidelines. This also increases the effectiveness of the existing dispute resolution mechanisms, if issues between connection applicants, NSPs and AEMO arise.

157 Clause 2.1.3(d)(4) of the final rule.

158 Clause 11.171.2 of the final rule.

159 AEMO submission to the draft determination, p 3.

160 AEMO submission to the consultation paper, p 7.

The Commission commends the work done by AEMO to date and owing to the development of such guidance already underway, considers that this requirement should not be onerous for AEMO to implement.

5.2 The final rule has incorporated stakeholder feedback to strengthen the requirement for AEMO and NSPs to provide reasons for additional modelling requests

The final rule requires AEMO and NSPs to provide their reasons for an additional information request at the same time as the request, rather than in response to a connection applicants' request for written reasons.[161]

This is likely to improve the speed of the connections process as the particular security issue at hand can be more readily pinpointed and remedied by a connection applicant when it receives reasoning at the outset.[162]

Connecting parties support reasons being provided at the outset,[163] and in our consultation for the draft determination, supported connection applications being able to request further clarification from NSPs and AEMO. This is because it adds clarity to remodelling requests, especially when these have substantial impacts on plant design and layout. Some of the feedback noted that this solution will help connecting parties focus on key system security risks, clarify the required remediation if needed, and offer transparency around this iterative process.[164]

The Commission has balanced pinpointing the particular system security issue to increase clarity for applicants against the system security responsibilities held by AEMO and NSPs, to advance the NEO components of safety, security and reliability.[165]

5.2.1 Stakeholders broadly supported requiring NSPs and AEMO to produce reasons for additional data and information requests

In the draft determination, the Commission proposed amending the NER to reflect that connection applicants may request written justification from NSPs and AEMO for additional modelling requests made during an R1 assessment. Per the draft rule, the provision of written reasons from AEMO and NSPs would be dependent on the connection applicant having submitted adequate data and information, and complied with other relevant NER obligations.[166] Further, AEMO and NSPs would be required to provide written reasons within a reasonable period.[167]

This measure operates to address the point in the R1 process whereby an applicant has submitted its R1 model data package, and is being assessed by the NSP and AEMO to determine whether market registration may then be approved.[168] It is during this time that connection applicants are often required to produce additional modelling packages to address potential security or power quality issues, of which the resolution may amount to zero or marginal power system security benefits — yet has been produced at significant cost to connection applicants.[169]

161 In our draft rule, we had only proposed that connection applicants may receive written reasons upon requesting them from the NSP or AEMO. See section 3.1 of the draft determination.

162 Clause 5.3.7A(f)-(h) of the final rule. We also noted the importance of pin pointing the precise issue to be remedied at p 18 of the draft determination.

163 For instance, see AEMO submission to the draft determination, p 8.

164 CEC submission to the draft determination, p 7.

165 See section 2.3 of this final determination.

166 AEMC draft determination, section 3.1.

167 Clause 5.3.7A(f) of the draft rule.

168 Clauses 2.1B.1(c), 2.1B.2(b)(4) and 5.3.7A(k) of the final rule.

169 AEMC draft determination, p 19.

Stakeholders have also addressed that an information asymmetry exists here. Data and authority on network and system security analysis are held by NSPs and AEMO that are commercially sensitive, and such analyses cannot be produced to applicants. This presents a barrier for the proponent to meaningfully discern any remedies to system security risks.[170]

Stakeholders sought clarification about what constitutes adequate data and information and a reasonable period

We received a range of feedback from stakeholders who generally supported AEMO and NSPs being required to provide reasons for requesting additional information and data from applicants.[171] However, further clarification was sought around two key elements in the draft rule:[172]

- first, what constitutes 'adequate data and information' from the connection applicant to enable AEMO and NSPs to assess the capability of the generating system to meet or exceed its performance standards
- second, what constitutes a 'reasonable period' for AEMO or the NSP to provide the connection applicant with its written justification for an additional data and information request.[173]

5.2.2 The final rule strengthens the written reasons requirement by ensuring NSPs and AEMO provide reasons at the outset

The Commission has developed a final rule that simplifies the written reasons requirement. The final rule gives effect to the policy intent that:[174]

- AEMO and NSPs must provide reasons to a connection applicant when making a request for additional data and information to supplement an R1 package
- connection applicants may request further reasons from AEMO and NSPs where greater clarification is required
- AEMO or the NSP must provide the requested clarification within five business days after the request from the connection applicant.

Specifically, the final rule provides the following process regarding requests for additional data and information during an R1 assessment:

1. In conducting their R1 assessment, AEMO or the NSP may request that the connection applicant prepare and provide additional data and information in accordance with the registration information resource and guidelines.[175]
2. A request for additional data and information must be accompanied by written reasons from AEMO or the NSP with reference to relevant requirements of the registration information resource and guidelines.[176]
    a. When a connection applicant has received this request, they may ask the NSP or AEMO to provide further clarification for its request pursuant to the registration information resource and guidelines.

170 See section 3.1 of our draft determination, which provides further analysis on the issues experienced as raised in submissions to our consultation paper.
171 Submissions to the draft determination: Goldwind, p 2; CEC, p 6; AEMO, p 7.
172 See clause 5.3.7A(d)-(f) of the draft rule.
173 Submissions to the draft determination: TasNetworks, p 1-2; ENA, p 2; Origin, p 8; CEC, p 8; Vestas, p 1.
174 Clause 5.3.7A(f)-(h) of the final rule.
175 Clause 5.3.7A(f) of the final rule.
176 Clause 5.3.7A(g) of the final rule.

b. AEMO or the NSP must provide the requested clarification within five business days.[177]

3. The connection applicant must provide the requested data to AEMO or the NSP within a reasonable period after receiving the request.[178]

Reasons are to be provided at the outset and be linked to the registration information resource and guidelines

By providing reasons at the outset, the final rule ensures that AEMO and NSPs clearly outline the specific issue or access standard at hand, making it easier for the connection applicant to address the issue raised.

We do not consider AEMO or the NSP will always be able to completely understand the exact power system dynamics causing the issue. However, reasons for additional data and information must be linked to the registration information resource and guidelines.[179] Through this measure, the Commission has taken into account AEMO's feedback that:

> An alternative requirement might be for the rules to require justification for information requests be provided with requests made under 5.3.7A(c). This justification could be required to set out the performance standard or compliance requirement the information request relates to and the reason for the request. Providing such reasoning might facilitate faster connections as, by clarifying the intent behind an information request, a connection applicant may be better placed to fulfil the request.[180]

It also addresses the CEC's recommendation that the NER should:

> Particularise the evidence needed when providing the written justification for requesting additional modelling analyses. The NSP/AEMO should identify concerns regarding the capability of the generating system to comply with its generating performance standards by reference to the relevant parts of the rules in the NER and the GPS and concerns regarding adverse impacts on power system security by reference to specific rules of the NER.[181]

Further, it addresses feedback from Energy Australia that provided:

> In our view, any requests for additional modelling by the NSP and/or AEMO must be accompanied by a robust rationale and supporting evidence for why the request has been made. This justification should be sufficiently detailed that it provides valuable insights on the identified issue and irrefutable proof of unfavourable outcomes, in the absence of access to the network model itself.[182]

The Commission intends that this final rule will foster specificity from NSPs and AEMO on system security issues, while ensuring applicants are equipped to design better solutions for system security risks at least cost.

177 Clause 5.3.7A(h)(1) of the final rule.

178 Clause 5.3.7A(h)(2) of the final rule.

179 Clause 5.3.7A(g) of the final rule. The relevant aspects of the registration information resource and guidelines are required to be prepared and published under clause 2.1.3(b)(6) of the final rule. A discussion on what must be included by AEMO in the guideline is provided in section section 5.1 above.

180 AEMO submission to draft determination, p 8.

181 CEC submission to draft determination, p 7.

182 Energy Australia submission to draft determination, p 2.

Written reasons may be provided in various forms

We have not specified in the final rule the form in which written justification must be provided by the NSP or AEMO to the applicant. We acknowledge that this detail may be provided in various written forms, such as through a letter or issues tracker recorded in an Excel document.[183]

The timing for producing information has been clarified

Further, stakeholders made clear that a 'reasonable' period for providing clarifying reasons may give rise to uncertainty. For instance, the CEC's submission said:[184]

> We consider that the requirement that the NSP and AEMO provide written reasons to justify its request for additional modelling analyses, in response to a request under draft clause 5.3.7A(d) of the NER, "within a reasonable time" is too uncertain. There should be a requirement to provide the written justification within a specific time frame, and we recommend that this be within 5 to 20 business days from the date of the request under draft clause 5.3.7A(d) of the NER.

