AEMC

RULE

Australian Energy Market Commission

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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17 MARCH 2022

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 As Australians continue to buy and install distributed energy resources (DER) at record rates — including rooftop solar PV, battery storage systems, and electric vehicles — the technical standards for how these devices perform in various circumstances is becoming increasingly relevant to the security, reliability, and affordability of power supply in the national electricity market (NEM).

2 Technical standards refer to established requirements for DER products and involve common and repeatable rules, guidelines or characteristics. For example, minimum inverter standards reduce the likelihood of solar PV systems automatically disconnecting from the power grid by improving the ability of these devices to continue exporting power during minor voltage fluctuations on distribution networks.

3 The Commission appreciates stakeholders' strong interest in immediate action to support the development and implementation of DER technical standards. Accordingly, the Commission has set out the five distinct roles it considers essential to support the full realisation of DER's potential benefits for consumers. This includes a work plan to promote consumer interests at each stage of this critical issue for the energy transition:

- **Role one:** identify when new DER technical standards are needed. The AEMC will begin consulting with stakeholders upon the completion of this rule change process on its proposed terms of reference for considering the priorities from DER technical standards. The proposed scope of this work includes considering consumer interests and needs, interactions between the NER and other instruments, and clarifying existing roles and responsibilities for developing technical standards.
- **Role two:** actively work with the Energy Security Board (ESB) and the Australian Renewable Energy Agency (ARENA)'s Distributed Energy Integration Program (DEIP) to support existing work on DER technical standards. The AEMC will continue working with the ESB's DER implementation plan and ARENA's DEIP workstreams on interoperability and dynamic operating envelopes. This work will complement existing initiatives to identify the NEM's interests from new and updated DER technical standards.
- **Role three:** observe Standards Australia's DER committees to contribute to the established work program. The AEMC will expand its non-voting participation role in Standards Australia's DER-related committees such as those on electrical metering equipment, minimum inverter standards, and smart energy.
- **Role four:** update DER technical standards in the National Electricity Rules (NER). The AEMC will consider any rule change requests to add, update or amend technical standards in the NER, as required.
- **Role five:** report on progress adopting technical standards in the NER. In conjunction with the work planned under role one, the AEMC will also assess the NEM's progress adopting standards already introduced in the NER (such as minimum inverter standards). The proposed scope of issues under this role include compliance and enforcement, interpreting existing standards, and interactions between the NER and other regulatory regimes.

4 The Commission has also published draft terms of reference to carry out roles one and five. Following the conclusion of this rule change process, the Commission will work with stakeholders to finalise terms of reference and commence the review.

5 The work program outlined above (and described in this final rule determination) employs the Commission's existing capabilities. Specifically, the program relies on its abilities to:

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

6 These powers allow the Commission to consider how existing rules are achieving energy market objectives and the extent to which reforms may be needed.[1] The provisions provide some flexibility, including the ability to commission reports, publish discussion papers or draft reports. The Commission can also convene working groups consisting of external experts relevant to the issues under consideration. At the review's completion, the Commission is required to provide a copy of its report to energy ministers and publish the report online.

7 The Commission's final rule determination, consistent with its draft rule determination, is that using existing powers enables it to promptly commence its next stage of work on DER technical standards in a way that complements work already underway across other organisations. This approach aims to provide effective, targeted support for the development of DER technical standards to enable consumers and the NEM to gain from DER's potential benefits.

8 The final rule determination responds to a rule change request from Dr Kerry Schott AO, in her former capacity as Chair of the ESB, submitted in September 2020. According to the rule change request, new governance arrangements were needed to address:

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

9 The request proposed creating a standing committee under the NER to assess, and if needed make, DER technical standards for the NEM. Reporting to the Commission, 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 Commission on related issues.

10 The Commission considered the governance arrangements proposed in the rule change request. However, it was concerned the proposal's more rigid rule-based approach would be unlikely to contribute to the achievement of the national electricity objective (NEO) or the national energy retail objective (NERO). This is because it could result in greater complexities and costs for market participants, particularly DER device manufacturers and installers. This could, in turn, result in increased prices or reduced availability of DER devices for consumers in the local market. By contrast, making use of its existing powers allows the Commission to support the necessary work of other organisations for the NEM's DER integration in a flexible and timely manner that supports innovation in response to an evolving market and policy

1 Section 45 of the NEL and s. 232 of the NERL. While the ability to self-initiate a review is provided in each energy law, only the NEL and the NERL are relevant to DER technical standards.

context over time.

11 The Commission's final rule determination is therefore not to make a rule.

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1 CONTEXT AND RULE CHANGE REQUEST

This chapter provides context for the Commission's final rule determination, including the:

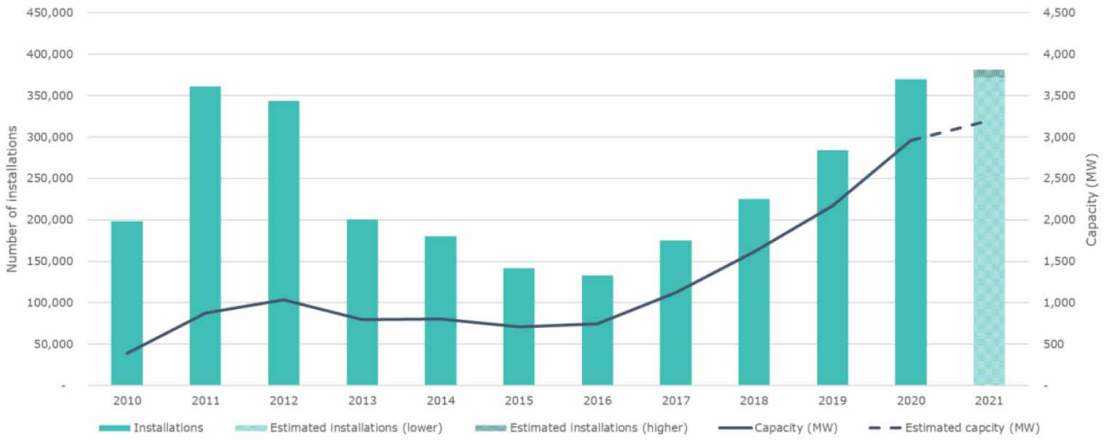
- market and policy context for distributed energy resources (DER) in the national electricity market (NEM)
- rule change request
- draft rule determination.

1.1 Market and policy situation

1.1.1 Consumers continue to install DER at record rates

The NEM is experiencing an unprecedented uptake of new DER capacity. As part of the transition to a more decentralised power grid, Australians have installed about 15 GW of rooftop photovoltaic (PV) capacity and more than 33,000 battery storage systems behind-the-meter. This includes more than 3 GW of new solar PV capacity in 2021 alone.[2]

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



Source: Clean Energy Regulator, *Quarterly carbon market report: September report*, 2021, p. 29.

The transition to a more decentralised power grid is expected to continue. For example, by 2050 the Australian Energy Market Operator (AEMO) forecasts there will be about 69 GW of DER capacity connected to the NEM. Consisting of residential and commercial rooftop PV, distributed battery storage and electric vehicles, this DER capacity will represent a five-fold increase on current levels over the next 30 years.[3] AEMO further forecasts that by 2050 the NEM's DER capacity will be producing about 90 GWh of power each year — enough to meet about one-fifth of total underlying power demand.[4]

2 Clean Energy Regulator, *Quarterly carbon market report: September report*, 2021, p. 26.

3 AEMO, *Draft 2022 integrated system plan*, 2021, pp. 35-36.

With this increased reliance on two-way power transfers, the NEM will need technical standards and/or market arrangements that allow DER's benefits to be realised for all. This will require consistent and appropriate technical standards that maintain choice of devices for those consumers installing DER capacity, while still maintaining secure and reliable power supply for all NEM consumers. 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 secure and reliable power supply for consumers through the energy transition.

1.1.2 Existing arrangements for DER technical standards

Existing arrangements in and outside the National Electricity Rules (NER) are relevant to the issues raised by the rule change request.

Existing arrangements in the NER

Since the rule change request was submitted, new DER technical standards came into effect in the NEM with the introduction of minimum inverter standards for DER devices connected to distribution networks.[5]

Made in response to a rule change request from AEMO, the new provisions in the NER:

- created DER Technical Standards for embedded generating units connecting to a distribution network through a micro EG connection service
- defined the term '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 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.[6]

4 AEMO, *Draft 2022 integrated system plan*, 2021, p. 36.

5 Commencing 18 December 2021, Schedule 5.12 of the NER sets out minimum requirements with DER technical standards in connection agreements between connecting parties and DNSPs, including minimum information requirements for standard agreements provided by DNSPs. "DER Technical Standards" are defined in Chapter 10 of the NER as the requirements for embedded generating units under Australian Standard AS4777.2:2020 as in force from time to time.

