AEMC

RULE

Australian Energy Market Commission

DRAFT RULE DETERMINATION

NATIONAL ELECTRICITY AMENDMENT (GOVERNANCE OF DISTRIBUTED ENERGY RESOURCES TECHNICAL STANDARDS) RULE 2022

NATIONAL ENERGY RETAIL AMENDMENT (GOVERNANCE OF DISTRIBUTED ENERGY RESOURCES TECHNICAL STANDARDS) RULE 2022

PROPONENT
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16 DECEMBER 2021

INQUIRIES

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ABOUT THE AEMC

The AEMC reports to the Energy Ministers' Meeting (formerly the Council of Australian Governments Energy Council). We have two functions. We make and amend the national electricity, gas and energy retail rules and conduct independent reviews for the Energy Ministers' Meeting.

SUMMARY

1 Consumers in the national electricity market (NEM) continue to install new distributed energy resources (DER) at an unprecedented rate. DER covers a range of devices such as rooftop solar panels, battery storage systems, electric vehicle chargers and smart appliance such as pool pumps. With the continued transition to a more decentralised power grid, the technical standards for how these DER devices perform in a range of circumstances will become increasingly important for the security and reliability of the distribution networks to which these devices are connected and ultimately the NEM.

2 To address the increasing importance of DER technical standards to the NEM, in September 2020 Dr Kerry Schott AO submitted a rule change request in her capacity as Chair of the Energy Security Board (ESB). The request proposed introducingnew governance arrangements in the NER for DER technical standards. According to the rule change request, new governance arrangements are needed to address:

- the inability to implement consistent technical standards across the NEM
- a need for a fast, flexible and transparent standards setting process.

3 Specifically, the request proposed creating a standing committee under the National Electricity Rules (NER) to assess and, if needed make, DER technical standards for the NEM. Reporting to the Australian Energy Market Commission (AEMC), the committee would consist of a mixture of DER industry, consumer and market body representatives. The committee's proposed functions could include determining new DER technical standards and otherwise providing advice to the AEMC on related issues. The rule change request also asked the AEMC to consider whether any changes to the National Energy Retail Rules (NERR) are required to give effect to these proposed changes.

4 The Commission has identified five distinct roles to support DER technical standards, DER integration and realisation of the benefits of DER and where the AEMC could potentially play a role:

1. identifying when the NEM needs new DER technical standards
2. working with the Energy Security Board (ESB) and the Australian Renewable Energy Agency (ARENA)'s Distributed Energy Integration Program (DEIP)
3. observing Standards Australia's DER committees
4. updating DER technical standards in the NER
5. reporting on progress adopting standards and integrating DER.

5 The AEMC confirms it will undertake each role to the extent existing initiatives, such as the ESB's DER Implementation Plan and ARENA DEIP workstreams, are not already identifying or addressing the NEM's needs from new and updated DER technical standards. Recognising the importance of timely action, the AEMC is working proactively with other market bodies, industry representatives and Standards Australia to determine priority issues for near-term action.

6 The Commission considers it has maximum flexibility to undertake the roles outlined in this

draft rule determination by using its existing powers. Specifically, the AEMC can address DER technical standards by using its:

- market review power[1]
- power to convene an independent committee.[2]

7 Using existing powers to address DER technical standards meets the national electricity objective (NEO) and the national energy retail objective (NERO) by supporting consumer outcomes, reducing the administrative and regulatory burden of implementing reforms and promoting market efficiency principles such as productive efficiency and dynamic efficiency.

8 The Commission considers its approach in the draft rule determination provides maximum flexibility to respond to widespread stakeholder interest in a more clearly defined, and extensive, work program to address the development and implementation of DER technical standards in the NEM. By using its existing powers, the AEMC can address urgent and necessary issues not being addressed elsewhere. For example, the AEMC can:

- initiate a review to address the issues raised by the rule change request, rather than introducing new rules, to support the work on DER technical standards
- convene a committee or panel (such as a committee of independent DER experts and industry representatives), rather than prescribing in the NER a standing committee on DER technical standards
- consider DER technical standards as part of a potentially broader work program associated with the NEM's technical integration of DER.

9 The Commission considers there are three further reasons supporting the approach set out in this draft rule determination, rather than making a rule as proposed.

- **Significant time has elapsed since the rule change request.** Since the rule change request was submitted, there have been significant developments addressing DER technical standards in the NEM. This includes new work by the ESB and ARENA. However, these initiatives alone do not address the entirety of issues raised by the rule change request. As a result, there is a need for the Commission to adopt a flexible approach to support the integration of DER in the NEM.
- **Avoiding duplicating existing arrangements and initiatives.** Consistent with limiting the regulatory burden for market participants, the Commission seeks to avoid duplicating work already underway by other organisations. By using existing powers rather than introducing bespoke governance arrangements through new rules, the Commission considers it would be able to fully address the issues raised by the rule change request. In addition, it would not be bound through the NER to take certain actions on an ongoing basis if such work duplicates work for market bodies and stakeholders participating in these reform processes.
- **There is significant benefit from flexibly supporting DER technical integration.** While the continued uptake of new DER capacity in the NEM is clear, the full grid and

1 Section 45 of the NEL and section 232 of the NERL.
2 Section 39 of the NEL and section 227 of the NERL.

consumer implications from this transition are still being collectively considered by the AEMC and others. This increased uncertainty does not diminish the need for action. However, it makes it less preferable for the Commission to prescribe how the integration of DER in the NEM should be managed. If the AEMC was to undertake its future DER work under new rules as proposed by the rule change request, then that work is expected to be limited to considering only those issues envisaged by the rule change request. The AEMC may not be able to fully consider all issues related to the technical integration of DER which may arise in the future.

10 The Commission is satisfied the alternative approach described in the draft rule determination meets the NEO more efficiently than the request's proposed governance arrangements. The Commission considered making a rule to implement the governance arrangements proposed by the rule change request. However, it is not satisfied this approach would contribute to the achievement of the NEO or the national energy retail objective (NERO). The Commission's draft rule determination is therefore to not make a rule.

11 The Commission invites written submissions on this draft rule determination by COB Thursday 3 February 2022.

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1 CONTEXT

This chapter sets out the context for the rule change request submitted by Dr Schott, as Chair of the Energy Security Board (ESB), including the:

- unprecedented uptake of DER in the NEM
- existing arrangements for DER technical standards in the National Electricity Rules (NER)
- existing arrangements for DER technical standards outside the NER.

1.1 Unprecedented uptake of DER in the NEM

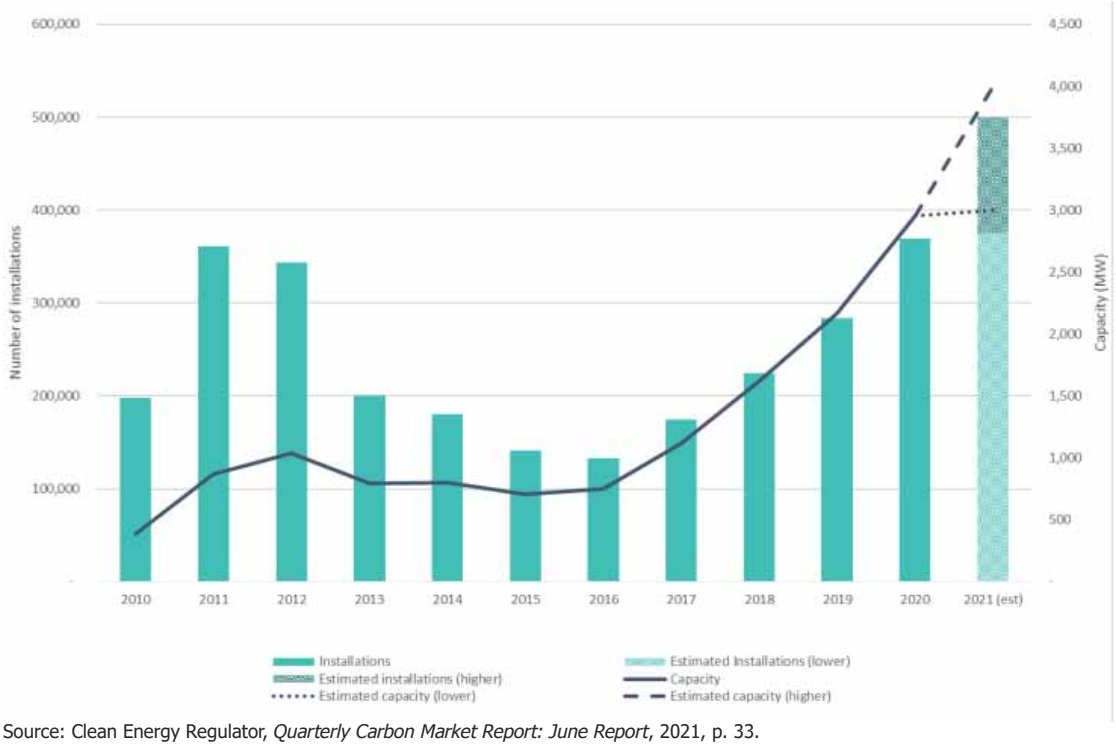
The national electricity market (NEM) is experiencing an unprecedented uptake of new distributed energy resources (DER) capacity. As part of the transition to a more decentralised power grid, Australians have installed more than 14,500 MW of rooftop solar capacity and more than 33,000 battery storage systems behind-the-meter.[3] This includes 1,600 MW of new solar PV capacity installed behind the meter in just the first half of 2021, with the Clean Energy Regulator forecasting more than 3,000 MW will be installed by the end of the year.[4]

Figure 1.1 illustrates how the amount of new solar PV capacity being installed behind-the-meter is increasing across Australia each year.

3 Calculations based on figures published by the Clean Energy Regulator, *Quarterly Carbon Market Report: March Report,* 2021.

4 Clean Energy Regulator, *Quarterly Carbon Market Report: June Report*, 2021, p. 33.

Figure 1.1: Small-scale solar PV installations and capacity (MW), 2010 to 2021



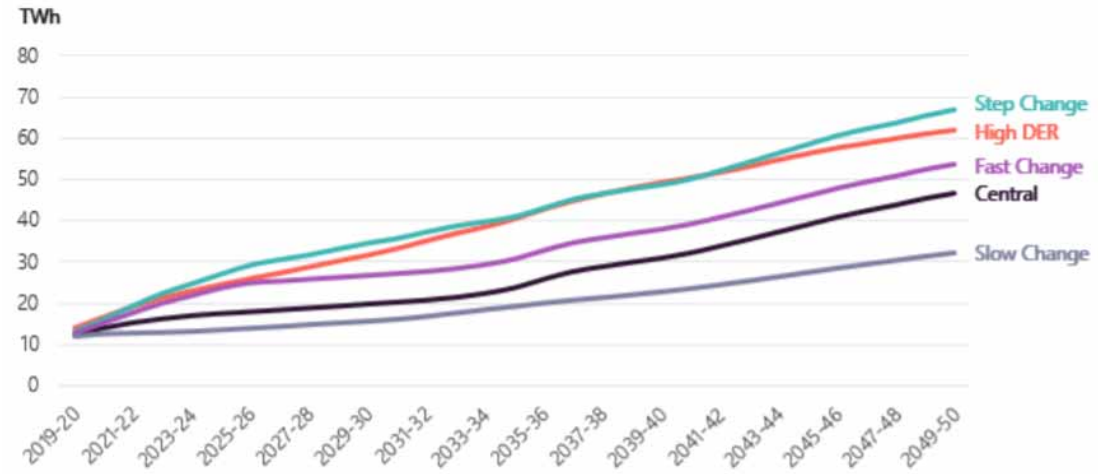
Source: Clean Energy Regulator, *Quarterly Carbon Market Report: June Report*, 2021, p. 33.

The transition to a more decentralised power grid is expected to continue, with AEMO forecasting between 13 and 22 per cent of the NEM's total underlying energy consumption will be met by DER devices by 2040.[5]

As Figure 1.2 illustrates, AEMO forecasts DER uptake in the NEM will continue for decades to come, driven by solar PV.