Accordingly, the Commission has stipulated in the final rule that AEMO or the NSP must provide the requested clarification within five business days.[185] However, the final rule does provide that the connection applicant must provide the requested data to AEMO or the NSP within a reasonable period after receiving the request. We consider that this will strengthen and support the iterative and collaborative nature of the R1 process. The Commission also notes that 'reasonable period' is a frequent term used within the NER, which allows for bespoke timeframes determined on a case-by-case basis, which is important during an R1 assessment.

The final rule has been developed in this way to give effect to the NEO principles of good regulatory practice and to improve transparency around the R1 process for generator proponents, NSPs and AEMO. Further, the final rule promotes timely emissions reduction through better-informed plant optimisation so that NSPs can manage system security at least cost.

5.3 The final rule removes barriers for AEMO granting registration with terms and conditions

Following feedback to our draft determination and consultation with stakeholders, the Commission has removed legal barriers for AEMO to provide connection applicants with conditional approval to improve the timeliness of connections. The Commission considers that removing this barrier will avoid long delays where AEMO cannot register a generator until all of its standards are met. It can instead rely upon criteria in conditional registration to resolve specific issues later, subject to consultation with NSPs.[186]

The NEL allows AEMO to register participants subject to terms and conditions that AEMO considers appropriate in accordance with the NER.[187] However, existing NER clause 2.1.3 does not explicitly allow for conditional registration of generators or IRPs. Further, the IESS final rule which came into effect on 4 June 2024 and amends existing NER clause 2.1.3, does not expressly make

183 We have heard through our consultation with various NSPs that an issues tracker is used to document and assess potential risks connecting plant may pose to the local area network, and power system more broadly.

184 CEC submission to draft determination, pp 7-8.

185 Clause 5.3.7A(h)(1) of the final rule.

186 Clauses 2.1B.1(c) and 2.1B.2(4) of the final rule. AEMO must develop and publish guidelines on the conditional approval pathway, which must set out the circumstances under which AEMO will impose terms and conditions of registration and the nature of those terms and conditions, as required by clause 2.1.3(b)(4) of the final rule.

187 Section 12(6) of the NEL provides that registration may be subject to such terms and conditions as AEMO considers appropriate in accordance with the NER.

clear that AEMO may conditionally register applicants.[188] As such, the Commission has collaborated closely with AEMO to remove any legal barriers and make clear in the final rule that AEMO may register an applicant subject to terms and conditions.

5.3.1 Stakeholders consider that enabling conditional approval by AEMO could facilitate speedier connections

In its rule change request, the CEC highlighted that situations can arise during the R1 stage where projects are delayed in obtaining registration due to minor performance issues. The CEC considered that in these circumstances, it may be appropriate to conditionally approve an R1 package, subject to a clear pathway to rectification post registration.[189]

We put this to stakeholders in the consultation paper,[190] and received mixed feedback as follows:

- Generators, AEMO and industry members generally supported the CEC's proposal.[191] For example, the Clean Energy Investment Group expressed that conditional approvals, where minor issues can be resolved post-approval, would significantly reduce delays and financial risks for both generators and investors.[192]
- Powerlink broadly supported the CEC's proposal to provide a flexible approach enabling proponents to receive conditional approval during the R1 modelling process, provided any outstanding issues would not prevent NSPs or AEMO from meeting system security requirements.[193]
- Transgrid did not agree that the NER precludes conditional registration. Under the existing rules, Transgrid, in consultation with AEMO, already allows conditional registration with conditions to be met at defined timeframes during both commissioning or post-commissioning, where the circumstances are appropriate.[194]
- Some purported that conditional approvals can sometimes result in poor outcomes, such as 'non-functional R2 models', and may only defer resolution and therefore serve no real benefit. Further, codifying the ad hoc practice of conditional approvals could give rise to enforceability issues and adversely impact the power system or nearby inverter based (IBR) facilities.[195]

Accordingly, our draft determination stated the following:[196]

> The Commission decided not to pursue that proposal because the rules do not currently preclude NSPs from providing conditional approval. The Commission has also found that it will be difficult to be definitive about what issues are sufficiently minor and should be subject to conditional approval, for the same reasons that it is difficult to be definitive about the concept of materiality as set out in the CEC's proposal.

After collaborating further with stakeholders on whether conditional approval could be granted by AEMO, we received stronger feedback in submissions calling for legal barriers to conditional approval to be removed. For instance, AEMO:[197]

188 See NER clause 2.1B.2(4).
189 CEC rule change request, p 23.
190 See section 2.2 of the consultation paper.
191 Tesla submission to the consultation paper, p 2; AEMO submission to the consultation paper, p 24 (who also expressed concerns to be addressed); APA Group submission to the consultation paper, p 11.
192 Clean Energy Investment Group, submission to the consultation paper, p 2.
193 Powerlink, submission to the consultation paper, p 3.
194 Transgrid, submission to the consultation paper, pp 6, 10.
195 Submissions to the consultation paper: AusNet, p 9; Essential Energy, p 6.
196 AEMC draft determination, p 13.
197 AEMO submission to the draft determination, pp 10-11; AEMO submission to the consultation paper, pp 11-12.

- indicated a preference for the use of the conditional approval process as an alternative pathway to resolving issues experienced during the R1 assessment, thereby speeding up connections
- expressed that such conditional registration ought to be clearly stipulated in the NER
- considered that without the capacity to subsequently hold applicants to effective conditions, there is currently a narrow set of circumstances where AEMO would be prepared to approve registration in an expectation compliance would be achieved by completing steps after registration. For instance, AEMO stated that 'where a registered participant subsequently does not adhere to performance standards, non-compliance must be demonstrated and enforced under clause 4.15 by the AER. Competing compliance priorities, resources required to undertake enforcement and the burden of proof required limit the utility of this process, especially with respect to individual minor non-compliances that may become cumulatively material to the power system'.

The CEC also submitted that conditional approvals require NER based certainty, otherwise such approvals will be under-utilised, delaying projects and requiring more projects to undergo the 'burdensome [NER] 5.3.9 framework'.[198]

Other stakeholders expressed disappointment that conditional was not proposed to be prescribed in our draft determination[199]

5.3.2 The ability for AEMO to provide conditional approval is expressly stipulated in the NER

In light of the feedback above and the need to pragmatically streamline the connections process, the Commission has made clear in the final rule that AEMO may approve registration with terms and conditions, otherwise known as conditional approval. The Commission understands that conditional approval is currently a discretionary and ad hoc process and under the NER, AEMO may only grant registration if it is satisfied that each connecting plant will be capable of meeting or exceeding its performance standards.[200] However, codification in the NER will provide connecting parties with certainty and clarity as to AEMO's power to approve registration with terms and conditions.

Accordingly, the final rule expressly provides that registration may be obtained:[201]

> subject to terms and conditions as AEMO may agree with the person in accordance with the registration information resource and guidelines, satisfied that the generating system will be capable of meeting or exceeding its performance standards.

In addition, the final rule provides that AEMO must produce guidelines which outline the circumstances in which AEMO will impose terms and conditions on registration, classification or exemption.[202] This supports the Commission's decision to not specify in the NER the circumstances in which AEMO may conditionally register applicants. The Commission considers that requiring AEMO to update its registration information and resource guidelines to describe the circumstances where AEMO may use conditional approval for registration aligns with the intention that an instrument guides the process which can adapt to the shifting needs of the power system.

198 CEC submission to the draft determination, p 2.

199 AGL submission to the draft determination, p 1; Tesla submission to the draft determination, p 2.

200 CEC submission to the draft determination, p 12; AEMO's submission to the consultation paper at page 10 also indicated that 'there is possibility under the existing framework to allow conditional approval to a partial level, including the 'notifiable exemption' which allows energisation of generating units with a combined nameplate rating up to 5MW to start testing.