6 See clauses 5A.B.2, 5A.C.3, and Schedule 5A.1 of the NER.

Existing arrangements outside the NER

There are also arrangements outside the NER that may influence the development and introduction of DER technical standards. These are important to consider in responding to the current rule change request and 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 or updated DER technical standards.

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 seeks to maximise the value of DER for all energy users by identifying knowledge gaps and prioritising policy reforms.

Two DEIP workstreams are relevant to DER technical standards:

- **Interoperability**: the ability of different information technology systems, devices, and software applications to support two-way communication, use and exchange of data.[7]
- **Dynamic operating envelopes**: while customer imports and exports have historically been set at static levels in the NEM, dynamic operating envelopes allow customers and DNSPs to vary the amount of power imported and exported by individual customers as the distribution network's hosting capacity fluctuates throughout the day.

For more on ARENA DEIP's relevant DER workstreams, see the Commission's draft rule determination.[8]

ESB DER 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 for the NEM. 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.

On 18 December 2021, as part of its DER implementation plan, the ESB published a consultation paper on its approach to developing policy advice for DER technical standards. The paper focused on stage one of the ESB's considerations — inverter based resources for small-scale embedded generation units. The ESB's main aim was to seek stakeholder feedback on a proposed assessment framework for developing new or updated technical standards to support DER interoperability.

The proposed assessment framework included seven criteria for developing new or updated technical standards to support the interoperability of grid-connected inverters.

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7 According to AEMO, achieving interoperability for the NEM's DER devices would support accurate, effective, and consistent data exchanges between devices and systems: 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.

8 AEMC, *Governance of DER technical standards*, draft rule determination, 16 December 2021, pp. 4-6.

Further, the ESB's consultation paper considered the applicability for the NEM of 'CSIP-Aus'.[9] This refers to work being undertaken by ARENA DEIP to adapt, for Australian conditions, an international standard applied in California addressing inverter setting for solar PV and battery storage devices.[10]

The ESB's consultation paper also set out the process by which it intends to work with industry, jurisdictions and market bodies in coming weeks. This includes relying on the work of ARENA DEIP's interoperability workstream as a key input for its forthcoming policy advice.[11]

The ESB's DER implementation plan will continue to focus on technical standards to support the interoperability of grid-connected devices.

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.

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

- minimum inverter standards[12]
- wiring rules[13]
- secondary batteries[14]
- remote demand management of electrical products[15]
- smart energy (addressing IEEE 2030.5, an international technical standard that ARENA DEIP and the ESB are considering in the context of interoperability).[16]

For more on Standards Australia's activities and processes, see the Commission's draft rule determination.[17]

1.2 Rule change request

On 21 September 2020 Dr Kerry Schott AO, in her capacity as Chair of the ESB at that time, submitted a rule change request to introduce new governance arrangements for DER technical standards. Below summarises the:

9 ESB, *Interoperability policy for consultation: stage one — inverter based resources,* December 2021, p. 7.
10 CSIP-Aus (Common Smart Inverter Protocol) is the Australian derivation/implementation of the IEEE 2030.5 standard that has been mandated for inverter-based resources in California.
11 ESB, *Interoperability policy for consultation: stage one — inverter based resources,* December 2021, p. 7.
12 Standards Australia committee number EL-042.
13 Standards Australia committee number EL-001.
14 Standards Australia committee number EL-005.
15 Standards Australia committee number EL-054.
16 Standards Australia committee number EL-062.
17 AEMC, *Governance of DER technical standards,* draft rule determination, 17 December 2021, pp. 7 and 8.

- reasons for the rule change request
- proposed solutions
- consultation paper.

1.2.1 Reasons 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[18]
- a need for fast, flexible and transparent standard setting processes.[19]

1.2.2 Proposed solutions

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 national electricity objective (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.[20]

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.[21]

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[22]

18 Rule change request, p. 3.
19 Rule change request, p. 4.
20 Rule change request, p. 4.
21 Rule change request, pp. 4-5.
22 Rule change request, p. 6.

- 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 NEL, or
  - consultants
- the AEMC be required to develop and maintain a technical standards work program.

Further, the rule change request proposed the AEMC establish a committee to support its decision maker role.

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."[23] 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.[24]

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.[25]

The request acknowledged the unique regulatory arrangements in place in Victoria compared with other NEM jurisdictions. Accordingly, the rule change request suggested the Victorian

23 Rule change request, p. 7.
24 Rule change request, p. 6.
25 Rule change request, p. 7.

Government and the Essential Services Commission may need to consider how to implement new governance arrangements for DER technical standards in Victoria.[26]

1.2.3 Consultation paper

On 2 September 2021, the AEMC published a notice advising of its commencement of the rule-making process and consultation in respect of the rule change request.[27] A consultation paper identifying specific issues for consultation was also published. The Commission received 27 submissions in response.

1.3 Draft rule determination

On 17 December 2021, a draft rule determination in response to the rule change request was published. It noted and responded to the issues raised in submissions to the consultation paper and rule change request as well as other feedback received through meetings with stakeholders.

In the draft rule determination, the Commission identified:

- five DER technical standards roles needed to support DER's NEM integration
- the AEMC's ability to address the issues raised in the rule change request with its existing powers.

1.3.1 Five DER technical standards roles

The draft rule determination set out five distinct roles to support DER technical standards, DER integration, and the realisation of potential benefits from DER. In addition, it was noted that across these five roles, the AEMC can, as needed:

1. identify when the NEM needs new DER technical standards
2. work with the ESB and ARENA's DEIP to support existing work on DER technical standards
3. observe Standards Australia's DER committees
4. update DER technical standards in the NER
5. report on progress adopting technical standards in the NER.

The Commission stated it would undertake any of the five roles to the extent existing initiatives, such as the ESB's DER Implementation Plan and ARENA DEIP workstreams, are not already underway to identify or address the NEM's needs from new and updated technical standards.

Recognising the importance of timely action, the Commission committed to working proactively with other market bodies, industry representatives, and Standards Australia to determine priority issues for near-term action.

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26 Rule change request, p. 6.

27 This notice was published under s. 95 of the National Electricity Law and s. 251 of the National Energy Retail Law (NERL).

1.3.2 Existing powers can address issues raised in the rule change request

In the draft rule determination, the Commission concluded it could fulfil the five identified roles as needed by using its existing powers. That is, no new rules are required. Specifically, the AEMC could address DER technical standards by using its:

- ability to initiate a review[28]
- power to convene an independent committee.[29]

The Commission considered that using its existing powers would provide maximum flexibility to respond to widespread stakeholder interest in a more clearly defined, and extensive, work program to develop and implement DER technical standards in the NEM. In this way, urgent and necessary issues not being addressed elsewhere could be addressed. For example, the draft rule determination indicated that the AEMC could:

- initiate a review to address the substantive issues raised by the rule change request (such as identifying consumer interests from new technical standards and considering compliance issues)
- 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.[30]

As set out in the draft rule determination, the Commission considered this would meet the NEO and the national energy retail objective (NERO) by:

- supporting consumer outcomes
- reducing the administrative and regulatory burden of implementing reforms
- promoting market efficiency principles such as productive efficiency and dynamic efficiency.[31]

1.3.3 Reasons for the draft rule determination

In the draft rule determination, the Commission discussed three main reasons for its decision:

- **Significant time had elapsed since the rule change request.** Since the rule change request was submitted, there had been significant developments addressing DER technical standards in the NEM. This included new work by the ESB and ARENA. However, these initiatives alone did not address the entirety of issues raised in the rule change request. As a result, the Commission recognised the need to adopt a flexible approach to support DER's NEM integration.

28 Section 45 of the NEL and s. 232 of the NERL.
29 Section 39 of the NEL and s. 227 of the NERL.
30 AEMC, *Governance of distributed energy resources technical standards*, draft rule determination, 16 December 2021, p. 14.
31 AEMC, *Governance of distributed energy resources technical standards*, draft rule determination, 16 December 2021, pp. 21-22.