5 AEMO, *Integrated System Plan for the NEM*, 2020, p. 41.

Figure 1.2: Forecast distributed PV generation to 2050



Source: AEMO, *Integrated System Plan*, 2020, p. 41.
Note: Includes PV non-scheduled generation

With this increased reliance on two-way power transfers, the NEM will need technical standards that allow the benefits of DER devices to be achieved through effective integration that contributes to grid security and reliability, minimises potential negative impacts, and maintains consumer choice. Any delay getting the right technical standards in place could lead to significant amounts of new DER capacity unable to fully support the efficient achievement of a more secure and reliable NEM.

1.2 Existing arrangements in the NER

New DER technical standards will commence in the NEM on 18 December 2021 with the introduction of minimum inverter standards for DER devices connected to distribution networks.[6] Published in February 2021 in response to a rule change request from AEMO, the new provisions in the National Electricity Rules (NER):[7]

- created DER Technical Standards for embedded generating units connecting to a distribution network through a micro EG connection service
- defined DER Technical Standards as the requirements set out in Australian Standard AS4777.2:2020 as in force from time to time
- required embedded generating units the subject of model standing offers for basic micro EG connection services to comply with DER Technical Standards
- obliged distribution network service providers (DNSPs) to inform connection applicants about the need to comply with DER Technical Standards, if the connection applicant is

6 AEMC, *Distributed energy resources technical standards*, final determination, 25 February 2021.
7 AEMC, *Distributed energy resources technical standards,* final determination, 25 February 2021.

proposing to connect a new or replacement embedded generating unit through a basic micro EG connection service

- included a requirement in the minimum content requirements of connection offers for connection applicants connecting a new or replacement embedded generating unit to comply with the DER Technical Standards
- applied DER Technical Standards to new connections or replacement inverters and connection alterations.

The rule change request was submitted when the AEMC was part way through the rule change process for AEMO's rule change request.

1.3 Existing arrangements outside the NER

In addition to the minimum inverter standards prescribed in the NER, governance arrangements and other initiatives may influence DER technical standards in the NEM. These include:

- the Australian Renewable Energy Agency (ARENA)'s Distributed Energy Integration Program (DEIP)
- the (ESB's DER Implementation Plan
- Standards Australia's processes for developing new DER technical standards.

1.3.1 ARENA Distributed Energy Integration Program

ARENA's DEIP is a collaboration of government agencies, market authorities, industry and consumer associations interested in DER. The voluntary initiative is seeking to maximise the value of DER for all energy users by identifying knowledge gaps and prioritising policy reforms.

Two DEIP workstreams underway in 2021 and 2022 are relevant to DER technical standards in the NEM:

- interoperability
- dynamic operating envelopes.

Interoperability

In the context of DER, interoperability is the ability of different information technology systems, devices and software applications to support two-way communication, use and exchange of data. According to AEMO, achieving interoperability for the NEM's DER devices would support accurate, effective and consistent data exchanges between devices and systems.[8]

As the NEM's DER uptake continues, AEMO anticipates three main benefits from achieving greater interoperability:

8 AEMO 2021, AEMO, Melbourne, viewed 27 June 2021, https://aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/deip-isc.

- consumers getting more value from devices by having more flexibility over how they use their assets to access grid services
- grid flexibility services can be better supported
- system costs may be reduced by more efficiently relying on existing infrastructure to operate the grid.

DEIP's interoperability workstream plans to support these objectives by:

- prioritising, coordinating and steering the activities needed to establish uniform interoperability and cyber standards
- providing governance and direction on these interoperability activities
- communicating and highlighting interoperability industry and other stakeholder's interoperability priorities
- providing a forum for sharing lessons, achievements and challenges about interoperability, including interactions with other DEIP workstreams and broader DER reforms.[9]

Further, DEIP's interoperability workstream plans to consult Standards Australia and the Institute of Electrical and Electronics Engineers (IEEE) to promote the incorporation of interoperability objectives in Australian and international DER technical standards.

Dynamic operating envelopes

'Operating envelopes' are the limits on an electricity customer's ability to import and export power to the grid. In the NEM these limits are agreed by network service providers, customers and the Australian Energy Regulator (AER) as part of the regulatory process for connecting customers to a distribution network.

Under 'dynamic operating envelopes', a customer's import and export limits vary over time and location. This compares with 'static operating envelopes', which have historically prevailed in the NEM. Static operating envelopes are where customer import and export limits are fixed at conservative levels regardless of the distribution network's hosting capacity at any given moment in time. Implementing dynamic rather than static operating envelopes is therefore likely to support higher levels of energy exports from DER when distribution networks have more hosting capacity.[10]

The Commission understands DEIP's workstream on dynamic operating envelopes aims to:[11]

- build a shared understanding among interested stakeholders of the opportunities and challenges from dynamic operating envelopes
- share insights on approaches to dynamic operating envelopes that are currently being considered by various policymakers and industry

9 AEMO, AEMO, Melbourne, viewed 27 June 2021, https://aemo.com.au/consultations/industry-forums-and-working-groups.deip-isc.

10 ARENA 2021, ARENA, Canberra, viewed 27 June 2021, https://arena.gov.au/knowledge-innovation/distributed-energy-integration-program/dynamic-operating-envelopes-workstream/.

11 ARENA 2021, ARENA, Canberra, viewed 27 June 2021, https://arena.gov.au/knowledge-innovation/distributed-energy-integration-program/dynamic-operating-envelopes-workstream/.

- identify policy reforms that could be implemented to introduce dynamic operating envelopes.

1.3.2 ESB Distributed Energy Resources Implementation Plan

As part of its post-2025 market design advice to Energy Ministers, finalised in July 2021, the ESB committed to developing a DER implementation plan. The plan involves specifying roles and responsibilities related to DER integration issues for market bodies (including the AEMC) and other stakeholders between now and 2025. These "reforms are intended to leverage technology and data, improve access and efficiency, enhance market participation and strengthen customer protections and engagement."[12]

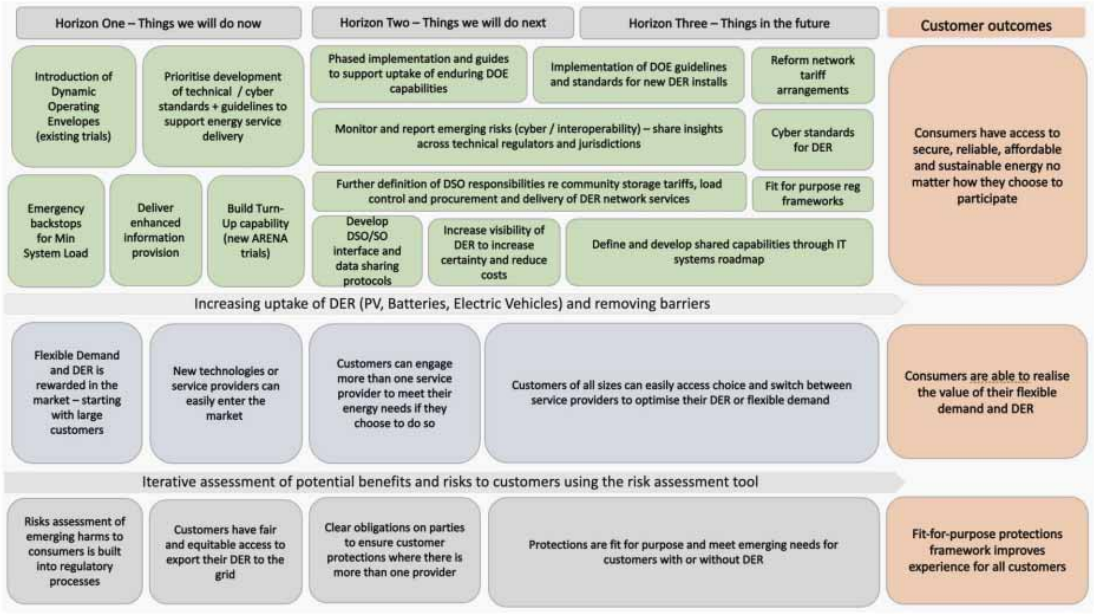
As part of its DER Implementation Plan, the ESB is developing technical, market and regulatory reforms for DER technical standards. The ESB's planned outcome from this work is the introduction of "mandatory compliance for new solar PV and storage systems by 2025."[13]

The ESB has started work on interoperability for DER devices by developing an assessment framework. It has engaged consultants to assist with the development of this framework and will seek stakeholder feedback in mid-December. More broadly, the ESB's DER Implementation Plan specifies roles to develop policy reforms addressing cyber standards, dynamic operating envelopes and communication standards for DER devices in the NEM.[14]

For an overview of the ESB's DER Implementation Plan, see Figure 1.3.

12 ESB, *Post-2025 Market Design Final Advice to Energy Ministers, Part C,* 2021, p. 28.
13 ESB, *Post-2025 Market Design Final Advice to Energy Ministers, Part C,* 2021, p. 31.
14 ESB, *Post-2025 Market Design Final Advice to Energy Ministers, Part C*, 2021, p. 31.

Figure 1.3: Overview of the ESB's DER Implementation Plan



Source: ESB, *Post-2025 Market Design Final Advice to Energy Ministers, Part B*, 2021, p. 73.

1.3.3 Standards Australia technical standards and other publications

Standards Australia is the nation's primary standard setting organisation. It specialises in developing technical standards for devices manufactured and sold across a diverse range of economic sectors. Where necessary, Standards Australia works with international standard setting organisations such as the Institute of Electrical and Electronics Engineers (IEEE) to align national and international standards.

In the energy sector, Standards Australia has developed (or is developing) technical requirements for a range of services provided by DER devices. For example, Standards Australia's technical committees are currently considering the following technical standards for:

- minimum inverter standards[15]
- wiring rules[16]
- secondary batteries[17]
- remote demand management of electrical products[18]

15 Standards Australia committee number EL042.
16 Standards Australia committee number EL-001.
17 Standards Australia committee number EL-005.
18 Standards Australia committee number EL-054.

- smart energy (addressing IEEE 2030.5, an international technical standard that is being considered by ARENA DEIP and the ESB in the context of interoperability)[19]

In addition, Standards Australia recently developed an updated version of minimum inverter requirements for small-scale generation units.[20]

Standards Australia does not have the ability to impose mandatory obligations on the original equipment manufacturers (OEMs) selling DER devices in Australia. Rather, technical standards are typically 'called up' by a variety of jurisdictional regulatory regimes. Such use results in a standard becoming a mandatory requirement rather than voluntary. For example, the AS 4777.2 suite of DER standards for small-scale generators are called up in the wiring rules adopted by each Australian state and territory.[21]

Standards Australia has a range of options available for proponents of new or updated standards. Where a proponent might want to prioritise extensive and transparent stakeholder consultation over the time taken to develop a new standard, Standards Australia can help by forming a committee to develop a new technical standard. Committees consist of a mixture of stakeholder representatives. Publishing a new standard requires the consensus support from at least 80 per cent of the committee's members. Conversely, a proponent might want to prioritise speed over extensive stakeholder consultation. If so, Standards Australia offers a range of lower consensus publications typically prepared more quickly than formal standards.

For more on Standards Australia's options requiring lower stakeholder consensus, see appendix D.

19 Standards Australia committee number EL-062.

20 This is AS 4777.2. This standard is applied in the NEM through the recent DER technical standards rule change. See AEMC, *Distributed energy resources technical standards,* final determination, 25 February 2021.

21 Standards Australia submission to the consultation paper, p. 3.

2 OVERVIEW OF THE RULE CHANGE REQUEST

2.1 The rule change request

On 21 September 2020, Dr Kerry Schott AO, in her capacity as Chair of the ESB, lodged a rule change request seeking to introduce new governance arrangements for distributed energy resources (DER) technical standards (rule change request).

2.2 Reason for the rule change request

According to the rule change request, there are two main reasons for introducing new governance arrangements for DER technical standards:

- the inability to implement consistent technical standards across the NEM[22]
- a need for a fast, flexible and transparent standards setting process.[23]

For more on the request's analysis of these issues, see the AEMC's consultation paper.[24]

2.3 Solution proposed in the rule change request

The rule change request outlined several objectives from its proposed new governance arrangements.