201 Clauses 2.1B.1(c) and 2.1B.2(4) of the final rule.

202 Clause 2.1.3(b)(4) of the final rule.

As mentioned in AEMO's submission to the draft determination, the inclusion of a conditional approval process for registration in the final rule should not signal that renegotiation of performance standards or conditional approval is the default course of action. Where non-compliance with performance standards would be likely to adversely affect power system security AEMO will not register a connection applicant (conditionally or otherwise).[203]

Rather, this measure will allow suitable connections to progress, subject to conditions being met in an agreed timeframe, without further delay caused by the time it takes for a connection applicant to meet the rule requirements, renegotiate performance standards or to conducting additional assessments that might better be undertaken post-registration.[204]

203 See AEMO submission to the draft determination, p 11.

204 AEMO submission to the draft determination, p 12.

6 The existing NER dispute resolution mechanisms can be used to resolve issues during the R1 process

Box 7: The final rule does not introduce a new dispute resolution mechanism to apply to the R1 process

The Commission considers that the existing NER dispute resolution processes found in NER chapters 5 and 8 are presently fit for purpose in their scope and application to the R1 process.

Accordingly, the final rule does not introduce a new dispute resolution mechanism to apply to the R1 process. This is informed by stakeholder feedback, a majority of which considered that a new mechanism would likely prolong connecting new generation and storage capacity to the NEM, subsequently diminishing investment certainty.

However, owing to the confusion raised by stakeholders, this chapter provides clarity around the three key dispute resolution mechanisms available to connecting parties, being the independent engineer (NER clause 5.4), commercial arbitration (NER clause 5.5), and dispute resolution processes (NER clause 8.2).

This chapter explores the issues raised by the CEC and in stakeholder submissions to the draft determination regarding the scope and application of NER dispute resolution pathways during the R1 process.[205] In its rule change request and submission to the draft determination, the CEC proposed alternative NER dispute resolution pathways to remedy those issues raised, particularly regarding issues around information asymmetries that arise by virtue of the roles and responsibilities held by connecting parties.[206]

After assessing these alternatives proposed by the CEC and consulting widely with stakeholders who helpfully shared their experiences, the Commission considers that existing NER dispute resolution mechanisms remain fit for purpose to resolve issues experienced during the R1 process. A majority of stakeholders in their submissions to our consultation paper similarly considered the existing processes to be fit for purpose, and that any new dispute resolution processes may lengthen the R1 stage and reduce investment certainty.

The NER currently provides three dispute resolution processes: the Independent Engineer,[207] commercial arbitration,[208] and Chapter 8 dispute resolution[209] processes.[210] These frameworks aim to provide recourse for market participants who find themselves in intractable disputes when engaging with NSPs and/or AEMO.

These processes are all relevant and can be used within the R1 process.

Given these objectives and the feedback we have received from stakeholders, this chapter provides clarification to connection participants about how these three dispute resolution processes apply during the R1 stage to advance this purpose.

The Commission also notes that the final rule aims to reduce instances of disputes by overcoming aspects of the information asymmetry experienced and streamline the R1 process through:

205 Submissions to the draft determination: AGL, Sungrow, Energy Australia.
206 CEC rule change request, pp 26-29; CEC submission to the draft determination, p 9-10.
207 NER clause 5.4.
208 NER clause 5.5.
209 NER clause 8.2.
210 See Table 6.1 for a summary of these existing NER dispute resolution pathways.

- clarifying the roles and responsibilities held by connecting parties to improve investment certainty in the R1 process
- removing barriers to sensible revisions of generator performance standards
- enabling AEMO to impose terms and conditions on registration for connection applications, thereby streamlining the R1 process
- introducing a new R1 assessment guideline to be prepared by AEMO in consultation with industry
- clarifying that the existing dispute resolution mechanisms may be used to resolve issues that arise during the R1 process.

Table 6.1: Summary of NER dispute resolution pathways applicable to the R1 process

Process	NER clause	Description
Independent engineer	5.4	An independent engineer facilitates the resolution of disputes on technical matters involving TNSPs, an owner of a designated network asset, and a connection applicant, except in respect of the transmission network in Victoria. Advice rendered by the independent engineer is not binding.
Commercial arbitration	5.5	The arbitrator hears disputes that arise between a TNSP, and/or an owner of a designated network asset, and a connection applicant or a person seeking designated network asset services as to terms and conditions of access or, for the provision of transmission services or designated network asset services, except in respect of the transmission network in Victoria. Terms and conditions of transmission or designated network asset services pertain to the price of those services or other terms and conditions for the provision thereof. Final decisions made by the arbitrator are binding.
Dispute resolution	8.2	The dispute resolution process applies to disputes about a broad range of matters, including the application or interpretation of the NER, proposed access arrangements or connection agreements for connection applicants connecting to or accessing distribution networks or the transmission network in Victoria, and any other matter those disputing parties agreed in writing that NER rule 8.2 should apply to. Disputes subject to NER rule 8.2 may involve a connection applicant, a TNSP, and AEMO. These disputes are heard by an appointed Panel and decisions made are binding.

Source: AEMC

6.1 The CEC proposed additional NER dispute resolution mechanisms to apply to the R1 process

6.1.1 Stakeholders have raised concerns about the scope and application of NER dispute resolution pathways to the R1 process

In its rule change request, the CEC identified that the scope and application of the current NER dispute resolution mechanisms to decisions made during the R1 process are unclear. They further identified that there is limited ability for applicants to have any decisions made during this stage independently reviewed.[211]

Some stakeholders in their submissions to the consultation paper and draft determination expressed similar concerns.[212] For instance:

- Energy Australia said the current framework provides limited options for connecting parties to raise disputes they may have during the R1 process. They noted that commercial and technical issues can be challenging for an independent arbitrator to resolve. Further, Energy Australia considered the R1 process could be more transparent to resolve the information asymmetry experienced between connecting parties, so that they can be sufficiently informed should they wish to utilise the existing NER dispute resolution pathways. Energy Australia considered that the information asymmetry experienced makes it unlikely that a connecting applicant could be sufficiently informed to progress a dispute successfully and, according to Energy Australia, possibly explains why the NER chapter 5 pathways are 'ill-used'.[213]
- AGL submitted that the three existing NER dispute resolution options are not sufficient owing to their scope and application. For example, the decisions made by the independent engineer are not binding, and dispute resolution under NER chapter 8 only applies to TNSPs in Victoria.[214]
- Sungrow also noted that "establishing specific timelines for notifications from NSPs and AEMO, along with dispute resolution procedures regarding GPS modifications, would improve procedural clarity and operational efficiency".[215]
- The AER said in its submission to the consultation paper that:[216]

  > In our experience, market participants are often unsure which dispute resolution pathways are available to them in a given situation. When disagreements do arise, this uncertainty has the potential to consume time and resources, and draw out disagreements, which can cause delays to projects. Increased clarity around the dispute resolution framework that applies to disputes relating to the commercial terms for accessing the network, including disputes regarding cost, would be beneficial in ensuring that disputes can be resolved smoothly. As the volume of connection applications grows over the coming years, it will be important for the AEMC to carefully consider how the efficiency of these processes can be ensured.

211 CEC rule change request, pp 26-27. For a further discussion on the CEC's rule change request, see also AEMC consultation paper, pp 13-15.

212 Submissions to the draft determination: AGL, CEC, Energy Australia, Sungrow; Submissions to the consultation paper: Alinta Energy, CEC, Clean Energy Investor Group, Energy.

213 Energy Australia submission the draft determination, p 5.

214 AGL submission to the draft determination, p 2; NER clause 8.2.1(a)(4). The Commission notes that this articulation is not entirely accurate. Clause 8.2.1 sets out a variety of matters to which this rule could apply.

215 Sungrow submission to the draft determination, p 3.

216 AER submission to the consultation paper, p 3.

The concerns expressed highlight there is a need to clarify the scope and application of the three NER dispute resolution pathways to the R1 process. This is explored in section 6.2, following analysis of the alternative dispute resolution mechanisms put forth by the CEC.