- **Avoid duplicating existing arrangements and initiatives.** Consistent with limiting the regulatory burden for market participants, the Commission sought to avoid duplicating work already underway by other organisations. By using its existing powers, rather than introducing bespoke governance arrangements through new rules, the Commission considered it would be able to fully address the issues raised in the rule change request. In addition, it would not be bound through the NER to act on an ongoing basis if this would duplicate work for market bodies and participating stakeholders.
- **There was a significant benefit from flexibly supporting DER technical integration.** While the continued uptake of new DER capacity in the NEM was clear, the full grid and consumer implications from this transition were still being collectively considered by the AEMC and others. This increased uncertainty did not diminish the need for action. However, it made it less preferable for the Commission to prescribe how the NEM's integration of DER should be managed. If the AEMC undertook its future DER work under new rules as proposed by the rule change request, the Commission expected such work to be limited to considering only the issues envisaged by the rule change request. The AEMC may not be able to fully consider all issues related to DER's technical integration that may arise in the future.[32]

The Commission was satisfied this alternative approach promoted the NEO to a greater degree than the request's proposed governance arrangements. It considered making a rule to implement the governance arrangements proposed by the rule change request would not promote the NEO or the NERO to the same extent. Accordingly, the draft rule determination was to not make a rule.[33]

1.3.4 Stakeholder submissions on the draft rule determination

The AEMC received twelve submissions on the draft rule determination. The Commission has considered all issues raised by stakeholders in submissions and in meetings with AEMC staff. These issues are discussed and responded to throughout this final rule determination and in appendix B.

32 AEMC, *Governance of distributed energy resources technical standards*, draft rule determination, 16 December 2021, pp. 16-19.
33 AEMC, *Governance of distributed energy resources technical standards*, draft rule determination, 16 December 2021, p. 18.

2 FINAL RULE DETERMINATION

Consistent with the draft rule determination, the final rule determination is to fulfil, as needed, five distinct DER technical standards to support the full realisation of DER's benefits. The Commission will use its existing powers to fulfil these roles. For the reasons set out in this chapter, and in the following chapters, its final rule determination is to not make a rule.

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.

Below, the Commission outlines why its final rule determination contributes to the NEO and NERO, as required by the National Electricity Law (NEL) and the National Energy Retail Law (NERL).[34] It also sets out why the governance arrangements proposed by the rule change request would not have contributed to the NEO and NERO.

Further information on the Commission's assessment of the rule change request is provided in the subsequent chapters of this final rule determination. The rule making test and assessment framework are set out in Appendix C.

2.1 Overview of decision

2.1.1 The AEMC will fulfil DER technical standards roles as needed

The AEMC will fulfil, as needed, the five DER technical standards roles it identified in the draft rule determination:

1. identify when the NEM needs new DER technical standards
2. work with the ESB and ARENA's DEIP to support existing work on DER technical standards
3. observe Standards Australia's DER committees
4. update DER technical standards in the NER
5. report on progress adopting technical standards in the NER.

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 long-term interests of consumers. The unprecedented and continuing uptake of new DER capacity in the NEM raises challenges, and opportunities, for fully realising consumers potential benefits from DER. Realising consumer benefits will require technical standard and/or market arrangements that both maintain consumer choice

34 In accordance with s. 88 of the NEL and s. 224 of the NERL, the Commission is required to assess the rule change request against the NEO and the NERO. See Appendix D.

over DER devices available in the local market, and support consumers' continued access to secure and reliable power supply. (for more, see section 1.1.1).

As explained below, 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.

The Commission considers roles one and five can be addressed by initiating a review upon the conclusion of this rule change process. As outlined in appendix A, the proposed scope for this work will include setting out NEM priorities from DER technical standards, and how these priorities interact with existing initiatives and regulatory processes. In this way, the AEMC will work with stakeholders to:

- clarify responsibilities for developing and implementing technical standards
- identify where further action might be needed to support the development and implementation of specific technical standards.

The Commission further considers it can continue fulfilling roles two and three through its day-to-day activities. Role four will be necessarily governed by the AEMC's process requirements for responding to rule change requests. For more on the rule change process, see Box 1.

For more on how the AEMC plans to fulfil each of these roles, see chapter 3.

2.1.2 The AEMC will use its existing powers

Where the AEMC needs to undertake any of the roles identified in this final rule determination, it will use its existing powers. Specifically, the AEMC will be able to use its:

- review power[35]
- power to establish a committee to provide advice.[36]

As explained below (section 2.2), using existing powers meets the NEO by supporting consumer outcomes, reducing the administrative and regulatory burden of implementing reforms and promoting productive and dynamic efficiency.

2.2 Summary of reasons

The Commission has decided not to adopt the governance arrangements proposed by the rule change request. Rather, it considers its existing powers as set out in the energy laws provide maximum flexibility to address the issues raised by the rule change request in a timely manner as sought by stakeholders. By contrast, it is not satisfied that the governance arrangements proposed by the rule change request would have contributed to the achievement of the NEO or the NERO.

Consistent with its approach in the draft rule determination, the reasons for the final rule determination are set out below in relation to:

35 Section 45 of the NEL.
36 Section 39 of the NEL.

- developments since the rule change request
- avoid duplicating existing governance arrangements and initiatives
- greater benefit from flexibly supporting DER technical integration.

2.2.1 Developments since the rule change request

The final rule determination accounts for the significant developments since the request was lodged to address DER technical standards in the NEM. These developments include ongoing work by the ESB and ARENA. As these existing initiatives address some, but not all, of the issues raised by the rule change request the Commission considers it appropriate to adopt a flexible approach to support DER integration's in the NEM. Such flexibility will also account for the diverse range of approaches for developing technical standards and publishing supporting materials offered by Standards Australia.[37]

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 or the NERO as it does not accommodate the changed circumstances regarding the integration of DER in the NEM. In addition, the Commission is not satisfied that the proposal will support the timely development of relevant DER technical standards for the benefit of the NEM and consumers.

Consequently, the Commission has considered alternative solutions to that proposed which support the development of DER technical standards that will enable DER to be successfully integrated into the NEM. 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.

The approach set out in this final rule determination is expected to meet the NEO by supporting a proportionate and necessary work program by the AEMC with the aim of achieving successful and timely DER integration in the NEM for the benefit of electricity consumers.

As described in this final rule determination, the AEMC will make use of its existing powers to respond to stakeholder and NEM issues as they emerge over time. The initial focus will include work to consider the NEM's priority needs from DER technical standards and how these priorities interact with existing initiatives and regulatory arrangements.[38] Without the need to establish, and then maintain, a standing committee, the AEMC is able commence its work program promptly.

In addition, the final rule determination approach will allow the AEMC to work with other market bodies and complement their work programs, providing the opportunity for the AEMC to focus on actions that best supports the integration of DER into the NEM. The Commission considers this approach reduces the regulatory burden on market participants and, ultimately, consumers.

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37 For more on Standards Australia's processes and publications, see AEMC, *Governance of distributed energy resources technical standards*, draft rule determination, 16 December 2021, pp. 7-8.

38 For more on the AEMC's work plan, see section 3.1.

2.2.2 Avoid duplicating existing governance arrangements and initiatives

Consistent with limiting the regulatory burden for market participants, the final rule determination enables an AEMC work program that avoids duplicating work already underway by other organisations. This will support 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 final rule determination seeks to meet consumer needs by reducing 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 final 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.

By contrast, creating duplicate standards development processes as proposed by the rule change request risked requiring manufacturers to participate in parallel consultation processes. It created a potential for inconsistency between the outcomes of a standards process convened by the AEMC and the regulatory uplift of standards developed by Standards Australia through jurisdictional regimes. For example, some DER standards updates published by Standards Australia are incorporated into prevailing regulatory regimes outside the AEMC's energy market frameworks.[39] Standards development by the AEMC, absent further reform, risked duplicating these regimes as the AEMC would have been unable to change regulatory outcomes in jurisdictional regimes beyond the NER. With more regulatory complexity and additional technical standards required to be able to sell DER devices in the local market, it would be possible that consumers would have a smaller range of products available. Such complexity could also create upward pressure on device prices. This is a further reason the Commission considered the arrangements proposed in the rule change request were inconsistent with achieving the NEO.

2.2.3 Greater benefit from flexibly supporting DER technical integration

While the strong growth in new DER capacity is continuing as forecast (see section 1.1.1), 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 uncertainty does not diminish the need for action. However, it makes it less preferable for the AEMC to unilaterally prescribe how the integration of DER in the NEM should be managed.

The AEMC can use its existing powers to conduct a review into the operation and effectiveness of the NER or any matter relating to the NER, which is a broader scope than provided by the proposed governance arrangements, to address the market's needs at a future point in time.[40] 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. Such work could

39 For example, several jurisdictional regimes incorporate updates to Australian Standards 3000 on the wiring rules for electrical installations.

40 Section 45 of the NEL.

overlap with further work refining NER requirements for small-scale generators, such as the minimum inverter standards under AS 4777.2 (see section 1.1.2). 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. The Commission considers that this ability to focus its work program on the needs of the NEM and consumers at the time is important to achieve successful DER integration that is consistent with achieving the NEO.

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 that may emerge in the future 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.

The rule change request proposed that the NER 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. It is also concerned that working with stakeholders to implement such detailed rules would unnecessarily delay progress on DER technical standards issues that already concern stakeholders.