- Relevant DER technical standards should sit in the NER or in a separate instrument under the NER. In this way, standards will be required to meet the NEO with respect to system security, distribution network management, and the sale of DER services.
- DER technical standards should be developed and adopted in the NER transparently, efficiently and effectively to meet the rapid deployment of DER and the changing needs of consumers, the electricity system and the overall NEM.
- NEM DER technical standards should enable new requirements and obligations to take effect in the NEM before Standards Australia finalises any relevant standard update, on an ongoing basis, in recognition that the Australian Standards process may not meet NEM needs at all times.[25]

To achieve these objectives, the rule change request proposed the AEMC be responsible for the ongoing governance of DER technical standards in the NEM. Under the proposed approach, the AEMC would undertake this role by:

- establishing DER technical standards as part of the NER or a subordinate instrument under the NER
- implementing standards through customer connections.[26]

22 Rule change request, p. 3.
23 Rule change request, p. 4.
24 AEMC, *Governance of DER technical standards*, consultation paper, 2 September 2021, p. 7.
25 Rule change request, p. 4.
26 Rule change request, pp. 4-5.

2.3.1 Establish DER technical standards under the NER or a subordinate instrument

The rule change request proposed:

- the AEMC decide new and updated DER technical standards in the NEM
- the AEMC may consider new standards "where these will improve overall outcomes for consumers, including in areas such as connections and data protocols"[27]
- new technical standards be amended and added to the NER or to a subordinate instrument under the NER
- the AEMC collaborate with AEMO and the AER in developing and updating DER technical standards
- the AEMC obtain expert advice to support its standard setting functions by either:
  - an advisory committee established as a standing or ad hoc committee under s. 39 of the National Electricity Law (NEL), or
  - consultants
- the AEMC be required to develop and maintain a technical standards work program.

Further, the rule change request proposed a structure and functions of a committee that the AEMC could establish to support its decision maker role. Table 2.1 sets out these considerations.

Table 2.1: Proposed approach for a committee on DER technical standards

Membership	Members should be drawn from: • Market bodies • Consumers/consumer representatives with DER experience • Distribution Network Service Providers (DNSPs) • Original equipment manufacturers (OEMs) • Jurisdictional safety regulators • Aggregators • Standards Australia.
Appointment	Members should be appointed by the AEMC based on their expertise in technical standards. Appointment should follow a nomination and merit-based selection process.
Expertise	Members should be selected based on expertise and experience in different dimensions of the DER supply and use chain, rather than representing particular interests.
Balance	Membership should be balanced to account for: • Geographical location and participating jurisdictions •

27 Rule change request, p. 6.

	• Covering NEM networks, non-NEM networks, and stand-alone power system standards considerations • Appropriate mix of commercial, legal, and technical expertise • Diversity of members' backgrounds.
Required output	Meeting minutes.

Source: Rule change request, p. 5

2.3.2 Implement standards through customer connections

The rule change request proposed implementing DER technical standards through customer connections in accordance with the process for:

- NEM connections by incorporating DER technical standards via the minimum content requirements of relevant NER Chapter 5A connection contracts, negotiation frameworks, and model standing offers
- deemed standard connection contracts through the model terms and conditions prescribed in Schedule 2 to the National Energy Retail Rules (NERR).

The proponent also suggested agreements require "the connection application meet DER technical standards as made and updated from time-to-time."[28] Such a requirement would avoid the AER needing to continually approve agreements over time as DER technical standards change.

By including these new requirements in connection agreements, the proponent argued an obligation to meet DER technical standards would extend to:

- connection applicants (or their representatives)
- manufacturers
- installers of DER and DER devices.[29]

Under the proposed solution, the AER would be responsible for enforcing compliance, with the AEMC responsible for identifying any gaps in compliance and enforcement and developing new processes, as required. The effect, according to the rule change request, would be "nationally consistent technical requirements and settings" for DER and DER devices.[30]

The request acknowledged the unique regulatory arrangements in place in Victoria compared with other NEM jurisdictions. Accordingly, the rule change request suggested the Victorian Government and the Essential Services Commission may need to consider how to implement new governance arrangements for DER technical standards in Victoria.[31]

28 Rule change request, p. 7.
29 Rule change request, p. 6.
30 Rule change request, p. 7.
31 Rule change request, p. 6.

2.4 The rule making process

On 2 September 2021, the Commission published a notice advising of its commencement of the rule making process and consultation in respect of the rule change request.[32] The Commission also published a consultation paper identifying specific issues for consultation. Submissions closed on 7 October 2021.

The Commission received 27 submissions as part of the first round of consultation. All issues raised by stakeholders in submissions and in various meetings held during this period have been considered in making this draft rule determination. Issues raised in submissions are discussed and responded to throughout this draft rule determination. Other issues are addressed in appendix A.

2.5 Consultation on draft rule determination

The Commission invites written submissions on this draft rule determination by COB Thursday 3 February 2022.

Any person or body may request that the Commission hold a hearing in relation to the draft rule determination. Any request for a hearing must be made in writing and must be received by the Commission no later than 23 December 2021.

Submissions and requests for a hearing should quote project number ERC0319 and may be lodged online at www.aemc.gov.au.

32 This notice was published under s. 95 of the NEL and s. 251 of the NERL.

3 DRAFT RULE DETERMINATION

With the NEM's continued uptake of new DER capacity at record rates, the Commission recognises the importance of timely action to address DER technical standards. It will work with other market bodies to identify the priority issues to aid the development and implementation of DER technical standards.

The Commission will use its existing powers to support the development and implementation of DER technical standards for the NEM and address the issues raised by the request in a timely and responsive manner. The Commission is satisfied this approach is likely to contribute to the achievement of the NEO and NERO.

By contrast, the Commission is not satisfied that implementing the proposal set out in the rule change request would contribute to the achievement of the NEO or NERO. For the reasons set out in this chapter, and in the following chapters, its draft rule determination is to not make a rule.

The remainder of this chapter provides an overview of how the issues raised in the rule change request can be addressed if the draft rule determination approach is implemented and summarises the reasons for this decision, including why the proposal in the rule change request would not contribute to the achievement of the NEO or NERO.

3.1 Overview of decision

The section provides an outline of the roles required to address the issues raised in the rule change request by:

- addressing DER technical standards in the NEM through five distinct roles
- using existing AEMC powers to undertake these roles where this is appropriate.

The Commission has identified five distinct roles to support DER technical standards, DER integration and realisation of the benefits of DER and where the AEMC could potentially play a role:

1. identifying when the NEM needs new DER technical standards
2. working with the ESB and ARENA's DEIP
3. observing Standards Australia's DER committees
4. updating DER technical standards in the NER as needed
5. reporting on progress adopting standards and integrating DER.

The AEMC will undertake each role to the extent existing initiatives such as the ESB's DER Implementation Plan and ARENA DEIP workstreams are not already identifying or addressing NEM needs for new or updated DER technical standards.

The five roles described above align with widespread stakeholder interest in a more clearly defined, and extensive, work program to address the development and implementation of DER technical standards in the NEM. The unprecedented and continuing uptake of new DER

capacity in the NEM raises challenges, and opportunities, for maintaining the security and reliability of power supply in the long-term interests of consumers (see section 1.1).

Where the AEMC needs to undertake any of the roles identified in this draft rule determination, it will use its existing powers rather than rely on new rules. Specifically, the AEMC will be able to use its:

- market review power[33]
- power to establish a committee to provide advice.[34]

The ability to self-initiate a review allows the AEMC to carry out roles one and five as outlined above. In undertaking a review, the AEMC may establish a committee or working group to support the work to be carried out in the review.

In addition, stakeholders can submit a rule change request to the AEMC seeking to amend DER technical standards in the NER or the NERR at any time. Nothing in this draft rule determination affects this legislated process.

As explained below (section 3.2), using existing powers meets the NEO by supporting consumer outcomes, reducing the administrative and regulatory burden of implementing reforms and promoting market efficiency principles such as productive efficiency and dynamic efficiency.

For more on how the AEMC will use existing powers to address DER technical standards in the NEM, see chapter 5.

3.1.1 Role one: identify when the NEM needs new DER technical standards

Role one involves identifying the need for new or updated technical standards by:

- initiating a review to consult with market bodies, independent experts and industry representatives to assess the progression of DER uptake in the NEM in response to triggers identified by the AEMC or other stakeholders
- publishing a report setting out the findings from this analysis and stakeholder consultation
- working with stakeholders to support the integration of DER technical requirements in the NEM as needed.

For a more detailed description of this role, see section 4.1.1.

3.1.2 Role two: work with the ESB and ARENA DEIP

In the short-term, the AEMC would be able to undertake work identifying when the NEM needs new or updated DER technical standards to complement the ESB's DER Implementation Plan and/or ARENA DEIP's workstreams on interoperability and dynamic operating envelopes. Rather than replicating the ESB and ARENA DEIP work, role two enables the AEMC to support these existing initiatives by:

33 Section 45 of the NEL.
34 Section 39 of the NEL.

- actively participating in both processes
- facilitating the progression of issues from these fora to Standards Australia as relevant.

This role recognises the ability of other initiatives to complement role one, while remaining focused on the AEMC's ability to support practical outcomes for consumers.

For a more detailed description of this role, see section 4.2.1.

3.1.3 Role three: observe Standards Australia's DER technical committees

Role three involves the AEMC participating in Standards Australia's DER technical committees as an observer — that is, a non-voting member. For example, the AEMC is currently an observer on Standards Australia's working group for AS 4777.2 (minimum inverter standards for small-scale generators).[35]

By expanding the AEMC's participation in other DER-related committees, the AEMC will be able to provide perspectives to working groups on NEM issues and priorities.

For a more detailed description of this role, see section 4.3.1.

3.1.4 Role four: update DER technical standards in the NER as needed

Once technical standards are developed, by Standards Australia or international organisations such as the IEEE, the AEMC has a role updating DER technical standards in the NER as needed. This would mean standards, if required, apply across the NEM. In this capacity, the AEMC will respond to rule change requests to add, update or remove technical standards or other requirements in the NER. Responses to rule change requests will be determined in accordance with the NEO.

For a more detailed description of this role, see section 4.4.1.

3.1.5 Role five: report on progress adopting standards and integrating DER

Finally, to the extent there is a gap in existing initiatives, the AEMC will initiate a review to report (as needed and without duplicating other initiatives) on DER technical standards and requirements that apply in the NEM through the NER and/or the NERR. This report may include, as relevant:

- reporting on recently introduced or updated DER technical standards in the NEM
- in conjunction with role one, assessing and commenting on market trends associated with integrating DER in the NEM, including the outcomes from work by other market bodies and initiatives
- recommendations, where necessary, about actions market participants and other stakeholders may be able to undertake to better support the integration of DER.

For a more detailed description of this role, see section 4.5.1.

35 For more on Standards Australia's DER committees, see section 1.3.3.

3.2 Summary of reasons

The Commission has decided not to adopt the governance arrangements proposed by the rule change request. The Commission considers its existing powers, as set out in the energy laws, provide maximum flexibility to address the issues raised by the rule change request. By constrast, the governance arrangements proposed by the rule change request would not contribute to achieving the NEO.

As explained below, the AEMC can use its existing powers to:

- initiate a review to address the issues raised by the rule change request, rather than introducing new rules, to support the Commission's work on DER technical standards
- convene a committee or panel (such as a committee of independent DER experts and industry representatives), rather than prescribing in the NER a standing committee on DER technical standards
- consider DER technical standards as part of a potentially broader work program associated with the NEM's technical integration of DER.

Under the NEL, the Commission is required to assess the rule change request against the NEO and NERO.[36] The discussion below sets out an overview of the reasons for the draft rule determination and how this meets the energy objectives. Further detail on the Commission's assessment are set out in the subsequent chapters of this draft rule determination. The rule making test and assessment framework are at appendix B.

3.2.1 Significant time since the rule change request

In the time since the rule change request was lodged, there have been significant developments addressing DER technical standards in the NEM. This includes new work by the ESB and ARENA. These developments alone do not address the entirety of issues raised by the rule change request, particularly the substantive need for more action to better integrate DER. These initiatives alone do not address the entirety of issues raised by the rule change request. As a result, there is a need for the Commission to adopt a flexible approach to support the integration of DER in the NEM.