6.1.2 The CEC proposed two alternative NER dispute resolution pathways that are not likely to improve investment certainty during the R1 process

In addition to the three existing NER dispute resolution pathways, the CEC proposed codifying a fourth pathway that would bring connecting parties together for discussions facilitated by an independent third-party to develop pragmatic solutions for the issues experienced during the R1 stage.[217]

Alternatively, the CEC proposed in its submission to the draft determination that codifying the option for connecting applicants to request a meeting with the relevant NSP and AEMO to negotiate in good faith to agree on solutions that would enable the applicant to comply with its GPS and attain registration under NER clause 2.2.1(e).[218]

The Commission commends the detail provided by the CEC in its proposals, which supported detailed discussions with stakeholders in order to arrive at the most appropriate outcome for connecting parties. Following this consultation process, the Commission maintains that, as stated in the draft determination, the third-party facilitated review model proposed by the CEC is unlikely to provide faster dispute resolution as it would be challenging to identify a facilitator with the system design expertise needed to lead such a review, and for that person to understand, within a reasonable time period, all the issues that have been discussed between connecting parties over a lengthy negotiation process.[219]

This position is also informed by submissions to our consultation paper, of which a majority considered the CEC's proposed dispute resolution process could further complicate and lengthen the R1 process, thereby reducing overall investment certainty. For example:

- Goldwind considered that the CEC's proposal may lengthen the overall R1 process, particularly in instances where the outcome may be unsatisfactory to either connecting party.[220]
- AEMO said it does not agree that the absence of an independent and external dispute resolution process impacts the efficient negotiation of a GPS during an R1 assessment.[221]
- Energy Queensland said "the absence of an external dispute resolution process is not material for the efficient negotiation of performance standards" and "there are other available means to include dispute resolution processes, such as via specific clauses in commercial contracts".

The Commission notes that these stakeholder submissions raise important counterpoints to the CEC's proposal, which focuses both on the efficiency of the R1 process and the autonomy held by connecting parties to enter commercial arrangements with contractual dispute resolution mechanisms that are appropriate and bespoke to their commercial needs.

Similarly, the Commission considers the CEC's alternative dispute resolution process proposed in its submission to the draft determination may lengthen the R1 process or create regulatory complexity if codified in the NER.[222] We have heard from various stakeholders during our consultation process that connecting parties are presently able to reach out to one another

217 CEC rule change request, p 52.
218 CEC submission to the draft determination, pp 9-10.
219 AEMC draft determination, p 11.
220 Goldwind submission to the consultation paper, p 4.
221 AEMO submission to the consultation paper, pp 5-6.
222 CEC submission to the draft determination, pp 9-11.

throughout the R1 and broader connection stages, and the Commission encourages connecting parties to continue in their improved communication.

Further, we note that clause 5.3.7A(j) of the final rule provides a similar mechanism to the tripartite meeting process proposed by the CEC. Within 60 business days of AEMO confirming it has received a complete R1 package, if AEMO is not satisfied that the connecting plant can meet or exceed its GPS, AEMO must provide an update on the status of its assessment under clause 5.3.7A. This provides an opportunity for connecting parties to have a formal check-in point and ensure connecting applicants are clear on the next steps they must take to achieve market registration under NER clause 2.1B.1(c) and 2.1B.2(b)(4).

6.2 Existing NER dispute resolution mechanisms can be used to resolve issues during the R1 process

Ensuring connecting parties have access to timely and clear NER dispute resolution processes is important for the overall functioning of the NEM. In the context of this rule change it is important for facilitating investment certainty during the R1 process, as well as ensuring new plant is connected to the NEM to meet Australia's decarbonisation goals. As stated by the CEC, the NER dispute resolution processes contained in chapters 5 and 8 are intended to address the relative information asymmetries that arise in the NER owing to the differing roles and responsibilities held by connecting parties.[223]

As the volume of connection applications grows over the coming years, the Commission considers it important to clarify the availability of these processes to improve the efficiency of the connection framework and facilitate appropriate engagement in these processes.[224]

6.2.1 The independent engineer for technical matters is available to connecting parties

The independent engineer process in NER rule 5.4, was introduced through the *Transmission connection and planning arrangements* rule change to enable the provision of advice on technical matters related to a connection application.[225] This process applies to a Transmission Network Service Provider (TNSP), owner of a designated network asset, or a connection applicant. AEMO may also participate in this process in instances where AEMO advisory matters are involved.[226] This process does not apply in respect of the transmission network in Victoria.

It is not intended for this process to be adversarial as such, but rather, offers a facilitated process that enables connecting parties to negotiate on technical matters in a way that is informal and flexible.

The scope of the independent engineer's role is limited to the provision of advice on technical issues only. This means that a TNSP, owner of a designated network asset or a connection applicant cannot utilise this process to resolve issues relating to the cost or commercial terms, process relating to, or timing of the connection.[227] Given the R1 and broader connection process can be highly technical in nature, this mechanism offers connecting parties an opportunity to negotiate through a process facilitated by an independent expert.

223 CEC rule change request, pp 26-29.

224 See also AER submission to the consultation paper, p 3.

225 *Transmission connection and planning arrangements* rule change, p iv; NER clause 5.4.1(b). Note, this process does not apply in relation to access to the declared transmission system in Victoria per NER clause 5.4.1(a).

226 NER clause 5.4.3(c).

227 NER clause 5.4.1(c).

The independent engineer is selected from a pool of individuals or firms that is maintained by an AER appointed Adviser.[228] We understand there is limited engineer availability across the wider energy sector, however, with this pool maintained, the independent engineer process is readily available to applicants.

The independent engineer may request documents and information from the parties that it reasonably considers are required to provide advice on the technical matter. As a condition of providing documents and information, a party may require the independent engineer to agree to be bound to the confidentiality obligations under NER clause 8.6 as if the independent engineer was a Registered Participant.[229] The Commission considers this an important part of the process, as it allows parties to have their technical matters heard in great detail, whilst protecting commercial and confidential information. Further, it can operate to reduce the information asymmetry between connecting parties.

Advice delivered by the independent engineer is non-binding, which is commensurate with the flexibility of this process given strict rules of evidence do not apply.[230] Costs are also born equally between the parties, unless otherwise agreed.[231]

Even though this process is yet to be utilised, we consider it to be a timely one as the independent engineer must provide their written advice within 30 business days after being appointed.[232]

6.2.2 The commercial arbitration process is available to connecting parties

Where a dispute arises between a TNSP, and/or owner of a designated network asset, and a connection applicant or a person seeking designated network asset services as to the terms and conditions of access or for transmission services or designated network asset services, they may have recourse to the commercial arbitration process.[233] In respect of transmission or designated network asset services, this is in relation to the price of those services or other terms and conditions of access for the provision thereof.[234] This process does not apply in respect of the transmission network in Victoria.

Once the AER has received notification of the dispute, the AER must request the disputing parties to nominate two persons each and appoint one arbitrator from this pool.[235]

In determining a dispute in relation to the terms and conditions of access for the provision of prescribed transmission services, the arbitrator must apply, among other things:[236]

- in relation to the price, the pricing methodology of the relevant TNSP
- regarding other terms and conditions, chapters 4, 5 and 6A of the NER
- regarding all terms and conditions of access (including price), decisions made by AEMO and the AER that relate to those terms and conditions.

Like the independent engineer process, the arbitrator must come to a decision within 30 business days, but this can be extended if the provider and the applicant agree in writing.[237] The arbitrator's

228 NER clause 5.4.2; See also NER clause 8.2.2 regarding the AER appointed Adviser.

229 NER clause 5.4.5(a)-(b).

230 NER clause 5.4.5(f). The non-binding nature of this process was also supported by stakeholders during the *Transmission connection and planning arrangements* rule change.

231 NER clause 5.4.6.

232 NER clause 5.4.5(c).

233 NER clause 5.5.1(b); Note, this process does not apply in relation to access to the declared transmission system in Victoria per NER clause 5.5.1(a).