Where there is a need for a committee or working group in the future, the AEMC may use its existing statutory powers to establish one.[41] The AEMC's ability 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 or group (or to be able to seek any other external expert advice) is consistent with achieving the NEO.

By maintaining flexibility to support the technical integration of new DER capacity in the NEM, the final rule determination promotes two types of market efficiency relevant to achieving the NEO; productive and dynamic efficiency.

Productive efficiency is promoted by governance arrangements that provide maximum flexibility to device manufacturers 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 final 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 is the risk of updating standards 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.

41 Section 39 of the NEL.

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 equipment manufacturers over time.

Efficiency principles are further supported by the final rule determination, allocating risk to those parties best suited to managing or mitigating these risks. For example, the final rule determination recognises Standards Australia's role in developing new and 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.

3 FIVE DER TECHNICAL STANDARDS ROLES

The Commission considers that there are five distinct roles on DER technical standards that are essential to support the timely realisation of benefits from the integration of DER into the NEM for consumers. This view is consistent with that set out in the draft rule determination.

Below, each role is summarised. The chapter also explains how this approach will address the issues raised by stakeholders in response to the draft rule determination.

3.1 How will the AEMC fulfil each role?

The final rule determination confirms five roles to fully realise DER's benefits:

1. identify when the NEM needs new DER technical standards
2. work with the ESB and ARENA's DEIP to support existing work on DER technical standards
3. observe Standards Australia's DER committees
4. update DER technical standards in the NER
5. report on progress adopting technical standards in the NER.

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 DER uptake 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.

The Commission confirms work under role one will begin upon completing this rule change process. Using its existing powers it will, in consultation with stakeholders, consider:

- existing activities in relation to DER technical standards
- NEM-wide priorities for new DER technical standards, including consumer interests from new and updated standards
- existing roles and responsibilities for developing DER technical standards, including progress on priority issues such as interoperability and cyber security
- interactions between the NER and existing priorities and processes being progressed by market bodies, consumers, industry representatives, and others
- the potential need for new work developing DER technical standards.

The Commission has published draft terms of reference (see appendix A) as an appendix to this final rule determination. It will consult with stakeholders on this proposed scope to

further refine the issues for consideration in this first proposed DER technical standards review.

3.1.2 Role two: work with the ESB and ARENA's DEIP to support existing work on DER technical standards

The AEMC will continue to prioritise work with the ESB's DER Implementation Plan and ARENA DEIP's workstreams on interoperability and dynamic operating envelopes. This work will focus on identifying the NEM's interests from new and updated DER technical standards.

Rather than replicating the ESB and ARENA DEIP work, the AEMC can support the existing initiatives occurring by:

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

This second 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.

The AEMC confirms it will continue working with both the ESB and ARENA's DEIP. This will include providing input to the ESB's consideration and development of interoperability standards for DER devices.

3.1.3 Role three: observe Standards Australia's DER committees

The AEMC is fulfilling role three by participating in Standards Australia's DER technical committees as an observer — that is, a non-voting member. The AEMC is currently an observer on Standards Australia's working group for AS 4777.2 (minimum inverter standards for small-scale generators).[42]

By expanding the AEMC's participation in other DER-related committees, the AEMC will be able to contribute to Standards Australia's work program by providing perspectives to working groups on NEM issues and priorities. This can help technical committees better understand NEM-wide interests from standards development, including consumer-oriented analysis in accordance with the NEO and support prioritisation of the work needed to develop standards.

To undertake this role the AEMC is an observing member of the DER technical committees on:

- electrical metering equipment[43]
- minimum inverter standards[44]
- 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)[45]

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42 For more on Standards Australia's DER committees see AEMC, *Governance of distributed energy resources*, draft determination, 16 December 2021, pp. 7-8.

43 EL-011.

44 EL-042.

45 EL-062.

The Commission can observe Standards Australia's DER technical committees as part of its ongoing operations. It will provide stakeholders with a periodic update on its committee membership, including confirmation of the specific committees it is observing.

3.1.4 Role four: update DER technical standards in the NER

Once technical standards are developed, by Standards Australia or international organisations such as the IEEE, the AEMC is able to update the NER as required so that standards apply across the NEM. In this capacity, the AEMC will respond to rule change requests to add, update or amend technical standards or other requirements in the NER. Responses to rule change requests will be determined in accordance with the NEO.

The AEMC will respond to rule change requests according to established processes under the NEL, NGL, and NERL. For more on the rule change process generally, see Box 1.

BOX 1: HOW DOES THE AEMC'S RULE CHANGE PROCESS WORK?

The AEMC makes and amends the rules for the energy markets under the NEL, the NERL, and the NGL. These rules impact on how market participants can operate in the competitive energy sectors; provide specific protections for consumers to whom energy is sold and supplied; and also govern the economic regulation of electricity transmission and distribution services and gas pipelines. The rules play a central role in governing how the energy market operates. However, there are also a number of other regulations which influence outcomes in the energy market, for example state regulations, state retail laws and renewable energy targets.

Stakeholders can shape the design and regulation of the NEM by participating in the rule change process, including by submitting rule change request. Any party, except the AEMC, can propose a change to the rules. Rule changes that are recommended as part of an AEMC review can also be requested by any party.

In the context of DER technical standards, the rule change process has been successfully used to mandate compliance with prevailing minimum inverter standards published by Standards Australia.

There are a number of formal stages in a standard rule change process:

- the proponent submits a rule change request
- the AEMC commences the rule change process and seeks submissions on the rule change request
- stakeholders (including the proponent, if they wish) lodge submissions on the rule change proposal
- the AEMC publishes a draft rule determination and seeks submissions on the draft rule determination
- stakeholders (including the proponent, if they wish) lodge submission on draft rule determination

- the AEMC publishes a final rule determination.

Consultation with stakeholders is not limited to written submissions; it may include meetings, workshops, and public forums as needed. The timeframe for a standard rule change process is approximately six months from the publication of a consultation paper on the proposed rule to the final rule determination; however this timeframe can be extended in certain circumstances. Under the standard process there are two opportunities for stakeholders to make written submissions in advance of the draft and final determinations.

Source: AEMC, *The rule change process: a guide for stakeholders*, 2017; AEMC, *Distributed energy resources technical standards*, rule determination, 25 February 2021.

3.1.5 Role five: report on progress adopting technical standards in the NER

The AEMC will enact role five by assessing the NEM's progress adopting standards that have already been introduced in the NER. Specifically, it will consider recently introduced or updated DER technical standards in the NEM such as minimum inverter standards for micro embedded generation units. The Commission intends to report on the effectiveness of technical standards being implemented in the NER. It will also consider existing standards' contribution to the NEM's overall technical integration of DER.

After completing this rule change process, the AEMC will fulfil role five by using its ability to initiate a review that will consider the NEM's adoption of existing DER technical standards in the NER. The Commission anticipates that it could consider issues such as:

- compliance with, and enforcement of, technical standards in the NER (i.e. minimum inverter standards for DNSPs and customers), including consumer perspectives
- interpreting DER technical standards, including processes for resolving differing interpretations
- interactions with other regulatory regimes and the overall impact on NEM outcomes.

These implementation issues will be relevant to minimum inverter standards and, potentially, future technical standards that might be introduced in the NER. Acting on role five will be carried out in combination with role one (described above at section 3.1.1). For more on the Commission's proposed approach, see the draft terms of reference at appendix A that will be consulted upon following the conclusion of this rule change process.

3.2 Stakeholder views

This section outlines stakeholder views expressed in response to the draft rule determination. The following section then responds to the points raised.

Most stakeholders supported the five roles on DER technical standards the AEMC identified as necessary to realise DER's benefits for the NEM and consumers.[46] However, there some

46 Submissions to the draft rule determination: Ausgrid, Clean Energy Council, Energy Networks Australia, Electric Vehicle Council, South Australia Department for Energy and Mining, Standards Australia, and Tesla.

stakeholders who expressed concern about the approach set out in the draft rule determination.