The Commission also understands there are a range of approaches for developing technical standards and supporting publications offered by Standards Australia (see section 1.3).

Having considered these developments, the Commission has concluded the proposal set out in the rule change request would not be consistent with meeting the NEO as it does not accommodate the changed circumstances regarding the integration of DER in the NEM. Consequently, the Commission has considered alternative solutions to that proposed. It has sought to identify mechanisms by which it commits to addressing issues about DER technical standards that are flexible in terms of how the AEMC can take proportionate and relevant action.

36 For more detail on the NEO and the Commission's obligations under the NEL, including the relevant assessment criteria developed for this rule change response, see appendix B and appendix C.

It has concluded the approach set out in this draft rule determination supports the development of a proportionate and necessary work program by the AEMC. The Commission considers that this approach will meet the NEO.

This is because the flexibility of the approach, if implemented, would enable the AEMC to respond as needed to stakeholder and NEM issues as they change over time without the burden of establishing and maintaining a standing committee.

In addition, the draft rule determination approach would allow the AEMC to work with other market bodies and their work programs, providing the opportunity for the AEMC to focus on actions where it can best support the integration of DER into the NEM. This is consistent with limiting the regulatory burden on market participants and, ultimately, consumers.

3.2.2 Avoid duplicating existing arrangements and initiatives

Consistent with limiting the regulatory burden for market participants, the Commission wants to avoid duplicating work already underway by other organisations. By using existing powers rather than introducing bespoke governance arrangements through new rules, the Commission considers that it would be able to fully address the issues raised by the rule change request. In addition, the flexibility of the draft rule determination approach means the AEMC would not be bound by the NER to taking certain actions on an ongoing basis if such an approach duplicates work for market bodies and stakeholders participating in these reform processes.

Avoiding duplication supports consumer interests by enabling the integration of DER to occur in a more timely manner. As a result, manufacturers and service providers should be able to provide a range of DER devices to consumers in the NEM without the costs that may arise from a less timely and more cumbersome integration approach. The draft rule determination approach does this by clarifying that the AEMC undertake the roles necessary to technically integrate DER. It avoids duplicating activities already underway such as Standards Australia's processes for determining new DER technical standards and work by the ESB and ARENA DEIP to identify NEM priorities for DER technical standards.

By contrast, the governance arrangements proposed in the request sought to create more rigid rule-based obligations. This approach could lead to duplicating work across market bodies, which may undesirably slow DER integration (such as installation timeliness) and limiting consumer choice of DER based products and services. A smaller range of DER devices being sold in the local market may also be less suited to the needs of consumers and place upward pressure on device prices, particularly if there is the potential for complex or additional technical standards. For this reason, the Commission has concluded the proposed arrangements are not consistent with achieving the NEO.

The draft rule determination further supports consumer outcomes by seeking to reduce the cost and complexity of implementing regulatory and administrative reforms. By focusing the AEMC's reporting roles on the DER future outlook and clarifying market information, including the impact of other jurisdictional regimes on NEM developments, the draft rule determination aims to set out arrangements making it easier for NEM participants and other stakeholders to comply with standards at the least administrative cost possible.

3.2.3 Significant benefit from flexibily supporting DER technical integration

In addition to increased policy uncertainty, there is increased uncertainty about market developments with respect to new DER capacity. While the strong growth in new capacity is continuing as forecast (see section 1.1), the full grid and consumer implications from this transition (and what policy reforms are needed in response) are still being collectively considered by the AEMC and others. This increased uncertainty does not diminish the need for action. However, it likely makes it less preferable for the AEMC to prescribe how the integration of DER in the NEM should be managed.

For example, in future years there may be a need to consider the potential need for new technical standards in the NER for electric vehicles (EV). Such work could overlap with further work refining NER requirements for small-scale generators, such as the minimum inverter standards envisaged under AS 4777.2 (see section 1.2). If the AEMC relies on its existing ability to initiate a review, then the focus of any specific future review can be established to address the particular needs of the market at that time. As a result, the scope of any future DER work carried out by the AEMC can be broader than the specific issues identified in the rule change request.

If the AEMC was to undertake its future DER work under new rules as proposed by the rule change request, then that work would be limited to considering only those issues envisaged by the rule change request. The AEMC may not be able to consider all issues related to the technical integration of DER under such provisions. In light of this limitation, the Commission has concluded that the proposal is not consistent with achieving the NEO.

Alternatively, the AEMC can use its existing review powers to conduct a review into any matter relating to the NER, which is a much broader scope that can be focused on addressing the needs of the market at a future point in time.[37]

Similarly, the proposal in the rule change request was for the NER to be amended to establish a committee under the AEMC. The Commission has concluded it would not be consistent with the NEO to include detailed rules on the convening and operation of a standing committee in the NER. Where there is a future need for a committee or working group the AEMC may use its existing statutory powers to establish one as needed. The ability of the AEMC to establish committees and panels as needed enables such a group at any point in time to include parties that have expertise relevant to the issues of interest at that time. The Commission considers this flexibility in the membership of any future committee as consistent with achieving the NEO.

By maintaining flexibility to support the technical integration of new DER capacity in the NEM, the draft rule determination promotes two types of market efficiency relevant to achieving the NEO:

- productive efficiency
- dynamic efficiency.

37 Section 45 of the NEL.

Productive efficiency is promoted by governance arrangements that aim to provide maximum flexibility to OEMs to innovate devices processes and other technological aspects of manufacturing in a timely manner, while still contributing to the safety, security and reliability of the NEM's power supply. For example, the draft rule determination only envisages the NER including DER technical standards once these standards have been subjected to rigorous analysis and consultation through established standards setting processes in Australia or internationally. If the AEMC (or a committee established by the AEMC) were to be made responsible for determining DER technical standards for the NEM, there would be a higher risk that standards would be updated without providing sufficient time for device manufacturers to update processes and equipment and complete the necessary compliance and safety testing in line with new NER requirements.

Dynamic efficiency is promoted by governance arrangements that provide maximum flexibility for the AEMC to support improvements to manufacturing efficiency over time. That is, using the AEMC's existing powers as necessary rather than prescribing detailed new governance arrangements in the NER now will enable market bodies to better refine DER governance to meet emerging needs from consumers and OEMs over time.

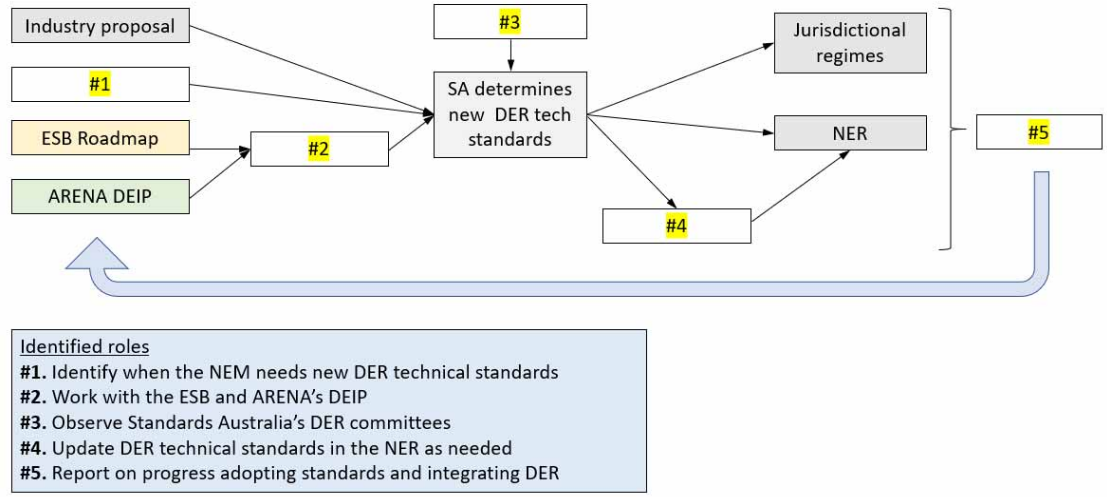
Efficiency principles are further supported by the draft rule determination allocating risk to those parties best suited to managing or mitigating these risks. For example, under the draft rule determination Standards Australia will remain responsible for determining new or updated DER technical standards. This reflects Standards Australia's institutional skills and experience, including relationships with standards development processes in the international jurisdictions with the potential to impact devices imported in Australia. By contrast, given the AEMC's institutional experience, it is the appropriate organisation to maintain responsibility for assessing the extent to which DNSP obligations are consistent with the NEM's continued uptake of new DER capacity.

4 FIVE DER TECHNICAL STANDARDS ROLES

The five roles for addressing DER technical can be understood as a series of chronological activities before, during and after the development of technical standards.

The AEMC commits to undertaking each role where there are gaps not yet addressed by other organisations and initiatives. In this way, a core feature of the Commission's draft rule determination is to clarify and undertake roles addressing the NEM's DER technical standards issues in ways that complement rather than duplicate existing initiatives (see Figure 4.1).

Figure 4.1: Roles complement, rather than duplicate, existing initiatives



Source: AEMC

4.1 Role one: identify when the NEM needs new DER technical standards

4.1.1 Description

To the extent there is no other organisation undertaking this role, the AEMC would be able to carry out a review to identify the need for new or updated technical standards by:

- regularly consulting independent experts and industry representatives to assess the progression of DER uptake in the NEM
- publishing the findings from this analysis and stakeholder consultation
- working with industry and regulatory stakeholders, where necessary, to help develop proposals for Standards Australia.

Reporting on the NEM's needs and priorities for technical standards, requirements and related issues could include making recommendations for market participants, other market bodies or Standards Australia's standard development processes. A report could clarify market and

regulatory information for market participants and other stakeholders. This could be particularly beneficial given the complex jurisdictional interactions that exist regarding DER technical standards.[38]

The AEMC would undertake this role to the extent it is consistent with, and avoids duplicating, other initiatives such as the ESB's DER Implementation Plan (see section 1.3.2). In other words, when there is value that can be added to other initiatives that are seeking to integrate DER into the NEM. Where the role is already being fulfilled by other organisations, the AEMC will refrain from acting.

In practical terms, the AEMC can carry out this reporting function as needed by undertaking a review under s. 45 of the NEL. The specific issues to be addressed by a market review on DER technical standards could be set out in terms of reference that reflect stakeholder consultation on priority DER issues. That is, the AEMC will endeavour to address stakeholder needs through the content and timing of market reviews.

The AEMC's existing powers provide significant discretion to consider the known and emerging issues raised by the rule change request and stakeholder feedback on the consultation paper. For more on the AEMC's market review powers, see section 5.1.

If the AEMC carries out a review, it may convene a committee or working group of independent experts and industry representatives to support the review.[39] The purpose of convening such a committee, as with the model proposed by the rule change request, would be to benefit from diverse insights from advisers across the market.

Alternatively, as the rule change request further considered, the AEMC could engage external consultants from time to time. This would enable the AEMC to obtain relevant and specialised advice and assistance in carrying out a review. The use of existing statutory powers to establish a committee, working group or otherwise engage consultants would enable the AEMC to seek out the most relevant expertise for the particular issues it is considering in a review at that time.

4.1.2 Commission's assessment

The Commission has considered the reasons for the rule change request as well as the concerns expressed by stakeholders during the first round of consultation. A key issue has been a desire for a more clearly defined prioritisation of DER technical standards and requirements for the NEM.[40]

This is motivated, in part, by the significant potential for market uncertainty resulting from the unprecedented uptake of new decentralised capacity across the power grid. It recognises the disparate nature of existing governance arrangements (some of which are beyond the AEMC's jurisdiction to address), and the difficulty discerning NEM-wide priorities when industry-led proposals for new technical standards are submitted to Standards Australia.

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38 For more on jurisdictional interactions, see AEMC, *Governance of DER technical standards,* consultation paper, 2 September 2021, pp. 5-6.

39 See sections 39 and 45(3) of the NEL.

40 Submissions to the consultation paper: AEMO, AGL, ARENA, AusNet, ECA, Enphase, Ergon Energy and Energex, IEEFA, PIAC and Tesla.

Undertaking the role as explained above has several benefits.