234 NER clause 5.5.1(c).

235 NER clause 5.5.3.

236 NER clause 5.5.5.

237 NER clause 5.5.6.

final determination is binding[238], or alternatively, the parties may agree to a resolution during the arbitration that is binding.[239]

Further, while the commercial arbitrator must observe the rules of procedural fairness, it is not bound by the rules of evidence, thereby allowing a more flexible process as compared to the formal mechanism contained in chapter 8 of the NER.[240]

The costs of the arbitrator are shared equally unless otherwise agreed, whereas the legal costs of either party may be allocated by the arbitrator.[241]

6.2.3 Chapter 8 dispute resolution has broad application

The formal dispute resolution process contained in NER clause 8.2 has broad application, applying to:

- disputes about the application or interpretation of the NER
- failure to reach agreement or negotiate in good faith where required by the NER
- proposed access arrangements or connection agreements for connection applicants connecting to or accessing distribution networks nationally or the transmission network in Victoria
- payment of moneys under or concerning any obligation under the NER
- any other matter to which a contract between disputing parties applies NER rule 8.2
- any other matter to which those disputing parties agreed in writing that NER rule 8.2 should apply
- any other matter the NER provides must or may be dealt with under NER rule 8.2.

Certain disputes are excluded from this dispute resolution process, mostly relating to specific decisions by AEMO under the NER, including decisions about exemptions and decisions to not approve classification of certain facilities as scheduled or non-scheduled facilities.[242]

The dispute resolution process applies to registered participants, AEMO, connection applicants and certain other participants in the NEM who are not registered under chapter 2 of the NER.[243]

Notably, one specific head of dispute to which NER rule 8.2 applies is the proposed access arrangements or connection agreements for connection applicants connecting to or accessing distribution networks nationally or the transmission network in Victoria,[244] which does not extend to other transmission networks nationally.

As noted by the CEC, previously there was scope to use this particular mechanism for connections to the transmission networks in other regions, but this was changed in the Commission's final rule to the *Transmission Connection and Planning Arrangements* rule change.[245]

We have heard from some stakeholders that this change was not supported. For instance, in its submission to the draft determination, we heard from Energy Australia that the NER chapter 8.2

238 NER clause 5.5.8(c)
239 NER clause 5.5.8(a) and (c).
240 NER clause 5.5.4(b).
241 NER clause 5.5.7.
242 NER clause 8.2.1(h).
243 NER clause 8.2.1(a1).
244 NER clause 8.2.1(a)(4).
245 CEC rule change request, p 28.

dispute resolution framework should be extended to the connection and registration framework for administrative or procedural matters.[246]

The Commission notes that while the specific head of dispute set out in NER clause 8.2.1(a)(4) does not apply to transmission networks outside of Victoria, the other heads of dispute set out in NER clause 8.2.1(a) do apply nationally and there is significant scope for relevant parties to agree that the NER rule 8.2 dispute resolution process applies.

The Commission has determined in this rule change that, like in the *Transmission connection and planning arrangements* rule change, it is more appropriate for the chapter 5 dispute resolution mechanisms to apply to specific disputes regarding technical matters and terms and conditions (including pricing) during the connection process, with the chapter 8 dispute resolution mechanism providing avenues to resolve other matters more broadly. The following reasoning from the *Transmission connection and planning arrangements* rule change still applies:[247]

> The Commission considered that [the] commercial arbitration process is appropriate for disputes relating to terms and conditions of access for the provision of negotiated transmission services and prescribed transmission services. The Chapter 8 dispute resolution process provides stages for mediation and scoping of the dispute and is comparatively lengthy, and more prescriptive, than the commercial arbitration process. The Commission considered that parties involved in disputes arising from the provision of negotiated transmission services, prescribed transmission services and 'large DCA services' are likely to be larger and well-resourced and therefore do not require access to the prescriptive process set out in Chapter 8.
>
> In addition, to avoid entering into disputes, the use of an independent engineer is available to provide advice on technical matters. The independent engineer process is more fit for purpose compared to the mediation and scoping stages provided for in the chapter 8 process, since any disagreements are likely to be technical in nature.
>
> Therefore, the Commission did not consider stakeholders would be disadvantaged by being precluded from being able to use the dispute resolution process in Chapter 8 in relation to disputes arising from negotiated transmission services, prescribed transmission services and large dedicated connection asset services. Parties involved in a dispute, particularly the connecting party, would likely benefit from a more timely resolution of the issue as result of more immediate access to a commercial arbitrator for disputes relating to terms and conditions of access for the provision of negotiated transmission, prescribed transmission and large dedicated connection asset services.

6.2.4 While these dispute resolution pathways are seldom used they remain fit for purpose in their application to the R1 process

Like in the *Transmission connection and planning arrangements* rule change, the Commission heard in stakeholder submissions that the three NER dispute resolution mechanisms are seldom used.[248] This likely indicates that connection applicants are unwilling to raise disputes because of the risk of delaying the connection process or damaging their relationship with the NSP, the only party that can facilitate their connection. It is also demonstrable of the information asymmetry

246 Energy Australia submission to the draft determination, p 5.

247 AEMC *Improvements to the provision of negotiated transmission services* final determination, pp 220-221.

248 Energy Australia submission to the draft determination, p 5; AER submission to the consultation paper, p 3.

that inherently exists throughout the R1 process by virtue of the roles and responsibilities held by connecting parties.

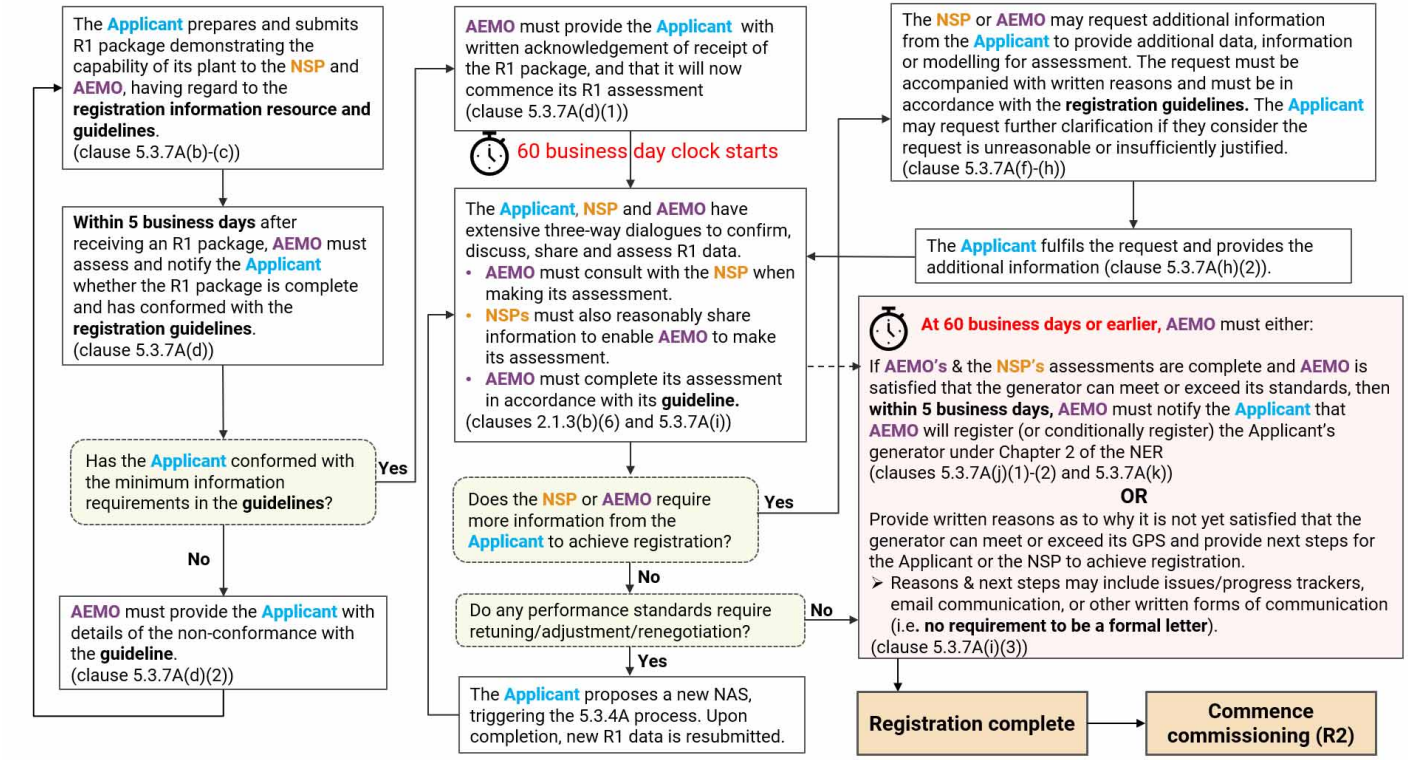
By clarifying which dispute resolution processes may be used, as well as introducing measures in the final rule to enhance investment certainty throughout the R1 process thereby reducing instances of disputes, the concerns raised by stakeholders are largely addressed. For instance, the final rule:

- clarifies the obligations of AEMO and NSPs to improve certainty. This includes:
  - making clear that AEMO has sole discretion to register connection applicants
  - codifying the R1 process in the NER, which the final rule describes in clause 5.3.7A as the capability assessment for registration eligibility
  - introducing a reasonable endeavours obligation on AEMO and NSPs for the exchange of information during the R1 process
  - requiring AEMO to notify connection applicants as to the status of the R1 assessment within a 60 business day timeframe
- removes barriers to sensible revisions of generator performance standards
- introduces new information requirements to promote transparency by:
  - codifying the requirement for AEMO to produce an R1 assessment guideline
  - clarifying AEMO and NSPs must provide reasons when requesting additional data and information in response to receiving an R1 package pursuant to the new clause 5.3.7A process in the final rule
  - removing legal barriers to AEMO granting registration with terms and conditions to be satisfied post registration.