3.2.1 Supportive submissions

The Electric Vehicle Council and Ausgrid supported Standards Australia remaining the primary forum for developing new technical standards.[47] The Electric Vehicle Council was particularly supportive of Standards Australia's ability to apply international insights on technical standards, based on its institutional relationships with international standards-setting organisations such as the Institute of Electrical and Electronics Engineers.[48] It further noted its view that, given Australia's slower adoption of electric vehicles than comparable economies, creating bespoke local standards for electric vehicles would risk higher costs for consumers, reduced competition, more consumers using 'general purpose outlets' instead of specialised charging infrastructure, and reduced ability for consumers to benefit from the local adoption of international best practice.[49]

Ausgrid envisaged the AEMC's contributions complemented the efforts of Standards Australia or other relevant standard setting bodies.[50]

While Tesla largely supported the five roles identified in the draft rule determination, it also wanted the AEMC to consider roles and responsibilities of entities responsible for developing and implementing technical standards, the costs and incentives of specific DER technical standards, and the provision of a DER roadmap focused on implementing DER technical standards in the NEM.[51]

Similarly, the Clean Energy Council wanted to make sure the AEMC's roles addressed:

- roles and responsibilities for DER technical standards (including jurisdictional interactions with the NER)
- responsibility for developing a DER technical standards roadmap or work program
- how to integrate DER technical standards in the NER
- the economic impact of proposed technical standards.[52]

3.2.2 Concerned submissions

A minority of stakeholders raised concerns about certain aspects of the roles identified in the draft rule determination.[53]

Energy Consumers Australia (ECA) was concerned that the overall governance arrangements in place risks leaving a gap between setting standards and consumer outcomes. For example,

47 Submissions to the draft rule determination: Energy Networks Australia and the Electric Vehicle Council.
48 Electric Vehicle Council submission to the draft rule determination, p. 4.
49 Electric Vehicle Council submission to the draft rule determination, p. 4.
50 Ausgrid submission to the draft rule determination, p. 2.
51 Tesla submission to the draft rule determination, p. 1.
52 Clean Energy Council submission to the draft rule determination, p. 1.
53 Submissions to the draft rule determination: Energy Consumers Australia, Enphase Energy, and the Smart Energy Council.

the ECA considered that it was unclear how consumers will be engaged during upcoming work on voltage export limits and congestion pricing exports.[54]

The ECA was also concerned about relying only on ARENA's DEIP to identify the NEM's priorities from standards. In its words:[55]

> While the role of DEIP, led by ARENA, provides important input, we still see a broader need for coordination of a separate standing governance arrangement and would advise against relying on DEIP solely. Firstly, because the group is not representative of all stakeholders that may need to be involved in the decision-making process, and secondly, the longevity of DEIP is not guaranteed and we are concerned about the future implications on relying on an externally funded group.

In addition, the ECA was concerned that if the AEMC relies on Standards Australia to develop DER technical standards, it does not have the capability or resources to participate in standard setting processes as presently organised. As a result, the ECA considered that, for example, consumer outcomes were not evidently considered in the recent development of minimum inverter standards.[56]

Enphase Energy sought more detail on how the AEMC would work with Standards Australia as an observing member of its technical committees. Concerned Standards Australia is not transparent enough, it considered that the AEMC's participation as an observing member would be insufficient to address the issues raised by the rule change request.[57]

Ausgrid supported a committee convened by the AEMC to make sure that, where standards are being developed, there is a robust assessment of the costs and benefits of these changes across the system, including but not necessarily limited to manufacturers, networks and customers.[58]

According to the Smart Energy Council, the five identified roles do not afford DER technical standards enough importance.[59] In particular, the Smart Energy Council was concerned that a lack of forward planning by the AEMC would be particularly costly for consumers because of the expected increase in electric vehicle sales.

In addition, the Smart Energy Council was concerned the AEMC's proposed participation in Standards Australia's DER technical committees suggests that organisation as the only way of developing standards.[60] The Smart Energy Council was further concerned about the ESB contributing to the development of DER technical standards on the basis it lacks legal authority and therefore has no accountability. It therefore expressed its interest in a body "to look forward to new DER standards (which could be developed in a variety of flexible ways)".[61]

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54 ECA submission to the draft rule determination, p. 2.
55 ECA submission to the draft rule determination, p. 3.
56 Australian Standard 4777.2:2020.
57 Enphase Energy submission to the draft rule determination, pp. 1-2.
58 Ausgrid submission to the draft rule determination, p. 3.
59 Smart Energy Council submission to the draft rule determination, p. 2.
60 Smart Energy Council submission to the draft rule determination, p. 4.

While largely supporting the identified roles, Tesla was nevertheless concerned about relying on Standards Australia to develop new technical standards, on the basis the organisation is insufficiently resourced. Tesla suggested a well-resourced agency should be responsible for setting standards from start to finish, including providing implementation advice on existing standards.[62]

3.3 Commission's response

Noting the comments and issues raised by stakeholders on the draft rule determination, this section sets out the Commission's responses. The AEMC's final rule determination confirms its support for the roles for DER technical standards that support DER integration in the NEM. It further confirms the place of these roles in the AEMC's prioritisation of work on DER technical standards, as part of its broader emphasise on integrating DER capacity in the NEM.

3.3.1 Roles allocate risks to best suited parties

As noted by several stakeholder submissions, the five roles identified by the Commission with respect to DER technical standards will support the NEM's overall efforts to integrate record amounts of new DER capacity.

As the Electric Vehicle Council and Energy Networks Australia recognise, Standards Australia is better placed than the AEMC to convene committees specialising in the development of DER technical standards. By acknowledging a specialist organisation's ongoing responsibility for developing new technical standards, the final rule determination provides the governance flexibility needed to promote more efficient outcomes for consumers. In particular, Standards Australia's ability to leverage its institutional relationships with international standards organisations. This promotes the adoption of international best practice approaches to local standards development. For example, the increased uptake of electric vehicles will provide Australia's regulatory decision-makers with the opportunity to learn from jurisdictions with higher uptake rates. Standards Australia is better placed to leverage these insights than a committee convened by the AEMC, given the AEMC's lack of institutional relationships and prior standard setting experience.

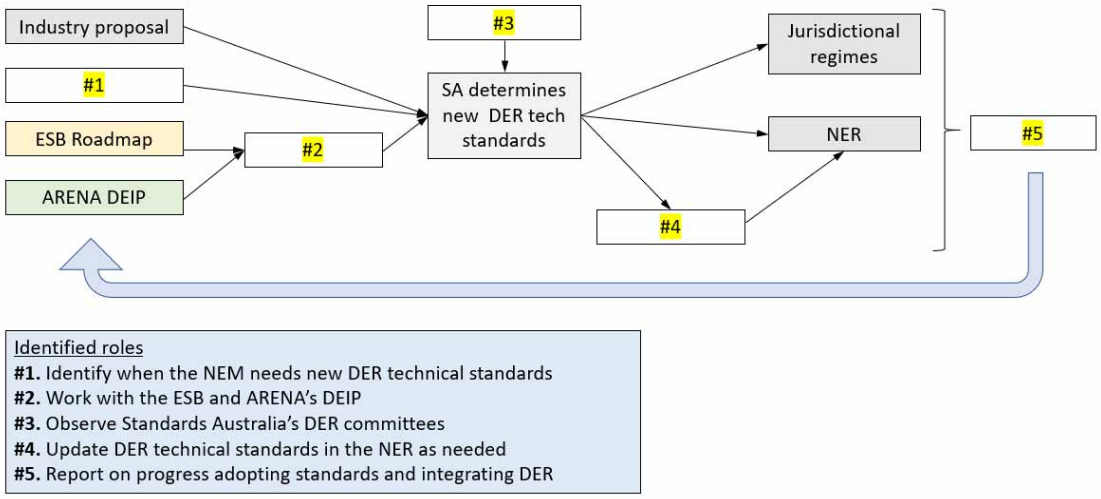
By contrast, the approach set out in this final rule determination recognises the AEMC's longstanding responsibility for making and reviewing the rules governing the NEM — the AEMC is a specialist energy sector organisation. For this reason, value that the AEMC can add to DER technical standards development is in using its market experience and stakeholder consultations to refine energy sector priorities from DER technical standards. With the ESB, AEMO and others, the AEMC will report on these shared objectives, conveying the resulting energy sector perspectives to Standards Australia's specialist committees as required, and then actively assessing and reporting on the NEM's progress adopting these standards.

As Figure 3.1 illustrates, the five identified roles complement rather than duplicate existing initiatives and responsibilities.

61 Smart Energy Council submission to the draft rule determination.

62 Tesla submission to the draft rule determination, p. 3.

Figure 3.1: Five roles complement, rather than duplicate, existing initiatives



Source: AEMC.

The Commission notes the Clean Energy Council's and Tesla's interest in clearly setting out existing roles and responsibilities for developing and implementing DER technical standards, including responsibility for technical standards in the NER being considered from an economic efficiency perspective.

The AEMC is able to use its existing capabilities to undertake work with the aim of providing greater clarity about the roles and responsibilities of various entities that are involved in the development and implementation of technical standards. Its forthcoming work based on roles one and five, for example, will consider the interaction between the NEM's priorities for standards and existing regulatory regimes (for more, see section 3.1). Role one, in particular, addresses the Smart Energy Council's interest in a body separate to the ESB taking responsibility for considering the NEM's future needs from DER technical standards.[63] This is in addition to the AEMC's existing ability to introduce DER technical standards through the rule change process, where the Commission is required to consider efficiency considerations (for more on the rule change process, see Box 1).