- **Address speed concerns raised by the rule change request:** The AEMC understands some of the delays ascribed to the standards development process by the rule change request can be explained by contradictory or competing perspectives from energy stakeholders when a new standard is proposed. Given the speed with which DER technologies are evolving, this is unsurprising — stakeholders understandably bring different interests to Standards Australia's DER working groups. Clarifying these perspectives can involve time-consuming analysis and discussion within a Standards Australia technical committee.

  This suggests that more active engagement to clarify the NEM's needs for specific technical standards, in consultation with a range of interested stakeholders, can help prioritise energy sector issues before the formal standards development process begins. Moreover, where the prioritisation has been carried out with reference to the NEO's focus on the long-term interests of consumers this would enable a better alignment of DER technical standards through Standards Australia with the needs of the NEM and electricity consumers. This approach has the potential to lead to greater time saved through the standards development process.

  If the AEMC was to carry out this function, the flexibility of the AEMC's review powers would support the objective identified by the rule change request. Compared with the NER-based committee model proposed by the rule change request, the AEMC can undertake reviews on any of the issues related to DER technical integration at any time. This provides flexibility to focus on priority issues as soon as they arise as necessary.

- **Make standards development more transparent and consultative:** Another concern made clear by the rule change request and stakeholder submissions is the need for DER technical standards to be developed transparently, with decision-makers consulting affected stakeholders.[41] If the AEMC was to carry out this first role, it could achieve both objectives by using its review powers to identify the NEM's needs for DER technical standards. A review would be finalised with the publication of a report setting out findings and recommendations, with regard to stakeholder consultation and expert advice.
- **Reduce the regulatory burden for NEM participants:** The AEMC appreciates the significant regulatory burden stakeholders may face navigating the various jurisdictional regimes for DER technical standards. This burden could exacerbate unequal access to decision-making for different stakeholders. As highlighted by the rule change request, certain stakeholders may be able to commit more resources to existing standards development processes.[42]

  However, undertaking this first role provides the opportunity to at least partly address these concerns by making it easier for interested stakeholders to refer to a single publication summarising and explaining developments on DER technical standards and

41 Submissions to the consultation paper: AEMO, AGL, Citipower, Powercor and United Energy, IEEFA and Origin Energy.

42 Rule change request, p. 5.

requirements across jurisdictions. With a quickly evolving sector of the electricity market, and many varied participants, the Commission considers this outcome of role one is likely to be beneficial to numerous stakeholders.

Overall, the Commission considers implementing role one would meet the NEO by reducing the cost and complexity of implementing regulatory and administrative reforms for DER technical standards. First, consumers benefit from more clear and targeted standards development by Standards Australia as a result of a clarification of NEM priorities from the outset. Secondly, compared with the rule change request, consumers reduce the risk of participating in duplicate processes for developing new DER technical standards.

4.1.3 Stakeholder engagement

The table below summarises the issues raised by stakeholders about identifying DER technical standards and requirements relevant for the NEM.

Table 4.1: Stakeholder views on identifying DER technical standards for the NEM

ISSUE	STAKEHOLDERS	AEMC RESPONSE
Overall support for the AEMC taking a more active role addressing DER technical standards in the NEM, including support for the governance arrangements proposed by the rule change request	AEMO, AGL, ARENA, AusNet, ECA, Enphase, Ergon Energy and Energex, IEEFA, PIAC and Tesla	Role one allows the issues underlying the rule change request to be addressed while accounting for the need to avoid duplication.
While supportive of some action to address DER technical standards in the NEM, some reservations about aspects of the governance arrangements proposed by the rule change request	AER, CEC, ENA, George Wilkenfeld and Associates, Origin Energy, Rheem, SA DEM, SAPN and Vector	
Do not agree with the rule change request because of the risk of duplicating other initiatives and, potentially, not doing these duplicate roles as well as other organisations	AusGrid, Dr Martin Gill, Master Electricians Association, Standards Australia and TasNetworks	
An AEMC committee on DER technical standards could	AGL (p. 1)	Role one aims to complement rather than duplicate existing

ISSUE	STAKEHOLDERS	AEMC RESPONSE
complement Standards Australia in several ways. These include identifying NEM policy priorities from new technical standards and supporting review findings with research, studies, and cost-benefit analysis		standards development, while still accounting for NEM priorities.
The AEMC should provide greater forward planning for DER technical standards activities and objectives for the NEM	ENA (p.1) and Tesla (p. 1)	Stakeholders should obtain greater certainty about future market developments and responses to technological developments from role one.
The development of new DER technical standards should better reflect NEO assessments and other cost-benefit assessments	Reposit Power (p. 1)	The AEMC will, if and when undertaking role one, develop NEO assessment frameworks to consider the NEM's needs and priorities from technical standards.

4.2 Role two: work with the ESB and ARENA's DEIP

4.2.1 Description

In the short-term, the AEMC recognises some work identifying when the NEM needs new or updated DER technical standards may be carried out by the ESB's DER Implementation Plan and/or ARENA DEIP's workstreams on interoperability and dynamic operating envelopes. If so, rather than replicating this work, the AEMC would, under role two, support these initiatives by:

- actively participating in both processes and undertaking any tasks agreed in these fora
- if necessary, facilitate the progression of issues raised in these fora to Standards Australia.

This role recognises the ability of other initiatives to complement role one, while remaining focused on the AEMC's ability to support practical outcomes for consumers.

Where the AEMC reaches any findings or makes recommendations distinct from the ESB or ARENA DEIP, these would be included in the report published as part of a review undertaken in role one.

4.2.2 Commission's assessment

The AEMC expects three main benefits from implementing role two to work with the ESB and ARENA DEIP, where existing initiatives are addressing the NEM's need for new or updated DER technical standards.

- **Avoiding duplicating or contradicting NEM policy recommendations made elsewhere.** There is some uncertainty about the extent to which the ESB's DER Implementation Plan and ARENA's DEIP workstreams will address technical standards issues raised by the rule change request. Therefore, the Commission considers it would be prudent to ascertain the extent to which these initiatives will address DER technical standards before confirming its work plan under role one.

  This approach would avoid the AEMC addressing issues, and making policy recommendations, that might duplicate or depart from similar findings by other initiatives. In this way, the draft rule determination meets the NEO by avoiding potential duplication between the AEMC's activities and existing initiatives such as the ESB's DER Implementation Plan and ARENA DEIP workstreams.
- **Minimising the regulatory burden on stakeholders.** Many of the same stakeholders would participate in any AEMC work on DER technical standards as well as contributing to the ESB's DER Plan and ARENA DEIP workstreams. Given stakeholders are already facing numerous requests to participate in policy initiatives, avoiding adding any unnecessary tasks would be beneficial. The Commission considers its approach to implementing role two would meet the NEO because it is expected to reduce the regulatory and administrative complexity of determining the NEM's priorities from DER technical standards. This is because stakeholders would not be required to participate in potentially duplicative processes associated with both the ESB and ARENA DEIP, and the activities of a standing AEMC committee on DER technical standards.
- **Assuring stakeholders work on DER technical standards will endure.** The work to technically integrate DER into the NEM may last beyond the ESB and ARENA DEIP's planned activities. The purpose of working with these initiatives in the short-term is to leverage existing work where it addresses DER technical standards, while enabling the AEMC to continue the role of guiding DER integration work over the longer-term. This approach is likely to be consistent with achieving the NEO because it should assure consumers the AEMC's future work program on DER technical standards addresses the safety, security and reliability of power supply in the context of ongoing policy developments.

4.2.3 Stakeholder engagement

The table below summarises the issues raised by stakeholders about working with the ESB and DEIP on DER technical standards for the NEM.

Table 4.2: **Stakeholder views on working with the ESB and ARENA DEIP**

ISSUE	STAKEHOLDERS	AEMC RESPONSE
Strong support for leveraging existing abilities, such as the ESB's Implementation Plan and Standards Australia's standards development processes	ENA (p. 1)	Role two aims to maximise the AEMC's ability to complement, rather than duplicate, existing abilities.
ARENA DEIP workstreams on interoperability and cyber security could be handed to a new AEMC committee on DER technical standards when appropriate	Origin Energy (p. 3)	Role two could include, as discussed in chapter 5, an AEMC committee to support reviews of DER technical standards.
The AEMC's new DER technical standards committee could work with ARENA DEIP workstreams when appropriate	IEEFA (p. 13)	
ARENA DEIP could complement activities undertaken by the AEMC	Reposit Power (p. 8)	
ARENA DEIP is, to date, only ad hoc and vulnerable to being driven by the interests of a single stakeholder	AGL (p. 7)	
Strongly disagree with relying on the ESB's DER Implementation Plan to drive the NEM's governance arrangements for DER technical standards	SAPN (p. 3)	To the extent stakeholders identify issues not being undertaken by an existing initiative such as the ESB's Plan, the AEMC would be able to consider these possible gaps.

4.3 Role three: observe Standards Australia's DER working groups

4.3.1 Description

By implementing role three, the AEMC would participate in Standards Australia's DER technical committees as an observer — that is, a non-voting member. For example, the AEMC

is currently an observer on Standards Australia's working group for AS 4777.2 (minimum inverter standards for small-scale generators).[43]

By expanding the AEMC's participation to other DER-related committees, the AEMC will be able to provide perspectives to working groups on NEM issues and priorities, complementing any reports arising from roles one and five.

As part of the broader reporting envisaged in other roles set out in this draft rule determination, the AEMC would provide transparency to stakeholders by reporting its participation in Standards Australia's DER committees. The reporting may include information on developments relevant to the NEM's technical integration of DER.

If implemented, role three would be achieved by accepting an invitation from Standards Australia to join any of its DER technical committees as may be relevant to the NEM's technical integration of DER. As observing members, the AEMC's representative staff will have full access to the material considered by the working group. This will enable the Commission to remain informed on the progress of DER-related standards.

4.3.2 Commission's assessment

There are two key benefits arising from the AEMC expanding its staff-level participation in Standards Australia's DER working groups as observing members:

- contribute NEM and NEO perspectives to the consideration of DER related technical standards
- enable the Commission to remain informed on the progress of DER-related standards and include this in decision-making as relevant.

By contrast, the rule change request suggested the AEMC could, as part of its proposed governance model, assume responsibility for determining DER technical standards in the NEM. By contrast, better supporting existing processes for determining DER technical standards would be more consistent with achieving the NEO, at least in the first instance.

In making this decision, the Commission notes it is not possible to place enforceable obligations on Standards Australia under the NER with respect to its standards making process. Regardless of any processes that may be established under the NER for the AEMC or a supporting committee to determine DER technical standards, Standards Australia could, and likely would, continue developing DER technical standards. Consequently, implementing the rule change request's proposed solution risks duplication and confusion.

For example, the OEMs of DER devices sold in Australia need a certain amount of time to update manufacturing processes to enable the devices to comply with new technical standards. Further time is required to complete necessary testing to demonstrate compliance with Australian Standards. Even if the AEMC determined NEM-based DER technical standards more quickly than Standards Australia, OEMs would still need to update their processes and address compliance requirements. The additional cost could lead to higher costs for consumers. Alternatively, manufacturers may withdraw from the Australian market in

43 For more on Standards Australia's DER working groups, see section 1.3.3.

response to the increased regulatory burden device. This risk is particularly relevant given a significant share of DER devices sold in Australia are imported.

Further, the high rate of imported DER devices in Australia increases the importance of developing local technical standards that align with international standards and processes. Standards Australia has longstanding relationships where it learns from, and contributes to, the development of international technical standards. The AEMC would be unlikely to be able to replicate this expertise.

If the AEMC implements role three, it considers this approach would meet the NEO by avoiding the risk of duplicating Standards Australia's processes for developing new DER technical standards. Consumer outcomes are supported by avoiding such duplication. Manufacturers and service providers should therefore be able to provide a range of DER devices to consumers in the NEM without the costs that may arise from a less timely and more cumbersome process for integrating new DER capacity.

4.3.3 Stakeholder engagement

The table below summarises the issues raised by stakeholders about working with Standards Australia on DER technical standards for the NEM.