A Diagram of how the final rule codifies the R1 process

The figure below is provided to assist stakeholders in understanding how the obligations and timeframes codified by the final rule will operate.

Figure A.1: Diagram of how new clause 5.3.7A will operate



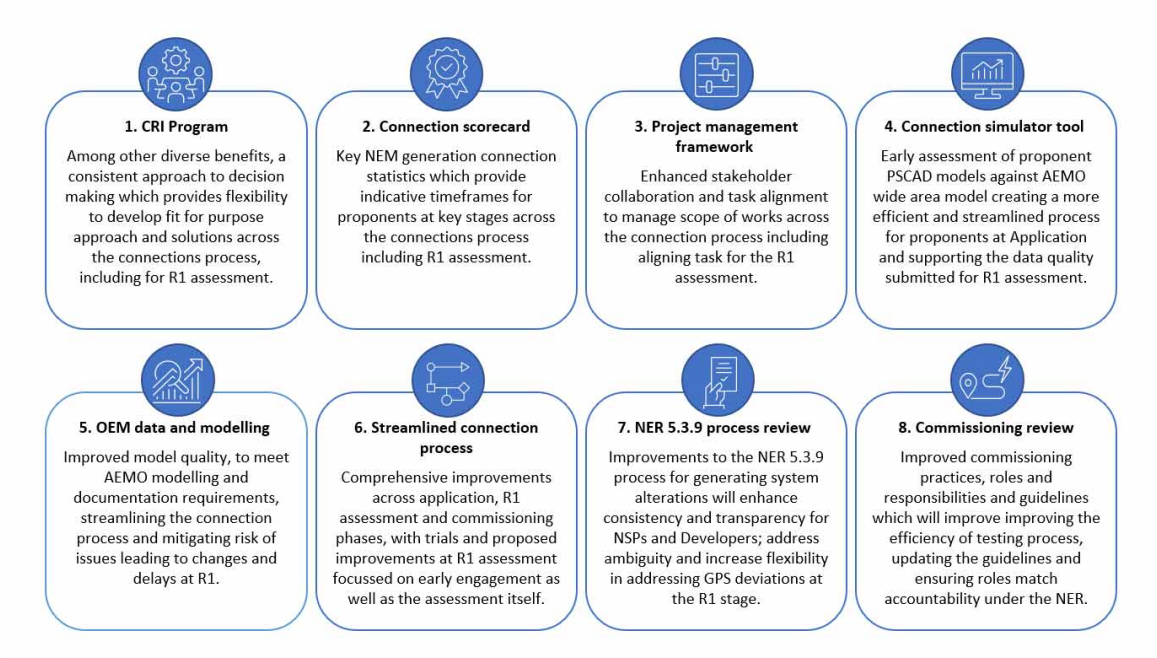
Source: AEMC

Note: To the extent of any inconsistency between the diagram and the NER, the NER prevails.

B Other work by industry will also improve the connections process

As discussed in section 1.4, the Connections Reform Initiative (CRI) aims to improve a wide range of different aspects of the connections process — see Figure B.1 for an outline of the different workstreams' aims. The Commission has aimed to complement ongoing work from the CRI through this final determination, and is committed to assist the industry in progressing reforms that will improve connections to contribute towards the NEO.

Figure B.1: Work being progressed under the Connections Reform Initiative



Source: AEMC, based on consultation with AEMO.
Note: See AEMO's page and the CEC's page on the Connections Reform Initiative for more information.

B.1 The Commission is aware that the 5.3.9 process review may contemplate changes to NER clause 5.3.4A(b1)

In considering the changes described in chapter 3, the Commission noted that NER clause 5.3.4A(b1) closely interacts with the clauses that will be amended as a consequence of the final rule.

After consulting with stakeholders through bilateral meetings and in technical working group meetings, the Commission considers that changes to NER clause 5.3.4A(b1) are not best addressed through this rule change. This is to avoid conflicting with ongoing industry consultation that is underway through the CRI's 5.3.9 process review. As the review intends to identify reforms to NER clause 5.3.9 and other processes, the Commission does not wish to unintentionally interfere in this consultation by amending clause 5.3.4A(b1).

AEMO and the CEC agreed with this position in their submissions to the draft determination.[249]

249 Submissions to the draft determination: AEMO, p 11; CEC, p 13.

C Rule making process

A standard rule change request includes the following stages:

- a proponent submits a rule change request
- the Commission initiates the rule change process by publishing a consultation paper and seeking stakeholder feedback
- stakeholders lodge submissions on the consultation paper and engage through other channels to make their views known to the AEMC project team
- the Commission publishes a draft determination and draft rule (if relevant)
- stakeholders lodge submissions on the draft determination and engage through other channels to make their views known to the AEMC project team
- the Commission publishes a final determination and final rule (if relevant).

You can find more information on the rule change process on our website.[250]

C.1 The CEC proposed a rule to change how R1 assessments are performed by AEMO and NSPs

On 17 May 2023, the CEC on behalf of its members submitted a rule change request seeking to provide greater clarity in the NER on the requirements, process steps, and responsibilities associated with assessing and approving the connection of new generation to the NEM. The CEC's rule change proposes the following additions:

- self-assessment
- materiality guidelines
- type pathways
- timeframes to assess R1
- facilitated review.

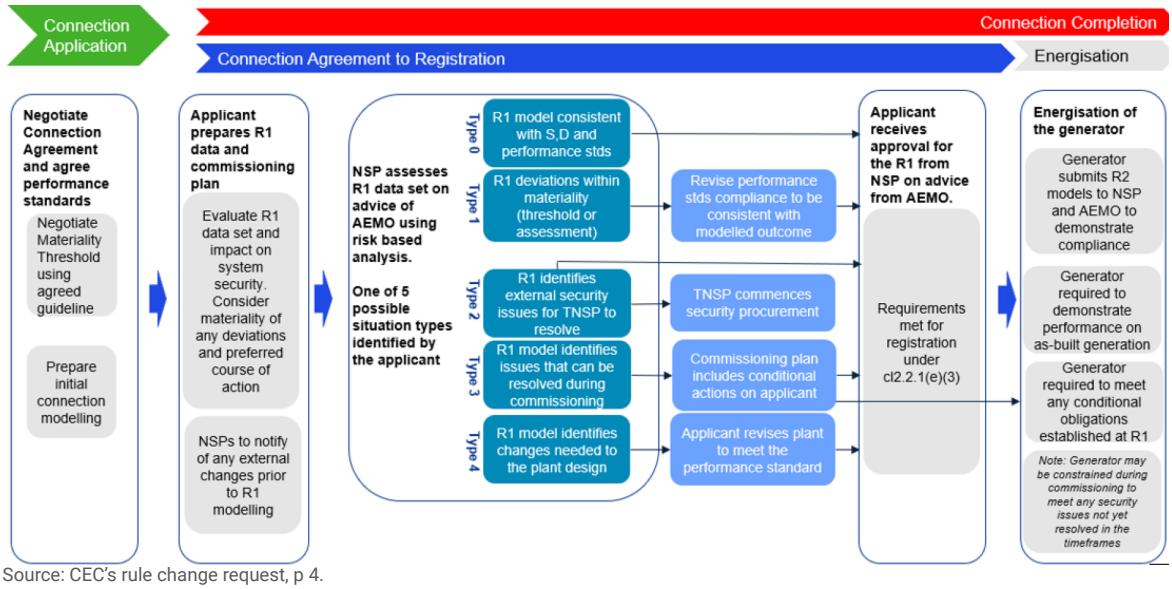
The CEC stated that its intention is to reduce the uncertainty associated with the R1 stage, lower investment costs, speed up new generation connection and clearly allocate responsibility for the management of system security and power quality issues.[251]

Figure C.1 below illustrates the new proposed R1 assessment process proposed by the rule change request.