3.3.2 Flexible approach to promote efficiency in a rapidly evolving market

The Commission acknowledges Energy Consumers Australia's concern that the governance arrangements may leave a gap between standards development and consumer interests. However, as discussed in the final rule determination, the Commission seeks to incorporate consumer interests at each stage of developing and implementing technical standards. It considers that this can be achieved more effectively without the introduction of a standing committee under the NER.

63 Smart Energy Council submission to the draft rule determination, p. 7.

For example, the identification of the NEM's needs from DER technical standards will be carried out against assessment frameworks based on the NEO. In addition, when observing Standards Australia's technical committees, the AEMC will focus its efforts so that consumer perspectives are being considered, including through complementary consultations with organisations such as Energy Consumers Australia. Any decision to implement standards through the NER will, by necessity, be determined in reference to consumers' long-term interests.

Similarly, by clarifying its commitment to work with existing initiatives like ARENA's DEIP, the Commission seeks to balance stakeholder certainty against the NEM's efficiency interests from avoiding duplication. This approach enables the AEMC to adapt where the work programs of other organisations change over time and act on any complementary tasks that are needed to support efficient DER technical standards for the NEM.

In the final rule determination, the AEMC confirms its view that all five identified roles are essential to fully realise DER's benefits. Where gaps emerge from, for example, ARENA's DEIP activities changing over time, the Commission commits to taking action that is necessary to achieve the overarching objective of developing relevant DER technical standards for the NEM. The Commission considers this flexible approach to fulfilling each role promotes dynamic efficiency by allowing it to tailor activities over time as the DER policy context evolves.

3.3.3 Innovation is a consideration

The Commission recognises the need to prioritise DER technical standards as part of the NEM's overall integration of increasing DER capacity. This includes considering technical standards in the context of needing to promote innovation and expand on the capability of DER devices. Promoting innovation is in consumers' long-term interests by maximising the number of DER devices sold in the local market and putting downward pressure on device prices for consumers.

In this sense, contrary to concerns from the Smart Energy Council, the Commission's views on the roles set out in this final rule determination seek to be adaptive to maximise the support for innovation, recognising the importance that continued development of standards will enable consumers to capture the benefits of the energy transition in the NEM.

By contrast, the more rigid rule-based approach envisaged by the rule change request and supported by some stakeholders, may have resulted in a reduction in the range of DER devices sold in the local market if it was implemented. The Commission also considers the proposal risked putting upward pressure on device costs. This is because of the risk that developing DER technical standards through an AEMC committee in addition to Standards Australia, would have increased the regulatory complexity for device manufacturers and service providers. While the Commission recognises some standards updates can be implemented remotely, it is far from certain (and unlikely) that all future updates to DER technical standards could be introduced without at least some changes to manufacturing processes being required among at least some manufacturers.

Enphase Energy was concerned that the AEMC observing technical committees was an insufficiently active role given the importance of DER technical standards to the energy transition. The AEMC acknowledges the importance of addressing DER technical standards to realise DER's benefits for consumers in the NEM. This is a key consideration for the Commission in its response to the rule change request.

However, rather than indicating its view on the prioritisation of technical standards, or attempting to override existing expertise that sits in the electricity sector, the Commission has developed an approach and identified roles that recognise its unique responsibility to implement standards in the NER as the NEM's rule-maker. Observer status distinguishes the AEMC from industry participants in the standards development process, who might wish to advocate certain positions. Unlike industry participants, for example, the AEMC will not vote on decisions through the process. However, the AEMC will otherwise fully engage with Standards Australia's DER committees and provide a view and advice of NEM-wide perspectives relating to DER development and issues to aid in the decision-making process.

In addition, the Commission considers its aim to aid in streamlining the identification of NEM priorities from DER technical standards is useful and addresses concerns about the resourcing available for standards development committees.

The AEMC further acknowledges that while Standards Australia is the established Australian standards setting organisation, nothing in the final rule determination seeks to enforce Standards Australia (or any other standard setting organisation) as the only means by which new DER technical standards can be updated. Instead, the basis for the AEMC being able to observe Standards Australia's DER committees is to contribute to improve current processes and practices, in the long-term interests of consumers, where standards development is already underway. As with other aspects of this final rule determination, the Commission is seeking to continue to prioritise its contribution to DER technical standards development and implementation by complementing and supporting existing work programs of relevant organisations.

Similarly, the Commission considers its cooperation with the ESB's activities on interoperability is a further opportunity to complement work already underway as well as promote innovation through the development and implementation of DER technical standards.

4 EXISTING POWERS

Where the AEMC carries out any of the five roles described in this final rule determination, it will do so using its existing powers. These legal powers include the AEMC's ability to:

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

Consistent with the draft rule determination, this chapter sets out the relevant requirements and obligations for these powers and how they address the issues raised in this rule change process.

4.1 AEMC-initiated reviews

The AEMC's review power allows it to consider how existing rules are achieving the energy market objectives and the extent to which reforms may be needed.[64] The focus of the NEO and NERO are the efficient investment in, and operation and use of, electricity services and energy 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.[65]

The provisions enabling the AEMC to initiate a review provides it with some flexibility. Specifically, it may commission reports, publish discussion papers or draft reports during the review. In conducting a review, the AEMC may convene working groups consisting of any persons considered relevant to the issues under consideration.[66] The Commission can also engage external consultants and other independent experts to support with specific functions from time to time.

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 required to fulfil roles one and five. The limit to any reviews is ensuring the issues considered relate to the NER and the NERR.

On completing a review, the AEMC is required to provide a copy of its report to energy ministers and publish the report online. At the review's outset, the Commission sets out the review's scope and other details on how the review will operate by publishing terms of reference.[67] For a further discussion of the AEMC's review power, see the draft rule determination.[68]

64 Section 45 of the NEL and s. 232 of the NERL. While the ability to self initiate a review is provided in each of the energy laws, only the NEL and the NERL and relevant to DER technical standards.

65 AEMC, *Applying the energy market objectives*, 2019, p. 4.

66 Section 45(3) of the NEL and s. 232 of the NERL.

67 Section 45 (4) of the NEL and s. 232(4) of the NERL.

68 AEMC, *Governance of distributed energy resources technical standards*, draft rule determination, 16 December 2021, pp. 33-37.

4.2 Forming a committee

Under the NEL and the NERL, the AEMC can establish committees, panels and working groups to:[69]

- 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
- any other functions conferred on the AEMC under the relevant law or rules.[70]

In the DER technical standards context, 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 committee to consider, to the extent of its functions, broader DER technical integration issues.

Alternatively, the AEMC can establish a group to act as a 'steering committee' or 'advisory group' based on specific issues arising as the review progresses. Such a group could provide broad industry perspectives on issues and potential solutions.

For more on the AEMC's ability to form a committee, see the draft rule determination.[71]

4.3 Stakeholder views

As set out below:

- most stakeholders responding to the draft rule determination sought the AEMC to act immediately to fulfil the articulated DER technical standards roles
- the AEMC's existing powers enable immediate action to be taken.

4.3.1 Most stakeholders seek immediate action

Most stakeholders — both those supportive and concerned about the AEMC's reliance on existing powers — requested that the AEMC act on DER technical standards. As discussed below, those stakeholders supportive of the AEMC using its existing powers to fulfil DER technical standards roles mostly based this position on the assumption the AEMC will act immediately. Conversely, many of the stakeholders who were concerned about aspects of the draft rule determination approach were sceptical the AEMC would act unless compelled by NER provisions such as those proposed by rule change request.

69 Section 39 of the NEL and s. 227 of the NERL.
70 Section 29 of the NEL and s. 221 of the NERL.
71 AEMC, *Governance of distributed energy resources technical standards*, draft rule determination, 16 December 2021, pp. 37-39.