Table 4.3: **Stakeholder views on aligning the AEMC with Standards Australia**

ISSUE	STAKEHOLDERS	AEMC RESPONSE
The AEMC should become involved in Standards Australia's processes for developing new DER technical standards	Dr Martin Gill (p. 1)	The AEMC plans to join the relevant DER technical committees in addition to that for AS 4777.2.
The AEMC should enter an agreement outlining our relationship with Standards Australia on DER technical standards	Rheem (p. 5)	
Any new AEMC committee determining DER technical standards risks creating unintended compliance problems. This is because several jurisdictional regimes automatically call up standards developed by Standards Australia. Creating a new process for developing	AGL (p. 8)	Standards Australia will remain responsible for determining new DER technical standards. This avoids unnecessarily duplicating activities and specialities developed by Standards Australia, in accordance with risk allocation principles described

ISSUE	STAKEHOLDERS	AEMC RESPONSE
technical standards in Australia risks creating divergence between the NER and jurisdictional regimes		in Chapter 3.
Standards Australia should develop DER technical standards	AusGrid, AusNet, Dr Martin Gill, ENA, Rheem, SAPN, Standards Australia, TasNetworks and Vector	
Disagree with the AEMC, AEMO and the AER collaborating to develop and update DER technical standards in the NER as this would increase AEMO's role beyond what the NEL envisages	Ergon Energy and Energex (p. 6)	
The new AEMC committee could determine DER technical standards	AEMO, IEEFA, ECA, Enphase and Tesla	

4.4 Role four: update DER technical standards in the NER as needed

4.4.1 Description

Once technical standards are developed by Standards Australia or international organisations such as the IEEE, the AEMC has a role updating DER technical standards in the NER as needed. In this capacity, as a legislated function, the AEMC will respond to rule change requests to add, update or remove technical standards in the NER. Responses to rule change requests will be determined in accordance with the NEO.

4.4.2 Commission's assessment

The Commission notes that if a rule change request seeks recognition of a standard in the NER and/or NERR, as with AS 4777.2, the proposal will be assessed through a rule change process. In addition, other technical requirements could be similarly included in the NER and/or NERR if the Commission is satisfied that doing so would be consistent with achieving the relevant energy objective.

The ability for stakeholders to submit a rule change request related to DER technical standards would continue regardless of whether the AEMC adopted the governance model proposed by the rule change request.

4.4.3 Stakeholder engagement

The table below summarises the issues raised by stakeholders about including DER technical standards in the NER.

Table 4.4: **Stakeholder views on including DER technical standards in the NER**

ISSUE	STAKEHOLDERS	AEMC RESPONSE
DER technical standards should be in the NER	AGl, Citipower, Powercor and United Energy, CEC, Enphase, Origin Energy and Reposit Power	The AEMC will respond to rule change requests in accordance with our obligations under the NEL.
DER technical standards should be in either the NER or a subordinate instrument	Ergon Energy and Energex (p. 6) and PIAC (p. 1)	The AEMC will decide if specific standards should be included in the NER or subordinate instruments in response to specific requests.
DER technical standards should be in a subordinate instrument to the Rules	AEMO, ECA IEEFA and SA DEM	
DER technical standards should be in a subordinate instrument to the NER, but only if an AEMC advisory committee is responsible for maintaining the subordinate instrument and the instrument only calls up technical standards developed by a standard-setting organisation such as Standards Australia	SAPN (p. 3)	

4.5 Role five: report on progress adopting standards and integrating DER

4.5.1 Description

Role five would enable the AEMC to report on DER technical standards and requirements that apply in the NEM through the NER and/or the NERR. This reporting could be carried out through a review process to the extent there are gaps in any existing initiatives and work programs by other organisations. Role five may include:

- reporting on recently introduced or updated DER technical standards in the NEM

- in conjunction with role one, assessing and commenting on market trends associated with integrating DER in the NEM, including the outcomes from work undertaken by other market bodies and initiatives
- recommendations, where necessary, about actions market participants and other stakeholders may be able to undertake to better support the integration of DER.

Given the potential overlap between issues considered in each role, this activity can likely be done as a single review process at any given point in time. The AEMC's review powers provide significant flexibility to consider, consult on and tailor reporting on priority issues if and when needed.

4.5.2 Commission's assessment

Stakeholders have expressed an interest in better understanding how various jurisdictional regimes and standards development processes are impacting the NEM's ability to integrate DER. In a sense, this reporting role is therefore an opportunity to provide an assessment of 'progress so far' in introducing DER technical standards to the NEM.

Under this role, there is an opportunity to assess if existing DER standards and technical requirements in the NEM are having their intended impact in practice. For example, from 18 December 2021, the NER will require connection agreements between DNSPs and customers with micro embedded generation units to comply with the DER Technical Standards (which will be defined as the requirements in AS 4777.2:2020).[44] This Standard addresses minimum inverter standards to promote small-scale generators riding through voltage disturbances in the distribution network.[45]

The rule change adopted the prevailing version of AS 4777.2 as updated from time to time. It is possible, in theory, for future updates to AS 4777.2 to not be consistent with achieving the NEO. If the AEMC were to carry out role five it could assess if any update of standards already in the NER remain consistent with the long-term interests of consumers.

More broadly, a review carried out to implement role five would allow the AEMC to consult stakeholders on the operation of the NER and/or NERR in terms of the progress of implementing technical standards. A targeted review could respond to specific issues (such as compliance and enforcement of technical standards) stakeholders might like the AEMC to address, outlined in the terms of reference established before the review begins.

The Commission considers this approach, if implemented, is likely to meet the NEO by promoting market efficiency principles. In particular, implementation of role five allows the AEMC to promote dynamic efficiency outcomes for DER. Dynamic efficiency is achieved by considering what reforms may be necessary to support improvements to DER manufacturing efficiency over time.

44 For more, see section 1.2.

45 AEMC, *Technical standards for distributed energy resources*, final determination, 25 February 2021.

4.5.3 Stakeholder engagement

The table below summarises the issues raised by stakeholders about including DER technical standards in the NEM.

Table 4.5: Stakeholder views on integrating DER technical standards in the NEM

ISSUE	STAKEHOLDERS	AEMC RESPONSE
The AEMC should assess implementation issues, including how to resolve differing interpretations of standards incorporated in the NER such as AS 4777.2	CEC and ECA	Through role five, the AEMC may be able to consider a range of issues related to how the NER and/or NERR operate in relation to DER standards and technical requirements.
Expanding compliance activities likely increases consumer costs	AusGrid (p. 1)	
Benefit from periodically assessing the NEM's progress adopting DER technical standards	CEC (p. 1) and Enphase (p. 5)	
Important to define DER devices covered by the NER. Some devices (such as air conditioners, pool pumps and EV chargers) may be difficult to implement through customer connection rules	SA DEM (p. 2)	
The AEMC's response should explain how jurisdictional development interact	Tesla (pp. 2, 8 and 9)	
Connection frameworks should be nationally consistent		
DNSP service and installation rules should be captured by a single governance framework		

5 USING EXISTING POWERS

Where the AEMC will undertake any of the five roles described in this draft rule determination, it will do so by using its existing legal powers. In particular, the AEMC will rely on its ability to:

- self-initiate a review
- establish committees, panels and working groups.

This chapter sets out the relevant requirements and obligations for these powers and how they address the issues raised in this rule change process.

5.1 AEMC-initiated reviews

5.1.1 Description

The AEMC's review power allows it to consider how existing rules are achieving energy market objectives and the extent to which reforms may be needed.[46] The focus of the NEO and NERO are the efficient investment in, and operation and use of, electricity services in the long term interests of consumers. As a result, the AEMC is required to apply assessment frameworks based on these objectives when initiating reviews that relate to DER technical standards.[47]

The provisions enabling the AEMC to initiate a review provides it with some flexibility. Specifically, the AEMC is able to commission reports, publish discussion papers or draft interim reports during the review.[48] In conducting a review, the AEMC may convene working groups consisting of any persons considered relevant to the issues under consideration (for more, see section 5.2).[49]

Under the review power, the AEMC is required to provide a copy of its report to energy ministers and publish the report online.[50]

Applying the review power to DER technical standards in the NEM

The AEMC's review power provides a broad scope to consider the NEM's development and implementation of DER technical standards — in particular, the reporting envisaged in roles one, two and five. The NEL and NERL allow the AEMC to review the operation and effectiveness of the NER and the NERR, or any matter relating to the rules.[51] This allows a review to consider issues relating to both DER technical standards and broader issues related to the NEM's technical integration of DER. The limit to any reviews would be making sure any issues considered relate to the NER and NERR.

46 Section 45 of the NEL and section 232 of the NERL. While the ability to self initiate a review is provided in each of the energy laws, only the NEL and NERL are relevant to DER technical standards.
47 AEMC, *Applying the energy market objectives*, 2019, p. 4.
48 Section 45(3) of the NEL and section 232(3) of the NERL.
49 Ibid.
50 Section 45(4) of the NEL and section 232(4) of the NERL.
51 Section 45(1) of the NEL and section 232(1) of the NERL.

A review could be combined to consider DER-related issues under the NER, the NERR or a combination of the two frameworks:

- **NER:** The NER provides the framework for distribution system security.

  For example, the AEMC could use its review powers to consider the impact of DER uptake on the distribution system including the extent to which specific technical standards such as AS 4777.2 and its updates remain appropriate or if other standards should be required.
- **NERR:** The NERR defines a 'small generator' as an embedded generating unit of the kind contemplated by AS 4777.2.[52] It imposes obligations on DNSPs to publish information relating to small generator connections such as:
  - information about the safety and technical requirements applicable under energy laws to small generators or the owners, operators or controllers of small generators
  - information about requirements for servicing and inspecting small generators and the required qualifications for persons undertaking the work and requirements for providing information to DNSPs about the results of these inspections
  - references to the jurisdictional or other legislative and statutory instruments under which the above requirements are imposed.[53]

  For example, the AEMC could use its review power to consider whether the NERR's information provision obligations on DNSPs sufficiently protect consumers in the context of high DER uptake.

5.1.2 Commission's assessment

Using existing powers to address DER technical standards in the NEM is consistent with achieving the NEO for three reasons:

- maximising the AEMC's ability to address evolving market and policy issues
- providing the AEMC with the ability to consider DER technical standards as part of a broader work program on integrating DER in the NEM
- enabling stakeholders to be able to hold the AEMC to account.

Maximising ability to address evolving market and policy issues

Governance arrangements introduced in response to Dr Schott's rule change request as Chair of the ESB would be limited to addressing the issues raised by the request. The issues include implementing consistent DER technical standards across the NEM and concern about the pace, flexibility and transparency by which technical standards are developed by organisations such as Standards Australia.[54]

It is possible these issues, identified in the September 2020, are in line with all future NEM needs from DER technical standards. However, it is also plausible new or related issues will arise in the NEM in future years which the AEMC may need to address, but which are not

52 Rule 3 of the NERR.
53 See rule 147A of the NERR for a full list of the information required to be published.
54 For more on the rule change request, see Chapter 2.

sufficiently identified by the request to be considered by an AEMC DER technical standards committee. At the very least, there is some doubt that governance arrangements introduced in response to the rule change request will provide the AEMC sufficient scope to address all DER technical standards issues arising in the future. This may ultimately impact on the ability, timeliness and price of DER devices connecting in the NEM. This concern is particularly relevant given the rapid technological evolution underway for DER devices, changing behaviour by the consumers who use these devices and the need for policymakers to respond to this evolving situation in a timely way.[55] For this reason, the Commission has concluded the proposed governance approach in the rule change request would not be consistent with achieving the NEO.