250 See our website for more information on the rule change process: https://www.aemc.gov.au/our-work/changing-energy-rules.

251 CEC's rule change request, p 1.

Figure C.1: The rule change request's overview of the proposed new R1 process



Source: CEC's rule change request, p 4.

C.2 The proposal suggests that there is a wide breadth of issues at the R1 stage

The CEC's rule change request stated six main issues to be addressed. While the industry is transitioning to a higher penetration of IBR, there are issues that have been arising with the regulatory process being unfit for purpose:

- there is a lack of clear obligations on parties
- the framework is inflexible
- generators are held responsible for changes outside of their control.
- there is a lack of clear timeframes
- decisions are not reviewable
- AEMO's recent initiatives have improved the situation, but uncertainty and risks remain.

The request suggested that due to the issues above, there are open-ended delays and costs that are leading to risks being borne by generation investors which they cannot manage. Therefore, prospective investors in new renewable generation and storage will increase premiums on new investment to account for the risks, which can affect the cost of the transition, prices for consumers and NEM reliability.[252]

The CEC considered that the lack of prescription in the NER around the R1 process and lack of guidance represents a significant issue for industry. This implied regulatory failure could be addressed to better contribute to meeting the NEO. The CEC mentioned that the reliability and price benefits to customers from reduced connection times will achieve the NEO with respect to:[253]

- price, quality, safety and reliability and security of supply of electricity

252 CEC's rule change request, p 3.
253 CEC rule change request, p 52.

- the reliability, safety and security of the national electricity system
- supporting the ongoing transition to a decarbonised NEM by encouraging needed investment in renewables and storage, helping to reduce the emissions intensity of the energy sector.

C.3 The proposal sought to improve certainty for investors around the R1 process

The rule change request proposed changes to the NER that would introduce a new framework for connections through the R1 assessment process. It outlined set pathways that a connecting applicant's R1 process may undergo. For each pathway, the request described potential solutions for likely problems that may emerge. For example, the rule change request outlined that registration is provided for projects with only minor deviations from their negotiated performance standard, and to determine what is minor, a new materiality guideline will be created.

This new framework proposed in the rule change request is intended to have a suite of benefits including but not limited to:

- investment certainty due to a known framework
- increased reliability due to quicker replacement of retiring generation
- reduced system costs due to economies of scale and scope by NSPs to achieve lowest cost solutions
- reduced consumer costs due to lower risk premiums by investors.

The proposed approach of creating a new framework for connecting applicants to complete their R1 assessment would also facilitate increased transparency and shared learnings.

C.4 The process to date

On 17 August 2023, the Commission published a notice advising of the initiation of the rule making process and consultation in respect of the rule change request.[254] The Commission also published a consultation paper identifying specific issues for consultation. The Commission received 28 submissions on the consultation paper. Issues raised in these submissions were summarised and responded to in the draft rule determination.

On 7 December 2023 the Commission extended the time for making a draft rule determination until 7 March 2024. Accordingly,

on 7 March 2024, the Commission published a draft rule determination and a more preferable draft rule. The Commission received 17 submissions on the draft rule determination. Issues raised in submissions are discussed and responded to throughout this final rule determination. A summary of other issues raised in submissions and the Commission's response to each issue is contained in appendix F.

On 30 May 2024, the Commission extended the time for making a final rule determination until 27 June 2024.

254 This notice was published under section 95 of the NEL.

D Regulatory impact analysis

The Commission has undertaken regulatory impact analysis to make its final determination.

D.1 We considered a range of policy options

The Commission compared a range of viable policy options that are within our statutory powers. The Commission analysed the following options:

- the rule proposed in the rule change request
- a business-as-usual scenario where we do not make a rule
- a more preferable draft rule featuring:
  - the codification of the R1 process, including the clarification of the roles and responsibilities of parties and time-bound obligations to notify connection applicants
  - the removal of barriers to renegotiation of generator performance standards
  - the ability for AEMO to conditionally register generators, subject to its registration guidelines
  - new information in AEMO's registration guidelines about the R1 process and adverse power system impacts.

The policy options for the more preferable final rule are described in Chapters 3 to 5.

The Commission also considered but has determined not to proceed with the following features as part of the more preferable final rule:

- a self-assessment framework where connection applicants would assess their plant's performance against prescribed types
- materiality guidelines to categorise power system issues by their material risk to system security and quality of supply
- a new facilitated review mechanism to supplement the existing dispute resolution processes
- new reporting obligations for NSPs around their performance against a new set of regulatory timeframes for assessment.

For more information pertaining to the Commission's assessment please see Chapter 2.

D.2 We identified who would/will be affected and assessed the benefits and costs of each policy option

The Commission's regulatory impact analysis for this rule change used qualitative methodologies. It involved identifying the stakeholders impacted and assessing the benefits and costs of policy options. The depth of analysis was commensurate with the potential impacts. The Commission focused on the types of impacts within the scope of the NEO.

Table D.1 summarises the regulatory impact analysis the Commission undertook for this rule change. Based on this regulatory impact analysis, the Commission evaluated the primary potential costs and benefits of policy options against the assessment criteria. The Commission's determination considered the benefits of the options minus the costs.

Table D.1: Regulatory impact analysis methodology

Assessment criteria	Primary costs (low, medium or high)	Primary benefits (low, medium or high)	Stakeholders affected	Methodology QT = quantitative, QL = qualitative
Safety, security and reliability	• Connections may not be fast enough to replace retiring thermal generators (M)	• A clearer understanding of AEMO's and NSP's R1 assessment and how they consider of power system issues will enable better industry understanding. This will improve the overall operation and management of the NEM. (M) • Faster renewable and storage connections will assist the reliability and security of the NEM as aging thermal assets retire. (H)	• Market participants • AEMO • NSPs • Consumers	• QL: Feedback from connection applicants about limited ability to understand and manage external power system risks during the connections process. • QL: Feedback from stakeholders to the consultation paper and draft determination about connection delays.
Emissions reduction	N/A	• Faster connections due to clearer processes, more flexible renegotiations and conditional registration will lead to renewable generation and storage connecting faster (H)	• Market participants • Consumers	• QL: All connection projects currently in the connections queue are for renewable generators or battery storage systems. • QL: AEMO's connection scorecards show an increase in the time it takes for connecting projects to achieve registration
Implementation considerations	• AEMO's registration guideline updates may divert some resources away from connections teams (M)	• Connection applicants are less likely to undertake significant engineering work with limited gain through the changes to the performance standard clauses (H) • The registration guidelines will promote consistency in how AEMO and NSPs	• Connection applicants • Market participants • AEMO • NSPs	• QL: Bilateral meetings with AEMO and NSPs to understand their existing practices so that the final rule minimises additional burden. • QL: Feedback from connection applicants about how they prepare

Assessment criteria	Primary costs (low, medium or high)	Primary benefits (low, medium or high)	Stakeholders affected	Methodology QT = quantitative, QL = qualitative
	• AEMO and NSPs may have to update some administrative processes to improve their communication with connection applicants (L)	assess R1 packages, reducing work for connection applicants (M)		R1 packages, comply with requests for additional information and renegotiate performance standards.
Principles of good regulatory practice	• Additional codification in the NER may lead to an increase in the use of dispute resolution mechanisms, raising costs (L)	• Codifying existing processes and guidance in the NER is good regulatory practice to ensure that they are maintained in perpetuity, providing certainty. (M) • Allowing engineering judgement to prevail over the NER in situations where the power system can benefit is good regulatory practice. (M)	• Connection applicants • Market participants • AEMO • NSPs	• QL: Discussions with stakeholders as to why dispute resolution mechanisms are not used • QL: Feedback to the draft determination noting a lack of clarity on the roles and responsibilities of parties during the R1 process.
Innovation and flexibility	• Overly prescriptive guidance in the registration guidelines may constrain new technologies and engineering innovation (L)	• Allowing more adjustments to negotiated standards allows connection applicants and market participants to come up with innovative solutions to address power system issues in a high renewable penetration NEM. (H)	• Connection applicants • Market participants • AEMO • NSPs	• QL: Stakeholder feedback to the consultation paper and draft determination relating to barriers when renegotiating standards.