Supportive submissions

Some stakeholders supported or accepted the AEMC using its existing powers to address DER technical standards.[72]

According to the Electric Vehicle Council, the AEMC using its existing powers avoids governance duplication and maintains sufficient flexibility to fully realise DER's benefits.[73]

Ausgrid and the Clean Energy Council argued that the AEMC should use its existing powers immediately.[74] Ausgrid also expressed an interest in the AEMC immediately taking action by establishing a committee with a membership balance as proposed in the rule change request.[75]

Concerned submissions

Other stakeholders expressed concern about the AEMC using its existing powers to address the development of DER technical standards.[76]

The South Australia Department for Energy and Mining considered that the AEMC should establish a standing committee on DER technical standards under the NER.[77] Energy Networks Australia also preferred a standing committee on DER technical standards established under the NER, on the basis it would be more durable than the AEMC using its existing powers.[78] However, distinct from the rule change request, Energy Networks Australia suggested the AEMC's DER committee be unconstrained by a particular rule change request or review.[79] The Smart Energy Council also suggested the AEMC could broaden the issues considered by any committee established in response to the rule change request, beyond those issues considered by the request itself.[80]

According to the Smart Energy Council, the industry does not need maximum flexibility for innovation in the development and implementation of DER technical standards. Rather, it considered industry's priorities to be transparency and predictability. It therefore sought greater certainty about who is responsible for governing the development of DER technical standards and how they will carry out that role.[81]

The Smart Energy Council also considered that only governance arrangements written into the NER, explicitly targeting DER technical standards, can resolve the "complex mess" of existing governance arrangements.[82] According to the Smart Energy Council, the influence of

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72 Submissions to the draft rule determination: Ausgrid, Clean Energy Council, Citipower, Powercor and United Energy, Electric Vehicle Council, Rheem, Standards Australia.

73 Electric Vehicle Council submission to the draft rule determination, p. 2.

74 Submissions to the draft rule determination: Ausgrid and the Clean Energy Council.

75 Ausgrid submission to the draft rule determination, p. 1.

76 Submissions to the draft rule determination: Energy Consumers Australia, Energy Networks Australia, Enphase Energy, Smart Energy Council, and the South Australia Department for Energy and Mining.

77 South Australia Department for Energy and Mining submission to the draft rule determination, p. 2.

78 Energy Networks Australia submission to the draft rule determination, pp. 1-2.

79 Energy Networks Australia submission to the draft rule determination, p. 2.

80 Smart Energy Council submission to the draft rule determination, p. 10.

81 Smart Energy Council submission to the draft rule determination, p. 11.

82 Smart Energy Council submission to the draft rule determination, p. 2.

multiple jurisdictional regimes on the development and implement of DER technical standards is at least partly because of the lack of national governance arrangements.[83] It therefore requested the AEMC create a standing committee on DER technical standards under the NER with the same level of expert input and resourcing as the Reliability Panel. It considered such arrangements necessary to put downward pressure on consumer costs.

The Smart Energy Council was further concerned that the AEMC using its existing powers to implement technical standards — namely, the rule change process — would contradict its stated preference for flexibility in the draft rule determination.[84]

The ECA also saw value in the AEMC establishing a committee. According to the ECA, creating a standing body under the NER could fill the perceived governance gap between consumer interests and standards development. In its words:[85]

> Having an overarching governing body with the capacity to holistically investigate and review the intent of a technical standard from a consumer outcomes and consumer energy resources perspective requires knowledge and insights from many different stakeholders including: industry, consumer organisations, technical experts, technology providers and manufacturers, OEMs, jurisdictional governments, networks and retailers. As it currently stands, there is no body with this diverse representation.

Energy Networks Australia opposed the AEMC using its existing review power because of its ability to put reviews on hold.[86] Enphase Energy sought clarity on how frequently the AEMC would initiate a review.[87]

4.3.2 Commission's response

The Commission recognises stakeholder interest in the AEMC using its powers immediately. The final rule determination sets out the AEMC's work plan for DER technical standards. Detailed consideration of roles one and five will occur through an AEMC-initiated review. The AEMC is already supporting roles two and three as part of its day-to-day operations. Role four is a legislated requirement which the AEMC will undertake as required, in response to rule change requests submitted by stakeholders.

Efficiency promoted by resilient approaches to consultation in a rapidly evolving market

The Commission recognises some stakeholders' interest in forming a committee immediately using the AEMC's existing powers.[88]

Existing powers allow it to form committees, panels, and working groups in support of its functions. This means, for example, the AEMC could form a committee to support its consideration of the NEM's priorities from future DER technical standards. The requirement

83 Smart Energy Council submission to the draft rule determination, p. 9.
84 Smart Energy Council submission to the draft rule determination, p. 8.
85 ECA submission to the draft rule determination, p. 3.
86 Energy Networks Australia submission to the draft rule determination, pp. 1-2.
87 Enphase Energy submission to the draft rule determination, p. 2.
88 Submissions to the draft rule determination: Ausgrid, Energy Networks Australia, the Smart Energy Council, and the South Australia Department for Energy and Mining.

for committees to support the functions being undertaken by the AEMC suggests its operation, and broader market outcomes, would be better supported by tasking its members with considering specific issues as they arise. This contrasts with Energy Networks Australia's suggestion that the AEMC should convene a committee at the outset of its DER technical standards work program without reference to a specific rule change process or review.[89] It also contrasts with the suggestion from the Smart Energy Council that a committee could be established under the rule change request, but also be able to consider a greater range of issues than raised by the request as the market and policy context continues to evolve.[90]

The Commission considers the NEO's efficiency and innovation interests are best served by maintaining flexibility over the timing and membership composition of any committee on DER technical standards. It recognises stakeholder interest in creating a standing committee to bring together industry and consumer perspectives. In addition, external consultation and expertise in a variety of forms will prove highly useful as the AEMC fulfils DER technical standards roles. But the need for external consultation does not diminish the AEMC's priority to tailor any committee's composition and membership balance to a rapidly evolving market context. DER technical standards is a complex and broad-ranging topic requiring a multitude of perspectives and expertise. While the AEMC could seek to establish a comprehensively representative committee model at the outset, with a membership reflecting all the many potential interests before refining the scope of issues under consideration, the Commission considers the NEO best served by targeting consultations over time based on specific opportunities or problems.

In addition, promoting flexibility, including support for governance arrangements that are resilient to change over time, is part of its broader application of the energy market objectives in the NER, NGR, and NERR. The greater industry certainty sought by the Smart Energy Council about which organisation is responsible for developing and implementing DER technical standards is supported by the final rule determination setting out the AEMC's commitment to fulfilling, as needed, the five roles which address the development, implementation, and assessment of new and updated DER technical standards in the NEM.

Efficiency further promoted by complementary, rather than duplicate, governance arrangements

The final rule determination promotes productive efficiency by complementing, rather than duplicating existing initiatives in the development and implementation of DER technical standards.

The ECA expressed its preference for the creation of a standing body to fill perceived gaps between consumer interests and standards development.[91] The Commission confirms it will seek to engage with consumer interests, including consultations with the ECA, at each stage of its work program on DER technical standards. The complementary nature of the AEMC's

89 Energy Networks Australia submission to the draft rule determination, p. 2.
90 Smart Energy Council submission to the draft rule determination, p. 10.
91 ECA submission to the draft rule determination, p. 3.

work program allows it to contribute these perspectives to existing processes without creating inefficient governance duplication.

The Commission also notes the Smart Energy Council's support for the proposed governance arrangements as a way to address concerns about governance complexity arising under multiple regulatory regimes.[92] However, it further notes the AEMC's limited ability to introduce reforms beyond the national energy markets. Any attempt to create a new standing committee therefore risks adding to governance complexity, rather than simplifying these arrangements. That is, creating a new committee structure could result in layering further complexity and regulatory interactions for market participants to manage over existing standards development and implementation processes. Instead, the AEMC will use its powers to clarify interactions between the NER and other regulatory regimes in the context of specific technical standards. This will help consumers and other stakeholders better understand the actions they might need to take as the NEM's energy transition continues.

The AEMC will use its existing powers to support DER integration

Finally, the Commission confirms it will use its powers to support the development and implementation of DER technical standards as part of integrating DER into the NEM.

The Smart Energy Council expressed concern about the AEMC's reliance on the rule change process to update standards in the NER as required.[93] In response, the Commission notes its requirements under the NEL, as it observed in the draft rule determination, the AEMC is not able to affect or otherwise change the ability of proponents to submit rule change requests at any time.[94]

Some stakeholders were concerned about reviews being put on hold if they were self-initiated reviews.[95] While this has recently occurred for selected reviews for particular reasons, the Commission will work with stakeholders following this rule change process to refine the proposed scope of its work to support the NEM's successful integration of DER so it can be sucessfully carried out.[96]

92 Smart Energy Council submission to the draft rule determination, p. 2.

93 Smart Energy Council submission to the draft rule determination, p. 8.

94 For more on the rule change process, see Box 1.

95 Submissions to the draft rule determination: Energy Networks Australia and Enphase Energy.

96 For more on the AEMC's proposed work plan, particularly how it will identify the NEM's priorities from DER technical standards and assess the NER's progress adopting standards, see Chapter 3.