By contrast, the AEMC's review power allows it to consider a broader range of potential issues related to the technical integration of DER devices in the context of the NER and the NERR. Potential issues for the AEMC to address could include interactions between the NEM and as yet unkown DER technologies.[56]

In practice, initiating a review will require the AEMC to set out terms of reference in advance. This will allow the Commission to work with stakeholders to identify the particular issues needing to be considered by the review, as well as the review's timeframe and overall process. Given the evolving market and technological context for DER devices, setting out terms of reference for each review should provide stakeholders clarity about each review's scope.[57]

By maintaining maximum flexibility to address evolving market and technological conditions, the Commission considers the draft rule determination promotes market efficiency principles. In particular:

- Productive efficiency is promoted by governance arrangements aiming to provide maximum flexibility to OEMs to innovate devices processes and other technological aspects of manufacturing, while still contributing to the safety, security and reliability of the NEM's power supply. For example, the AEMC or an AEMC committee would consider whether manufacturers could meet new DER technical standards introduced in the NER. This would help manage the risk of standards being developed or updated too quickly for device manufacturers to update processes and equipment, and complete compliance and safety testing to meet the new NER requirements.
- Dynamic efficiency is promoted by governance arrangements providing flexibility to support improvements to manufacturing efficiency over time. Relying on the AEMC's existing powers rather than prescribing new governance arrangements in the NER now will allow the AEMC, with stakeholders, to better refine the issues to be considered in each review to address emerging issues over time.

55 Stakeholders concerned broadly with the need to address DER technical standards through enhanced governance arrangements include AEMO, AGL, ARENA, Ausnet, the CEC, ECA, Enphase, Ergon Energy and Energex, IEEFA, Origin Energy, PIAC and Tesla.

56 ECA submission to the consultation paper, p. 3.

57 ENA submission to the consultation paper, p. 1.

Considering DER technical standards as part of broader DER work program

Drawing on the AEMC's ability to initiate a review will also allow it to address DER technical standards as part of a broader work program to support the NEM's technical integration of DER devices. Benefits of this approach include administrative efficiencies for the AEMC and stakeholders by potentially reducing the number of initiatives addressing issues related to DER technical integration. For example, this approach could enable a swifter respond to any new recommendations or tasks arising from the ESB's DER Implementation Plan and ARENA DEIP. This is because the AEMC does not yet know the outcome from these initiatives. If new DER governance arrangements are not prescribed in the NER through this rule change process, the future work program for DER technical standards can be tailored to reflect forthcoming policy developments as necessary. In other words, the Commission avoids committing to ongoing process arrangements before the full policy context for addressing DER technical standards is clear to market bodies and stakeholders.

Addressing DER technical standards as part of a broader DER work program meets the NEO by promoting market efficiency principles — namely, appropriate risk allocation. For example, under the draft rule determination Standards Australia will remain responsible for determining new or updated DER technical standards. This reflects Standards Australia's institutional skills and experience, including relationships with standards development processes in the international jurisdictions with the potential to impact devices imported in Australia. By contrast, responsibility for assessing the extent to which obligations on DNSPs remain appropriate given DER's unprecedented uptake remains with the AEMC in line with our institutional experience and relationships.

Holding the AEMC to account

Stakeholders have indicated they would like to hold the AEMC to account for addressing DER technical standards in the NEM. A rule change would provide certainty to stakeholders to the extent the NER require the AEMC to undertake specified tasks in a prescribed way. Nevertheless, there are alternative methods for stakeholders to hold the AEMC to account:

- the roles the Commission consider necessary to address DER technical standards in the NEM are outlined in this draft rule determination
- this draft rule determination sets out the Commission's commitment to work with other market bodies and stakeholders in the development of DER technical standards
- any recommendations or tasks for the AEMC from the ESB's forthcoming DER Implementation Plan
- new rule change requests.

The Commission considers these options are fit for purpose for the issues under consideration and are consistent with the flexibility sought by stakeholders to achieve DER integration in the NEM in a cost effective, timely manner that does not impact on the safety and reliability of the market.

5.1.3 Stakeholder engagement

The table below summarises the issues raised by stakeholders about governance approaches to DER technical standards in the NEM.

Table 5.1: **Stakeholder views on governance approach**

ISSUES	STAKEHOLDERS	AEMC RESPONSE
The AEMC should include new governance arrangements in the NER with prescribed operations, functions and powers	AEMO, AGL, IEEFA and PIAC	The AEMC can address the issues raised by the rule change request more flexibly by using its ability to initiate a review.
Existing governance arrangements are not prescriptive enough, with uncertainty about which organisations are responsible for specific tasks	CEC (p. 17)	The determinations in response to the rule change request, particularly the roles described in chapter 4, aim to provide greater clarity about roles and responsibilities to address DER technical standards in the NEM.
If the AEMC creates new governance arrangements under the NER, we should clearly define the terms of reference	ENA (p. 1)	The AEMC will work with stakeholders to establish terms of reference on each occasion it initiates a review to consider DER technical issues.

5.2 Forming a committee

5.2.1 Description

Under the NEL and the NERL, the AEMC can establish committees, panels and working groups to:[58]

- provide advice on specified aspects of the AEMC's functions
- undertake any other activity related to the AEMC's functions as specified by the AEMC.

The AEMC's functions include:

- rule-making
- market development

58 Section 39 of the NEL and section 227 of the NERL.

- any other functions conferred on the AEMC under the relevant law or rules.[59]

Applying the committee power to DER technical standards in the NEM

The AEMC can create a committee to support specific work such as a review or rule change process. This means, for example, the AEMC could establish a committee to provide expert advice to a review considering the NEM's application of minimum inverter standards under the recent AS 4777.2 rule change. The AEMC could also create a standing committee to consider, to the extent of its functions, broader DER technical integration issues.

5.2.2 Commission's assessment

Using the Commission's existing power to form committees is consistent with achieving the NEO because it allows committee structures and functions to flexibly adapt to the evolving market and policy context for DER in the NEM.

By contrast, the proposal set out in the rule change request suggested amending the NER to require the AEMC to establish and maintain a committee to advise on DER technical standards. The Commission has determined this would not be consistent with achieving the NEO. Making such rules would result in a committee structure, governance and scope that addresses the specific DER issues identified in the rule change request. Other issues that may arise in the future, as DER integration develops, may be outside the scope of such a committee.

Existing committee power can achieve similar outcomes as rule change request

Committees formed to support self-initiated reviews can:

- be convened to consist the mix of industry representatives suggested by the rule change request
- consider specific issues related to DER technical standards
- publicly report on advice provided by the committee, and the reasons if the AEMC departs from this advice.

These structures and functions are consistent with the outcomes sought by the rule change request. However, there are other benefits in forming a committee or panel under the existing provisions in the NEL and/or NERL. These are set out below and are consistent with achieving the NEO.

Additional benefits from using existing committee power

There are additional advantages to committees convened under the AEMC's existing powers, compared with prescribing the new committee's processes and membership criteria in the NER. These advantages include the AEMC being able to:

- scale committee activities to suit the priority DER issues facing NEM participants and other stakeholders

59 Section 29 of the NEL and section 221 of the NERL.

- update the mixture of industry representatives on committees in line with evolving technological and markets for DER devices and the expertise needed to consider the issues at any particular time
- rely on the same advisory committee, where relevant, for DER technical standards and broader DER integration issues.

The AEMC can also engage external consultants to provide technical advice and support under either approach. The Commission will be able to consider the suitability of such engagements as its future DER work plan evolves.

Using the AEMC's existing committee power is consistent with achieving the NEO by promoting dynamic efficiency. By providing greater discretion over the individuals called upon to participate in a committee on DER technical standards, and the issues considered by the committee, the AEMC can better align the committee with the evolving market for DER devices. That is, the AEMC can convene a committee to specifically address the NEM's DER technical standards at that time. It would not be locked into a committee structure set under the NER that, in the future, may be unlikely to support technological improvements by new market entrants.

Further, the draft rule determination supports consumer outcomes by avoiding unnecessary duplication. Unlike the rule change request, the AEMC is not required to establish a standing committee that risks duplicating the activities of other initiatives. Duplicating other initiatives and standard setting processes would risk creating a difficult DER implementation path for industry participants. This may reduce the availability of DER devices sold in Australia, and potentially put upward pressure on device prices.

5.2.3 Stakeholder engagement

The table below summarises the issues raised by stakeholders about convening a committee to consider DER technical standards.

Table 5.2: Stakeholder views on convening a committee

ISSUE	STAKEHOLDERS	AEMC RESPONSE
Any committee addressing DER technical standards issues in the NEM should include diverse representation in line with the model proposed by the rule change request	AEMO, AGL, AER, AusGrid Citipower, Powercor and United Energy, Enphase, Ergon Energy and Energex, George Wilkenfeld and Associates, IEEFA, Origin Energy, PIAC, SAPN	The AEMC's power to convene committees to support functions, such as reviews, provides flexibility to appoint members in line with the model proposed by the rule change request but also adjust the membership to best support analysis of the most relevant issues.
Committee membership might be better modelled on ARENA DEIP than the Reliability Panel	SA DEM (p. 2)	
The selection process for a	Master Electricians	

ISSUE	STAKEHOLDERS	AEMC RESPONSE
newly created Committee on DER technical standards should be the subject of separate consultations	Association (p. 5)	
May need to fund the participation of consumer representatives	AER (p. 2)	The AEMC does not, at this stage, have plans to fund participants on committees convened to support functions addressing DER technical standards.
The AEMC should introduce a 'bar exam' asking potential committee members about electricity issues before accepting their membership	Reposit Power (p. 6)	The AEMC does not intend to introduce examinations testing the ability of potential committee members.

ABBREVIATIONS

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ARENA	Australian Renewable Energy Agency
CER	Clean Energy Regulator
Commission	See AEMC
DEIP	Distributed Energy Integration Program
DER	Distributed energy resources
DNSP	Distribution Network Service Provider
ESB	Energy Security Board
IEEE	Institute of Electrical and Electronics Engineers
NEL	National Electricity Law
NEO	National electricity objective
NERL	National Energy Retail Law
NERO	National energy retail objective
SRES	Small-scale Renewable Energy Scheme

A SUMMARY OF OTHER ISSUES RAISED IN SUBMISSIONS

This appendix sets out the issues raised in the first round of consultation on this rule change request and the AEMC's response to each issue. If an issue raised in a submission has been discussed in the main body of this document, it has not been included in this table.

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

ISSUE	STAKEHOLDERS	AEMC RESPONSE
Disagree with expanding the Reliability Panel's responsibilities to include issues associated with DER technical standards	AEMO, AusNet, CEC, ENA, Enphase, IEEFA, Origin Energy and SA DEM	The AEMC recognises widely held stakeholder reservations about this concept and has not pursued this further.
Industry and consumer representatives should be compensated for contributing to the development and implementation of DER technical standards in the NEM	AER, CEC, Enphase, IEEFA and PIAC	To the extent external expertise is required to undertake detailed technical work in support of the AEMC's work program, the AEMC is able to engage paid consultants.
Similar to Generator Performance Standards, DER technical standards should be regularly reviewed by peers	Reposit Power (p. 8)	At this stage, the AEMC does not have plans to introduce peer review similar to that for Generator Performance Standards. However, an AEMC review is able to consult industry stakeholders.
The AEMC should review the performance of its new DER technical standards committee in 10 years (or greater)	Ergon Energy and Energex (P. 7)	The AEMC has decided against establishing a committee in the NER.
DNSPs should be assigned more compliance responsibilities. But DNSPs would need to be funded for this additional activity. Such an idea should be explored with the likely expansion of the Clean Energy Regulator's	SAPN (p. 4)	The AEMC may consider issues related to compliance as part of role five, which involves reporting on the NEM's adoption of DER technical standards and broader DER technical integration.

ISSUE	STAKEHOLDERS	AEMC RESPONSE
(CER's) likely expanded compliance role for the Small-scale Renewable Energy Scheme (SRES).		
Compliance issues should be considered when DER technical standards are developed and adopted in the NEM		
The AEMC should create a compliance matrix for the NER to help consumers ore easily understand relationships between various standards, regulations and compliance regimes	Enphase (pp. 8 and 14)	
Expanding DNSP compliance activities would likely lead to higher consumer costs	Ausgrid (p. 3)	Any additional costs to consumers from new or expanded compliance activities, to the extent considered by the AEMC, would need to be assessed against the NEO to promote the long-term interests of consumers.
Standards Australia could be paid to expedite faster development of DER technical standards. This could be done instead of establishing under the Rules a new committee to determine DER technical standards	Dr Martin Gill (p. 1) and Enphase (p. 14)	The AEMC has no plans to fund the expedition of new DER technical standards developed by Standards Australia. However, this option may be available to NEM stakeholders with an interest in faster standards process. For more on Standards Australia's publication options, see Appendix D.
The AEMC should work with the CER to differentiate between DER technical standards and DER safety	Enphase (p. 8)	The AEMC remains open to working with stakeholders, including the CER, to further refine responsibilities for the

ISSUE	STAKEHOLDERS	AEMC RESPONSE
standards.		NEM's DER technical standards as required by the NEO.
Consumer concern about the impact of internet security issues on the implementation of DER technical standards	Siraj Rakhada (p. 1)	To the extent internet security issues may impact the adoption of DER technical standards in the NEM, the AEMC remains open to considering this issue through its reporting envisaged in role five.