E Legal requirements to make a rule

This appendix sets out the relevant legal requirements under the NEL for the Commission to make a final rule determination.

E.1 Final rule determination and final rule

In accordance with section 102 of the NEL, the Commission has made this final rule determination for a more preferable final rule in relation to the rule proposed by the CEC.

The Commission's reasons for making this final rule determination are set out in chapter 2.

A copy of the more preferable final rule is attached to and published with this final determination. Its key features are described in chapter 3 to chapter 5.

E.2 Power to make the rule

The Commission is satisfied that the more preferable final rule falls within the subject matter about which the Commission may make rules.

The more preferable final rule falls within s. 34 of the NEL as it relates to the operation of the national electricity system for the purposes of the safety, security and reliability of that system under section 34(1)(a)(ii) and the activities of persons (including Registered participants) participating in the national electricity market or involved in the operation of the national electricity system under section 34(1)(a)(iii).

E.3 Commission's considerations

In assessing the rule change request the Commission considered:

- its powers under the NEL to make the final rule
- the rule change request
- submissions received during first round consultation
- stakeholder input received at technical working groups held on 17 November 2023, 18 January 2024 and 22 May 2024
- the Commission's analysis as to the ways in which the final rule will or is likely to contribute to the achievement of the NEO
- submissions received during second round consultations.

There is no relevant Ministerial Council on Energy (MCE) statement of policy principles for this rule change request.[255]

E.4 Making electricity rules in the Northern Territory

The NER, as amended from time to time, apply in the Northern Territory, subject to modifications set out in regulations made under the Northern Territory legislation adopting the NEL.[256] Under those regulations, only certain parts of the NER have been adopted in the Northern Territory.

255 Under s. 33 of the NEL and s. 73 of the NGL the AEMC must have regard to any relevant MCE statement of policy principles in making a rule. The MCE is referenced in the AEMC's governing legislation and is a legally enduring body comprising the Federal, State and Territory Ministers responsible for energy. On 1 July 2011, the MCE was amalgamated with the Ministerial Council on Mineral and Petroleum Resources. In December 2013, it became known as the Council of Australian Government (COAG) Energy Council. In May 2020, the Energy National Cabinet Reform Committee and the Energy Ministers' Meeting were established to replace the former COAG Energy Council.

256 These regulations under the National Electricity (Northern Territory) (National Uniform Legislation) Act 2015 are the National Electricity (Northern Territory) (National Uniform Legislation) (Modifications) Regulations 2016

The more preferable final rule does not relate to parts of the NER that apply in the Northern Territory. As such, the Commission has not considered Northern Territory application issues.

E.5 Civil penalty provisions and conduct provisions

The Commission cannot create new civil penalty provisions or conduct provisions. However, it may recommend to the Energy Ministers' Meeting that new or existing provisions of the NER be classified as civil penalty provisions or conduct provisions.

The more preferable final rule does not amend any clauses that are currently classified as civil penalty provisions or conduct provisions under the National Electricity (South Australia) Regulations.

The Commission does not propose to recommend to the Energy Ministers' Meeting that any of the proposed amendments made by the more preferable final rule be classified as civil penalty provisions or conduct provisions.

F Summary of other issues raised in submissions

Table F.1: Summary of other issues raised in submissions

Stakeholder	Issue	Response
Clean Energy Council	The CEC considers that there should be a requirement for AEMO, NSPs and the connection applicant to use their best endeavours to identify and implement the most efficient, timely and lowest cost solution to consumers to obtain a satisfactory R1 outcome and be registered. Recognises that this may be enabled through changes to the existing system strength frameworks and CRI workstreams related to collective retuning.	The Commission agrees that NSPs (and AEMO) can coordinate works to implement lower cost solutions to system strength or other technical issues, instead of unilaterally imposing costs on connection applicants. The Commission considers that industry consultation when updating the registration information resource and guidelines can provide better guidance as to when issues will be managed and implemented by NSPs and AEMO, rather than by connection applicants.
Energy Australia	Energy Australia considers that a key barrier to an efficient R1 and registrations assessment process is the lack of access to current network configurations. Information asymmetry is causing a 'black box environment' and prevents connecting parties from fully understanding or scrutinising issues identified by NSPs and AEMO. This makes dispute resolution difficult, as they do not have access to information about the network issue. Energy Australia proposed a 'pay per view' network snapshot option, or a timed-access to a snapshot model.	The Commission appreciates this point raised by Energy Australia and notes that through the Connections Reform Initiative (CRI), improvements are being explored regarding OEM data and modelling. The Commission supports the CRI exploring options to improve access to information.
Energy Australia	Energy Australia encouraged the Commission to clarify in the final determination that the final rule applies to all NSPs, including distribution networks.	This has been clarified in chapter 4 of this final determination.

Stakeholder	Issue	Response
Goldwind	Goldwind noted that there are situations where the assessment methodology for a particular access standard may change between the connection application stage and registration phase. Suggests that the Rules indicate that AEMO should use the assessment guideline methodology that was prevailing at the time of the connection application.	The final rule creates new information that AEMO must include in its registration information resource and guidelines, including the baseline assessment methodologies that connection applicants can expect AEMO to use. The Commission considers that the registration guidelines should provide a clear understanding of which methodology will be used during the registration phase.
Sungrow	Sungrow said in its submission to the draft determination that it wants more information regarding support structures that may be established to adjust stakeholders to the new regulations, as well as an ongoing review and adjustment process. It also called for a transitional guideline or impact assessment for existing projects and how they may be affected by the final rule.	The Commission has provided a detailed analysis throughout the final determination on each of the key policy reforms. This includes an explanation of the transitional provisions in relevant chapters of this determination.

Abbreviations and defined terms

AAS	Automatic Access Standard
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CEC	Clean Energy Council
Commission	See AEMC
Connection applicant	Under the NER, a Connection applicant is a person who wants to establish or modify connection to a transmission network or distribution network and/or who wishes to receive network services and who makes a connection enquiry as described in NER clauses 5.3.2 and 5.3A.5
CRI	Connections Reform Initiative
DNSP	Distribution Network Service Provider
EMT	Electromagnetic transience
ENA	Energy Networks Australia
GFL	Grid-following
GFM	Grid-forming
GPS	Generator Performance Standards
IBR	Inverter Based Resource
IRP	Integrated Resource Provider is a registration category for storage and hybrid registration, introduced in the AEMC *Integrating energy storage systems into the NEM* rule change and now found in NER clause 2.1B.2
ISP	Integrated System Plan published by AEMO
MAS	Minimum Access Standard
NAS	Negotiated Access Standard
NEL	National Electricity Law
NEO	National Electricity Objective
NER	National Electricity Rules
NSP	Network Service Provider
NT Act	*National Electricity (Northern Territory) (National Uniform Legislation) Act 2015*
OEM	Original equipment manufacturer
Proponent	The individual/organisation who submitted the rule change request to the Commission
PSCAD	Power Systems Computer Aided Design — an EMT power system simulation software commonly used by industry
PSS/E	Power System Simulator for Engineering — an RMS power system simulation software commonly used by industry
QED	Quarterly Energy Dynamics
REZ	Renewable Energy Zone
RMS	Root-mean-square
R0	Refers to the connection application process described in clauses 5.3.4 and 5.3.4A of the NER, where applicants must submit proposals for negotiated access standards for each

	technical requirement that will not meet the automatic access standard.
R1	Refers to the process between the execution of a connecting generator's connection agreement and the completion of market registration. It involves the connecting party preparing a detailed engineering design of their plant, a suite of technical models, a commissioning plan and other documentation to demonstrate to the NSP and to AEMO that the plant meets the GPS.
R2	Post-registration commissioning
TNSP	Transmission Network Service Provider