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
ENCRC	Energy National Cabinet Reform Committee
EMM	Energy Ministers' Meeting
ESB	Energy Security Board
GW	Gigawatt
GWh	Gigawatt hour
IEEE	Institute of Electrical and Electronics Engineers
MW	Megawatt
MWh	Megawatt hour
NEL	National Electricity Law
NEO	National electricity objective
NERL	National Energy Retail Law
NERO	National energy retail objective
NGL	National Gas Law
NGO	National gas objective

A DRAFT TERMS OF REFERENCE

This appendix sets out a draft terms of reference for an AEMC-initiated review on DER technical standards. Following the conclusion of this rule change process, the Commission intends to seek stakeholder comment on this draft to enable it to finalise terms of reference and commence the review.

Context

In the draft rule determination, the AEMC identified five distinct roles to support DER technical standards and integration, and realise the benefits of DER:

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) to complement existing efforts to identify the NEM's needs from DER technical standards
3. participating in Standards Australia's DER committees as observing members
4. updating DER technical standards in the NER, as required
5. reporting on progress adopting standards and integrating DER.

- In the draft rule determination, the AEMC also:
  - committed to undertaking each role to the extent it is not already being fulfilled by itself or others
  - noted it could fulfil roles 2, 3, and 4 through its ongoing operations and the rule change process
  - stated that the AEMC may self-initiate a review to carry out roles 1 and 5, and may form a committee, working group, or panel of independent experts in support, as needed.
- Under the NEL, the AEMC may conduct a review of the operation and effectiveness of the NER or any matter relating to the NER. Matters related to DER technical standards under existing NER provisions include:
  - Chapter 10: defining 'DER Technical Standards' in the NER
  - Schedule 5A.1: setting out minimum requirements for complying with DER technical standards in connection agreements between connecting parties and DNSPs, including minimum information requirements for standard agreements provided by DNSPs.

Trigger

- In response to the draft rule determination, many stakeholders supported the five identified roles on DER technical standards and the AEMC's commitment to making sure each role is being fulfilled by itself or others.
- The Commission has therefore decided to initiate a review of DER technical standards.

Review objectives

- The review's objective is to support DER's successful integration for the long term benefit of electricity consumers. It will do this by assessing the NEM's 'state of play' implementing DER technical standards and identifying necessary next steps for market participants, market bodies, and other relevant parties.
- The AEMC will conduct a review to:
  - identify existing activities in relation to DER technical standards
  - clarify the NEM's needs from new DER technical standards
  - report on progress on adopting and implementing DER technical standards across the NEM.
- This will allow the AEMC to consider existing work to develop and implement DER technical standards to support the NEM's continued transition. It will do this by identifying potential gaps requiring further action.

Scope

- In conducting the review, the AEMC will publish a report that:
  - identifies existing activities (and their prioritisation) regarding the introduction of DER technical standards, including the roles and responsibilities of organisations undertaking these activities
  - considers the progress made on implementing DER technical standards
  - identifies, and prioritises, any new work or action required to develop DER technical standards.
- In addition, the AEMC will:
  - engage with industry stakeholders, consumer representatives, relevant jurisdictional bodies, the Energy Security Board, Australian Energy Market Operator and the Australian Energy Regulator.
  - obtain advice as needed from market participants and/or independent consultants through committees, working groups, and reports as relevant.
  - provide a draft report for consultation before publishing a final report no later than 12 months from the date of commencing the review.

B SUMMARY OF OTHER ISSUES RAISED BY STAKEHOLDERS

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

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

STAKEHOLDER	ISSUE	AEMC RESPONSE
Compliance and enforcement		
Ausgrid	The AEMC should work with jurisdictional regulators to avoid fragmented technical standards for DER devices being implemented across the NEM (p. 1)	As set out in the final rule determination, the AEMC will consider interactions between the NER and jurisdictional regulatory regimes. In support of this work, the AEMC can convene, as required, committees or other bodies of external experts to assist.
	A committee should consider how better compliance for DER technical standards can be achieved, including who should enforce these standards and whether the incentives for compliance are appropriate, Noted the overlap in roles and responsibilities between the CER, DNSPs, and jurisdictional regulators. Committee also consider the implications of jurisdictional differences, such as the contestability regime in NSW (p. 2)	
CitiPower, Powercor and United Energy	The AEMC should use the final rule determination to provide its view on the CER's role in assisting DNSPs with inverter compliance (p. 6)	Rather than considering the CER's role in this final rule determination, the AEMC will consider interactions between jurisdictional regulatory regimes and the NER in respect of specific technical standards, such as minimum inverter standards.
	Noted its view "the CER and CEC have more capacity and expertise to oversee enforcement of technical standards and	As indicated in the draft ToR, the AEMC will consider interactions between the NER and

STAKEHOLDER	ISSUE	AEMC RESPONSE
	ensure [DER technical standards] compliance among retailers and installers than alternatives such as the AER or [DNSPs]" (p. 6)	
	Most residential solar PV systems connected to Victorian DNSPs since January 2020 do not comply with mandated power quality response mode settings for smart inverters. In addition, some PV systems are exporting above limits agreed in the connection agreement. This non-compliance is said to "result in a decline in the value received by customers, impacts the quality of the electricity supply and may lead to higher network costs borne by all customers." Inverter non-compliance could also undermine DNSPs ability to contribute to system security during low operational demand. Non-compliance is occurring on Victorian networks despite education programs, information sessions, and training initiatives (pp. 1-3)	jurisdictional regulatory regimes to assess the NEM's progress adopting existing standards.
	Victoria's universal rollout of advanced metering infrastructure (smart meters) provides sustantial data on the three main causes of non-compliance with inverter standards: • manufacturer fault • solar installer fault • customer fault.	
	Amending the model standing offer and deemed distribution contract to protect customers, as proposed in the rule change request, would not protect customers with respect to	The AEMC will consider the progress of implementing DER technical standards through its planned work program. This is expected to include

STAKEHOLDER	ISSUE	AEMC RESPONSE
	installers or manufacturers as these participants are not bound by the contract or the rules (p. 2)	the organisations involved in the sector.
Electric Vehicle Council	Implementing existing DER technical standards is a bigger priority than developing new DER standards (p. 3)	
Enphase Energy	Compliance, enforcement, and standards interpretation are considerable issues to resolve. The AEMC should "investigate a way to effectively enforce the compliance with current and future" technical standards (p. 2)	
Tesla	Concerned by the lack of a dedicated adjudicating body advising on ambiguous aspects of an Australian Standard. No clear body if, for example, the industry wants to challenge interpretations of individual electrical inspectors. Multiple jurisdictional regimes in place (p. 2)	
Smart Energy Council	Proposed roles "do nothing" to address compliance and enforcement (p. 6)	
Other issues		
Rheem	While largely supportive of the draft rule determination, considered the AEMC could contribute to the development technical standards for interoperability and cyber security (pp. 1-2)	The AEMC will identify the NEM's priorities from new DER technical standards. It will also continue to support the development of policy recommendations and other consultative processes.
South Australia Department for Energy and Mining	AEMO should be empowered under the NER to develop certain DER technical standards in emergency contexts, for example if an urgent issues arises meaning that power system security would be adversely affected by relying on typical standards development processes (p. 2).	The AEMC will continue liaising with the South Australia Department for Energy and Mining, AEMO, and other stakeholders to address potential power system security issues arising at the distribution network level across NEM jurisdictions.

STAKEHOLDER	ISSUE	AEMC RESPONSE
	AEMO and DNSPs could be required under the NER to report on DER technical standards	The AEMC's workplan intends to consider a range of issues related to the development and implementation of DER technical standards, including the responsibilities of organisations.

C RULE MAKING TEST AND ASSESSMENT FRAMEWORK

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

C.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 NEO).[97]

The NEO is:[98]

> 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, 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 NERO.[99]

The NERO is:[100]

> 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").[101]

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.[102] If the Commission is satisfied that one test, but not the other, has been met, the rule cannot be made.

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

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97 Section 88 of the NEL.
98 Section 7 of the NEL.
99 Section 236(1) of the NERL.
100 Section 13 of the NERL.
101 Section 236(2)(b) of the NERL.
102 That is, the legal tests set out in s. 236(1) and (2)(b) of the NERL.

C.2 Assessment framework

In assessing the rule change request against the NEO and the NERO, the Commission considered the most relevant aspects of the NEO and NERO for this rule change request to be 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 C.1.

Table C.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

D 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 final rule determination.

D.1 Final rule determination

In accordance with s. 102 of the NEL and s. 259 of the NERL, the Commission has made this final rule determination in response to Dr Schott's request.

The Commission has determined not to make a final rule. Its reasons for making this final rule determination are set out in chapter 2.

D.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 received during the first and second rounds of consultation
- 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.[103]

D.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).[104]

The NT Act provides for an expanded definition of the national electricity system in the context of applying 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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103 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.

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