B RULE MAKING TEST AND ASSESSMENT FRAMEWORK

This appendix set out the rule making tests and assessment framework the Commission applied in making this draft rule determination.

This appendix also sets out the Commission's responses to stakeholder feedback on the assessment framework included in the consultation paper.

B.1 Achieving the NEO and the NERO

Under the NEL the Commission may only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the national electricity objective (NEO).[60]

The NEO is:[61]

> 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.

Further, under the NERL, the Commission may only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the national energy retail objective (NERO).[62]

The NERO is:[63]

> to promote efficient investment in, and efficient operation and use of, energy services for the long term interests of consumers of energy with respect to price, quality, safety, reliability and security of supply of energy.

The Commission must also, where relevant, satisfy itself that the rule is"compatible with the development and application of consumer protections for small customers, including (but not limited to) protections relating to hardship customers" (the "consumer protections test").[64]

Where the consumer protections test is relevant in the making of a rule, the Commission must be satisfied that both the NERO test and the consumer protections test have been met.[65] If the Commission is satisfied that one test, but not the other, has been met, the rule cannot be made.

60 Section 88 of the NEL.
61 Section 7 of the NEL.
62 Section 236(1)of the NERL.
63 Section 13 of the NERL.
64 Section 236(2)(b) of the NERL.
65 That is, the legal tests set out in s. 236(1)and (2)(b) of the NERL.

There may be some overlap in the application of the two tests. For example, a rule that provides a new protection for small customers may also, but will not necessarily, promote the NERO.

B.2 Assessment framework

In assessing the rule change request against the NEO and the NERO, the Commission considers the most relevant aspects of the NEO and NERO for this rule change request are the efficient investment in, and operation of, electricity services with respect to the price, quality and security of supply of electricity.

For more on the Commission's assessment framework, see Table B.1.

Table B.1: Assessment framework description

OBJECTIVE	DESCRIPTION
Security and reliability	• Maximising DER's potential contribution while maintaining grid • Security and reliability, particularly as the energy transition results in increased DER installation and grid-scale variable renewable energy • Accounting for differences in DER installation rates between and within NEM regions • Timeliness of DER technical standards setting for the NEM given the rapid pace of new DER capacity being installed by consumers
Price	• Complexity, cost and timeliness of standard setting and compliance under any new governance arrangements are no more than necessary to achieve security, reliability, and safety objectives (including internal opportunity costs for the AEMC from appropriately resourcing any new governance activities) • Parties responsible for meeting the costs of any new governance arrangements are those best able to manage and mitigate those costs
Safety	• Promote and maintain approved industry safety standards for the owners of DER and across the power system more broadly

B.3 Stakeholder engagement

Table B.2: Stakeholder views on the assessment framework proposed in the consultation paper

ISSUE	STAKEHOLDERS	AEMC RESPONSE
Agree with proposed assessment framework but want the AEMC to consider additional objectives (specified below)	AEMO, AGL, AusGrid, the Clean Energy Council, Enphase, Origin Energy, South Australia Department for Energy and Mining (SA DEM) and Vector	The assessment framework as proposed in the consultation paper has been maintained for the draft rule determination. See below for specific responses.
Framework should also include when the NEO requires new technical standards	AEMO (attachment 2, p. 1)	The AEMC will use the NEO to inform recommendations and other activities in all five roles envisaged by the draft rule determination.
The framework should also include a customer objective to: • facilitate access to open and competitive markets • align Australian energy markets with international standards • support technologically agnostic standard setting.	AGL (p. 3)	Customer objectives as described form part of the AEMC's assessment framework by which we have made this draft rule determination. For more, see chapter 3.
The price objective should be reframed as a cost objective	AGL (p. 3)	The AEMC considered the potential cost implications of implementing the rule change request compared to the approach set out in this draft rule determination. This includes costs from the long-term consumer perspective. For more, see chapter 3.
Framework needs to include potential costs to all customers, including: • direct costs such as new or replacement DER devices to comply with new governance arrangements • indirect costs from monitoring compliance • more broadly, whether the proposed changes maximise benefits from	AusGrid (p. 2)	

ISSUE	STAKEHOLDERS	AEMC RESPONSE
the above costs.		
Framework needs to focus on consumer costs from governance arrangements	Origin Energy (p. 3)	
Assessment framework's price criteria should specify that the beneficiaries from DER pay and broader investment efficiency objectives	Rheem (p. 1)	
Framework should also explicitly address the quality of electricity supply	CEC (p. 10) and Origin Energy (p. 3)	While appreciating the need to make sure the NER maintains the quality of electricity supply for consumers, the AEMC does not think the issues raised in the rule change request require us to focus specifically on quality.
Framework should also consider product quality and installation compliance	Enphase (p. 5)	The scope of this request did not extend to product quality or installation compliance matters.
The NEO and NERO are too narrow to fully capture consumer interests from	ECA (p. 2)	The AEMC is required to assess its responses to rule change requests against the NEO. This is a legal requirement under the NEL.
The assessment framework should move beyond the NEO to consider the interaction between electricity, transport, digital issues and environmental objectives	IEEFA (p. 7)	
The AEMC should also consider 'implementability' - that is, whether NEO objectives will be achieved by implementing the proposed governance arrangements	SA DEM (p. 1)	The practical aspects of achieving the NEO have been addressed throughout this draft rule determination, rather than as a specific element of the assessment framework.
Safety should be prioritised over price and reliability objectives	Rheem (p. 1)	The overall safety of electricity supply is part of the assessment framework the

ISSUE	STAKEHOLDERS	AEMC RESPONSE
		AEMC developed for this draft rule determination. For more, see chapter 3.
Assessment framework should additionally consider innovation and minimising regulatory burden	Vector (p. 1)	Innovation and regulatory burden have been considered as part of the assessment framework applied to the draft rule determination. For more, see chapter 3.

C LEGAL REQUIREMENTS UNDER THE NEL AND THE NERL

This appendix sets out the relevant legal requirements under the NEL and the NERL for the AEMC to make this draft rule determination.

C.1 Draft rule determination

In accordance with s. 99 of the NEL and s. 256 of the NERL the Commission has made this draft rule determination in relation to the rule change request.

The Commission has determined not to make a draft rule.

The Commission's reasons for making this draft rule determination are set out in chapter 3.

C.2 Commission's considerations

In assessing the rule change request the Commission considered:

- its powers under the NEL and the NERL to make the rule
- the rule change request
- submissions and other information received during the first round of consultation
- the Commission's analysis as to the ways in which the proposed rule will or is likely to, contribute to the NEO and the NERO.

There is no relevant Ministerial Council on Energy (MCE) statement of policy principles for this rule change request.[66]

C.3 Northern Territory

From 1 July 2016, the NER, as amended from time to time, apply in the Northern Territory, subject to derogations set out in regulations made under the Northern Territory legislation adopting the NEL (referred to here as the NT Act).[67]

The NT Act provides for an expanded definition of the national electricity system in the context of the application of the NEO to rules made in respect of the Northern Territory, as well as providing the Commission with the ability to make a differential rule that varies in its terms between the national electricity system and the Northern Territory's local electricity system.

The Commission has determined not to make a rule and, consequently, has not made a differential rule in respect of the Northern Territory.

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66 Under s. 33 of the NEL and s. 225 of the NERL, 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. The amalgamated council was formerly called the COAG Energy Council but is now called the Energy Ministers' Meeting.

67 NT Act: National Electricity (Northern Territory) (National Uniform Legislation) Act 2015. Regulations: National Electricity(Northern Territory) (National Uniform Legislation) (Modifications) Regulation.

D STANDARDS AUSTRALIA'S RANGE OF PUBLICATIONS

As summarised below, Standards Australia offers stakeholders a range of publication types. Each publication prioritises distinct aspects of technical standards - for example, the time taken to determine a new technical standard and the amount of stakeholder consultation required before publication.

Table D.1: Standards Australia publications requiring lower consensus than a full standard

PUBLICATION	DESCRIPTION
Interim standard	• A provisional standard with a two-year life • Can take about half the time necessary to develop a 'full' technical standard • Prepared for subjects where not all requirements have been finally determined, or if national consensus is anticipated but not realised • Provides guidance on future standard development, allowing stakeholders to provide feedback • Developed using a formally constituted technical committee using the same process as 'full' standard. However, there is normally no 'public comment' phase as the interim standard is already publicly available for feedback.
Technical specification	• A normative (behavioural) document subject only to limited transparency • May be prepared where subject, or its regulatory environment, experiencing rapid change and proponent favours speed over full consensus • Does not have the support of the full consensus process normally associated with an Australian Standard • Developed by a working group made up of experts and/or interested parties, under the direction of a knowledgeable technical committee • The technical committee approves the final document confirming the appropriate process has been followed, including the necessary consultations and peer review.
Handbook	• An informative document that may be used to support a standard or a group of standards already in place • Can aid implementation or provide additional information for standard users

PUBLICATION	DESCRIPTION
	• In some circumstances a handbook may be produced where there is no Standard, and no technical committee, but the content is considered to be in the public interest • One possibility is to publish a handbook to gauge reaction and seek comments in a new field, determining if consensus standardisation activities are needed • Technical content normally developed by a single author or by a selected group of experts, rather than by a constituted technical committee • In cases where consensus cannot be reached following the development of a draft standard, the technical committee may choose to publish the document as a handbook so that users gain the benefits of the committee's deliberations. In this case there are no requirements and the information is advisory only. A handbook can also be developed in conjunction with an industry association which would take responsibility for the bulk of the drafting work. • Handbooks represent only the authors' views • Peer reviewed, with reviewers normally taken from appropriate committee.
Certified reference material	• While not a publication, an Australian Standard Certified Reference Material (ASCRM) is important in a number of industries, particularly coal and minerals. ASCRMs are samples with a known composition that can be used as a 'standard' for chemical analysis • ASCRMs are always accompanied by a technical report providing details of their source, preparation and chemical composition.
Technical report	• Provides information on the preparation of certified reference material, including chemical and physical properties • Do not contain requirements and do not generally contain explanatory details or information supplementary to a standard • Developed by a technical committee. However, the actual drafting may be done by an individual or by a small working group • Does not require peer review or public comment. Rather, at the end of the process, the technical committee is asked to sign off the final document — informally and without the need for unanimity. In the unlikely event of a negative vote within the technical committee, a simple majority vote in the committee is enough to publish the technical report •

PUBLICATION	DESCRIPTION
	• Time required varies as a technical report is generally a by-product of developing another publication
Miscellaneous publication	• An informative document listing information not found in other Standards Australia's documents. Could include additional information collected in the process of developing a standard or a list of products that have been approved for use under a certification scheme. In certain circumstances miscellaneous publications can report requirements used in certification schemes • Normally developed at the direction of a constituted technical committee, with a new project to develop a miscellaneous publication requiring the same initial approval process as a full standard • Once the decision has been taken to develop the product, no further approval is needed for the contents of the first or subsequent editions. Similarly, no public comment is required before finalising a miscellaneous publication.
Standards Alert	• An informative document issued by Standards Australia to clarify an urgent issue for industry or the public in general • Sets out the specific matter and the advice of the committee to address the matter • Normally based on uncontested factual information and is used where speed of delivery is high priority • Normally withdrawn once the matter has been addressed in the relevant standard • Only the views of those who respond within the given time frame are considered. Can be released if, among respondents, no major stakeholder interests collectively maintain an objection.

Source: Standards Australia, *Standardisation Guide 003: Standards and Other Publications*, July 2019, pp. 17-19.

For more information on how Standards Australia can respond to proposals for new DER technical standards, see the explanatory material available on Standards Australia's website.[68]

68 http://www.standards.org.au